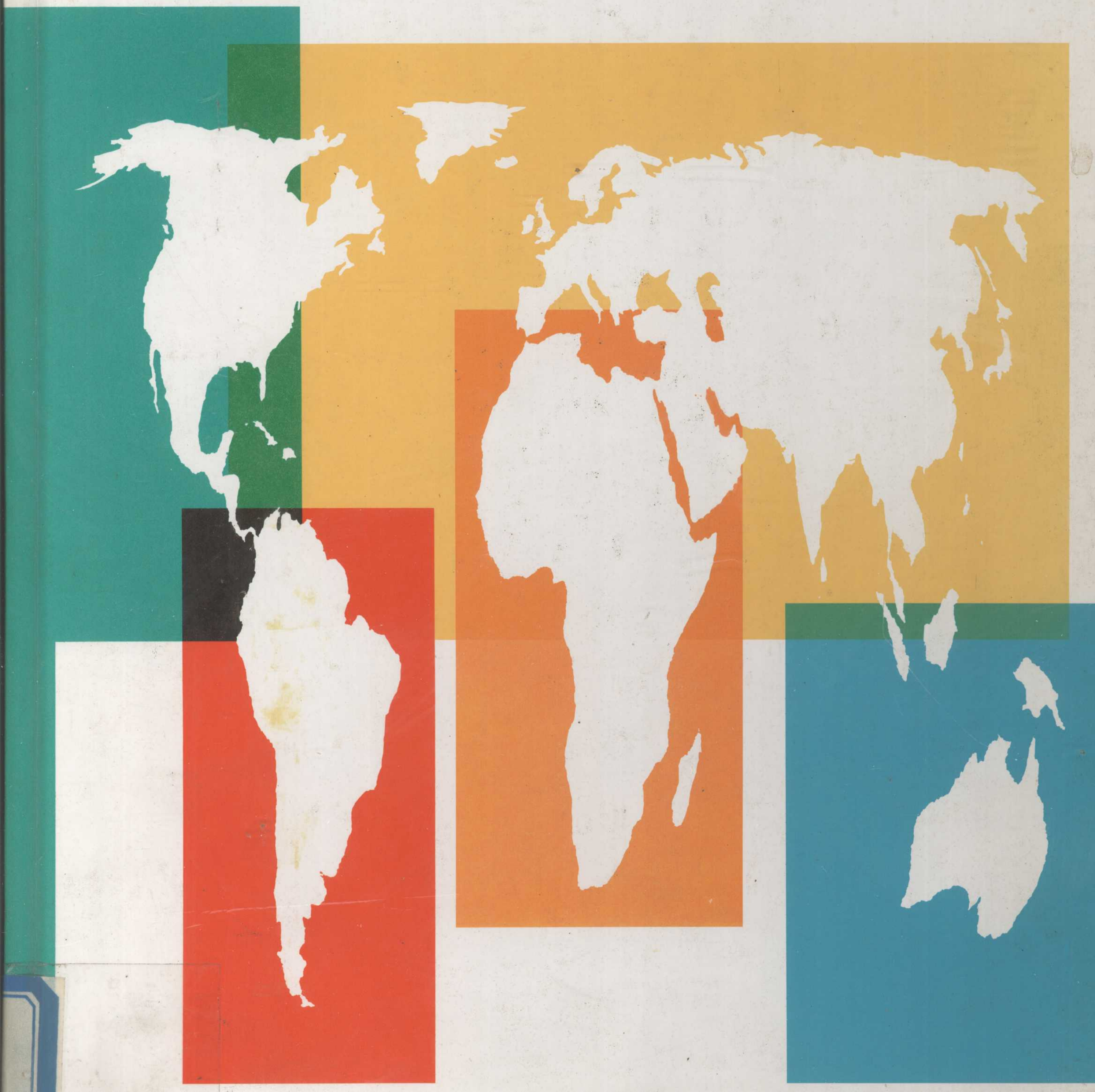
World Development Report 1986

The Hesitant Recovery and Prospects for Sustained Growth
Trade and Pricing Policies in World Agriculture
World Development Indicators



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Foreword

This Report is the ninth in the annual series assessing development issues. Part I reviews recent trends in the world economy and the policy framework required for sustained growth. Part II is devoted to trade and pricing policies in world agriculture. As in the past, the Report includes an updated World Development Indicators annex, which provides selected social and economic data for more than a hundred countries.

The world economy is entering its fourth consecutive year of growth since the 1980–82 recession. Yet the recovery continues to be hesitant, and many developing countries are facing serious problems of adjustment. Although the recent declines in oil prices, real interest rates, and inflation will provide a useful stimulus to industrial and developing countries alike, many heavily indebted developing countries, particularly oil exporters, will find it difficult to maintain growth in the near term. In addition, the beneficial effects of the recovery have been much weaker for many low-income sub-Saharan African countries.

Part I of this year's Report explores the policies required to restore sustained growth in the world economy. It stresses the importance of maintaining the commitment of industrial countries to policies that have both reduced inflation and moderated market distortions and rigidities. A recurring concern, however, is the increase in international trade restrictions. If high and sustainable growth is to be attained, the reform of domestic institutions and incentives needs to be accompanied by a renewed effort to move toward freer international trade. The progress that developing countries have made in reforming their policies and adjusting to the rapid, and often large, changes in the world economy since 1980 is charted. Despite considerable progress, many of them enter the second half of the decade weighed down by the cumulative effects of domestic policies, large foreign debt obligations, and, in the case of oil exporters, the recent decline in export earnings. Continued domestic policy reforms, designed to restore and maintain a stable macroeconomic environment and to improve the incentive structure, are stressed as the prerequisites for growth. Increased reliance on international trade will be a necessary component of this reform process. Policy reforms in developing countries, however, will need to be supported by reductions in trade barriers and increases in net flows of foreign capital.

Part II of this Report develops these themes in the context of agricultural policies. It examines the policies of developing and industrial countries in an integrated framework, bringing out the interdependence of domestic agricultural policies throughout the world and the potential for large gains from more liberal trade in agriculture. It suggests that liberalization of trade should be a high priority for international action in agriculture.

An examination of the policy options for developing countries suggests that economic stability and growth would be greatly enhanced if pricing and trade policies were improved. In many developing countries, both macro- and microeconomic policies have hindered agricultural development. Overvalued exchange rates, the protection provided to domestic manufacturing activities, and the taxation of agricultural exports and import-competing food crops have discouraged domestic agricultural production. In addition, programs for subsidizing consumers and farm inputs and for stabilizing consumer and producer prices have often led to significant losses in the real national incomes of developing countries. These problems, however, are being increasingly acknowledged, and some developing countries have initiated significant—in some cases sweeping—policy reforms.

Agricultural policy reforms are also under serious consideration in many industrial countries. The policies they have pursued in the past several decades have limited trade opportunities for developing countries and have been counterproductive for themselves as well. As preparations are made for the next round of GATT negotiations, it is well to recognize the opportunities that exist for bringing about a more efficient world agricultural system—a system which will benefit both industrial and developing countries. The progress that has been achieved in agricultural technology presents an opportunity for a rapid expansion of agricultural output if more open and competitive world markets are established.

Like its predecessors, this Report is a study by the staff of The World Bank, and the judgments in it do not necessarily reflect the views of our Board of Directors or of the governments they represent.

A. W. Clausen
President
The World Bank

May 19, 1986

This Report was prepared by a team led by Anandarup Ray and comprising Trent Bertrand, Ajay Chhibber, Bruce Gardner, Orsalia Kalantzopoulos, Odin Knudsen, Donald O. Mitchell, Alan Walters, John Wilton, and L. Alan Winters, assisted by Therese Belot, Zohreh Hedjazi, M. Shahbaz Khan, Donald F. Larson, Tani Maher, Yasmin Saadat, Rodney Smith, and Robert Wieland. D. Gale Johnson, Ulrich Koester, and many others in and outside the Bank provided helpful comments and contributions (see the bibliographical note). The Economic Analysis and Projections Department, under the direction of Jean Baneth, supported the work on Part I, and Enzo Grilli, Peter Miovic, and Heywood Fleisig coordinated the work of that department on projections. Ramesh Chander, assisted by David Cieslikowski, also of that department, supervised the preparation of the World Development Indicators; Elizabeth Crayford edited the Indicators, and Shaida Badiee was responsible for systems design. Special thanks also go to the production staff, especially Joyce Eisen, Pensri Kimpitak, and Victoria Lee, and to the support staff, headed by Rhoda Blade-Charest and including Banjonglak Duangrat, Jaunianne Fawkes, Carlina Jones, and Patricia Smith. The work was carried out under the general direction of Anne O. Krueger and Constantine Michalopoulos, with John Parker as the editorial adviser.

Definitions and data notes

The principal country groups used in the text of this Report and in the World Development Indicators are defined as follows:

- *Developing countries* are divided into: *low-income economies,* with 1984 gross national product (GNP) per person of less than $400; and *middle-income economies,* with 1984 GNP per person of $400 or more. Middle-income countries are also divided into *oil exporters* and *oil importers,* identified below.
- *Middle-income oil exporters* comprise Algeria, Angola, Cameroon, People's Republic of the Congo, Ecuador, Arab Republic of Egypt, Gabon, Indonesia, Islamic Republic of Iran, Iraq, Malaysia, Mexico, Nigeria, Peru, Syrian Arab Republic, Trinidad and Tobago, Tunisia, and Venezuela.
- *Middle-income oil importers* comprise all other middle-income developing countries not classified as oil exporters. A subset, *major exporters of manufactures,* comprises Argentina, Brazil, Greece, Hong Kong, Israel, Republic of Korea, Philippines, Portugal, Singapore, South Africa, Thailand, and Yugoslavia.
- *High-income oil exporters* (not included in developing countries) comprise Bahrain, Brunei, Kuwait, Libya, Oman, Qatar, Saudi Arabia, and United Arab Emirates.
- *Industrial market economies* are the members of the Organisation for Economic Co-operation and Development, apart from Greece, Portugal, and Turkey, which are included among the middle-income developing economies. This group is commonly referred to in the text as industrial economies or industrial countries.
- *East European nonmarket economies* include the following countries: Albania, Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Poland, Romania, and U.S.S.R. This group is sometimes referred to as nonmarket economies.
- *Sub-Saharan Africa* comprises all thirty-nine developing African countries south of the Sahara, excluding South Africa, as given in *Toward Sustained Development in Sub-Saharan Africa: A Joint Program of Action* (World Bank 1984).
- *Middle East and North Africa* includes Afghanistan, Algeria, Arab Republic of Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Saudi Arabia, Syrian Arab Republic, Tunisia, Turkey, United Arab Emirates, Yemen Arab Republic, and People's Democratic Republic of Yemen.
- *East Asia* comprises all low- and middle-income countries of East and Southeast Asia and the Pacific, east of, and including, Burma, China, and Mongolia.
- *South Asia* includes Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka.
- *Latin America and the Caribbean* comprises all American and Caribbean countries south of the United States.
- *Major borrowers* are countries with disbursed and outstanding debt estimated at more than $15 billion at the end of 1984 and comprise Argentina, Brazil, Chile, Egypt, India, Indonesia, Israel, Republic of Korea, Mexico, Turkey, Venezuela, and Yugoslavia.

Economic and demographic terms are defined in the technical notes to the World Development Indicators. The Indicators use the country groupings given above but include only countries with a population of 1 million or more.

Billion is 1,000 million.

Tons are metric tons, equal to 1,000 kilograms, or 2,204.6 pounds.

Growth rates are in real terms unless otherwise stated. Growth rates for spans of years in tables cover the period from the beginning of the base year to the end of the last year given.

Dollars are current U.S. dollars unless otherwise specified.

The symbol .. in tables means "not available."

The symbol — in tables means "not applicable."

All tables and figures are based on World Bank data unless otherwise specified.

Data from secondary sources are not always available through 1984. The numbers in this *World Development Report* shown for historical data may differ from those shown in previous Reports because of continuous updating as better data become available and because of recompilation of certain data for a ninety-country sample. The recompilation was necessary to permit greater flexibility in regrouping countries for the purpose of making projections.

Acronyms and initials

CIAT International Center for Tropical Agriculture.
CIMMYT International Maize and Wheat Improvement Center.
CFF Compensatory Financing Facility.
DAC The Development Assistance Committee of the Organisation for Economic Co-operation and Development comprises Australia, Austria, Belgium, Canada, Denmark, Finland, France, Federal Republic of Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States, and Commission of the European Communities.
EC The European Communities comprise Belgium, Denmark, France, Federal Republic of Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and United Kingdom. Greece joined the EC in 1981; Portugal and Spain joined in 1986.
ECU European currency unit.
FAO Food and Agriculture Organization.
GATT General Agreement on Tariffs and Trade.
GDP Gross domestic product.
GNP Gross national product.
IBRD International Bank for Reconstruction and Development.
IDA International Development Association.
IFC International Finance Corporation.
IFPRI International Food Policy Research Institute.
IRRI International Rice Research Institute.
IMF International Monetary Fund.
LIBOR London interbank offered rate.
ODA Official development assistance.
OECD The Organisation for Economic Co-operation and Development members are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States.
SDR Special drawing right.
UNCTAD United Nations Conference on Trade and Development.

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Introduction

Agriculture and economic growth are the subjects of this *World Development Report*. Because agriculture accounts for a large share of many developing countries' economies, success there will play a large role in determining the course of their national economies for decades to come. At the same time, policies that affect the national economy as a whole—for example, policies on exchange rates, trade regimes, or government spending—influence the performance of the agricultural sector. Within a country and throughout the interdependent economies of the world, better policies are needed to improve the allocation of resources and raise real incomes. In agriculture, using resources more efficiently would involve removing both the policy-induced biases that generally discriminate against production and trade in developing countries and the excessive subsidies that generate overproduction in industrial ones. In the wider economy, better resource allocation policies are needed to help developing countries adjust to changing external circumstances—a process which is essential for growth—and to correct certain deep-seated problems that have constrained economic growth in industrial countries.

The two parts of this Report explore these themes. Part I examines the way the world economy has performed since 1980 and looks at the prospects for the next ten years. It concludes that, although recent declines in interest rates and oil prices are likely to provide a stimulus to the world economy, further policy reforms at both the domestic and international levels are essential to take full advantage of this stimulus. At a less aggregate level, however, it is apparent that certain subgroups of developing countries—particularly the heavily indebted oil exporters and some of the low-income African countries—will continue to face a very difficult period of adjustment in the near term. For these countries, domestic policy reforms are necessary, but they are not sufficient: access to additional external resources and export markets will also be required.

Part II explores the connection between government policy and agriculture and emphasizes the interdependence of agricultural policies in different parts of the world. Public policies in both developing and industrial countries greatly influence the growth of agriculture and of rural incomes. This influence often extends far beyond national frontiers. What is perhaps most surprising is the fact that it is the developing world which, on the whole, discriminates against its farmers, even though they account for large shares of gross domestic product (GDP) and export earnings. And it is the industrial countries which provide subsidies to agricultural production, even though their farmers account for small shares of GDP and employment. The Report examines the potential gains to the world economy from removing these distortions and concludes with a discussion of the priorities for reform.

Prospects for the world economy

The world economy is entering the fourth year of its recovery from the deep recession of 1980–82. The output of the five largest industrial economies grew by 3.0 percent in real terms in 1983 and by 4.2 percent in 1984, and annual rates of inflation have fallen sharply. In developing countries the growth in output increased from 2.0 percent in 1983 to 5.4 percent in 1984. Yet growth, though sustained, has recently slowed. The five largest industrial economies saw their growth rates fall to 2.8 percent in 1985, and unemployment and real interest rates have remained high. In developing countries growth slowed to 4.4 percent in 1985. Despite the recent declines in oil prices, real interest rates, and inflation, many developing countries continue to face serious problems that will constrain growth over the medium term.

These developments are the subject of Chapter 2, which explores the policies that have shaped the character of the world economy since 1980. It argues that, although many industrial countries have been successful in moderating the rate of monetary growth and thereby inflation, they have been less successful in pursuing a consistent fiscal policy. The increased acceptance of the view that high and uneven marginal tax-benefit rates distort incentives and entail efficiency losses has made governments understandably reluctant to increase tax rates. But social and political pressures have also made it difficult to curtail benefits or reduce total public expenditure. As a result, public sector deficits have not been significantly reduced and have remained large in absolute terms in the United States. This combination of monetary and fiscal policies was in large part responsible for the interest rate and U.S. dollar movements that occurred between 1980 and early 1986. The recent falls in the U.S. dollar and in interest rates reflect three developments: a renewed commitment to reduce the U.S. federal budget deficit, the decline in oil prices, and the coordinated actions of the Group of Five countries (France, the Federal Republic of Germany, Japan, the United Kingdom, and the United States).

While the movements in interest rates and the U.S. dollar imposed significant adjustment costs on many economies earlier in the decade, there were mitigating factors, the most important of which was the large U.S. trade deficit. This increased the growth in world trade, particularly in 1984, which greatly assisted outward-oriented developing countries. But the coexistence of large trade deficits and record high levels of unemployment in some industrial countries has had an unfortunate side effect: a marked increase in the pressure for more restrictions on international trade. Ironically, this pressure comes at a time when industrial countries are beginning to reap the benefits of the moderate progress they have made in reducing rigidities and distortions in their domestic factor and goods markets.

For developing countries, the first half of the 1980s was a period of adjustment to a rapidly changing world economy. The reforms they implemented to improve resource allocation and increase efficiency were necessary irrespective of developments in the world economy. But the magnitude of the changes in real interest rates, commodity prices, export markets, and net capital inflows led them to adjust quickly, which in some cases entailed high costs. Yet, those developing countries that maintained macroeconomic stability and implemented policies to make the best of the changing world economy have emerged with strong growth rates and bright prospects. Others, however, have found it difficult to restore growth. In many cases, inappropriate domestic policies that have misallocated resources and reduced efficiency over long periods of time have resulted in little, if any, increase in output. The developments in the world economy after 1980 exposed the underlying vulnerability of these economies and in some cases brought about a downturn in growth. Declining per capita incomes, which had until the early 1980s occurred mostly in sub-Saharan Africa, became more widespread, especially in Latin America. While growth did pick up in 1984, it has proved difficult to sustain.

It is clear that developing countries have, on the whole, made an effort to reform domestic policies and to adjust to the changing international environment. In addition, for most countries the recent declines in oil prices and real interest rates have created an external environment which will facilitate domestic reform efforts. For some countries, however, the slower growth in world trade (caused in part by protectionism), weak export prices, large repayment obligations on existing external debt, and the continued decline of net capital inflows threaten to overwhelm these gains. The heavily indebted oil-exporting countries will face a particularly difficult period over the next few years. Many developing countries will have difficulty in maintaining imports and domestic investment at the levels required to support growth over the medium term and service their external debt. A further reduction in per capita consumption levels will exacerbate political and social tensions in these countries and, as their imports contract, reduce the number of jobs in other countries.

Chapter 3 explores two divergent paths that the world economy might take during the next ten years. The High case illustrates what could happen with appropriate policies that build upon the stimulus given to the world economy by recent developments. The Low case presents the alternative outcome if policies dissipate the results of these developments. In the High case, industrial countries could increase their real GDPs by an annual average of 4.3 percent, whereas in the Low case the rate of growth would be only 2.5 percent. For developing countries the divergence would be greater: 5.9 percent a year in the High case and 4.0 percent in the Low. It should be emphasized that these are not forecasts; they merely illustrate what might be achieved if certain policies are pursued.

For industrial countries the domestic policies needed to achieve the growth rates of the High case involve instituting stable monetary and fiscal policies, reducing price distortions, and introducing more flexibility into labor markets. Internationally, a concerted effort to reduce trade restrictions would be needed to increase world trade. Because industrial countries account for so large a share of world output, their policies will play a principal role in determining how the world economy performs. But this does not mean that developing countries cannot reap benefits by changing their own policies. On the contrary, it is their policies that will determine the extent to which they take advantage of, or offset, changes in the international economy over the medium term. If developing countries were to adopt policies that encourage domestic savings, increase the efficiency with which they use resources, and increase their links with the world economy, they could raise their growth rates significantly regardless of what the industrial countries do.

Nonetheless, the heavily indebted middle-income countries will need extra help over and above those policies to keep growth from stagnating and thus contributing to the instability of the world's financial markets. Additional assistance will also be required to reverse the decline in low-income African countries. Chapter 3 argues that a coordinated domestic and international effort is required to restore creditworthiness and growth, an effort in which the World Bank will play an important role.

Trade and pricing policies in world agriculture

The need to improve trade and pricing policies and to reform institutions is no less important in agriculture than in the economy as a whole. And success in agriculture will, in turn, largely determine economic growth in many low-income developing countries and help to alleviate poverty in rural areas, where most of the world's poorest people live.

Agriculture is the basic industry of the world's poorest countries. It employs roughly 70 to 80 percent of the labor force in low-income developing countries and about 35 to 55 percent in middle-income developing ones. It is also a main source of GDP, accounting for 35 to 45 percent of GDP in low-income developing countries (see Table 1.1). During the nineteenth century, almost all of today's industrial nations had roughly the same percentage of their labor forces engaged in agriculture that the low-income developing countries now have. Some countries, notably Italy and the U.S.S.R., had more than 70 percent of their labor forces engaged in agriculture well into the twentieth century. Today, the industrial countries of Western Europe and North America have less than 10 percent of their labor forces employed in agriculture, and the average for all industrial countries is now just 7 percent. Already, agriculture's share of GDP in all developing economies has fallen from 30 percent in the mid-1960s to about 20 percent in the early 1980s. Among industrial countries, agriculture accounts for a little more than 3

Table 1.1 Agriculture's share of GDP, employment, and exports, selected years, 1964–84
(percent)

	Share of agriculture in:					
	GDP		*Employment*		*Exports*[a]	
Country group	*1964–66*	*1982–84*	*1965*	*1980*	*1964–66*	*1982–84*
Low-income countries	42.8	36.3	76.0	72.0	58.6	32.8
Africa	46.9	41.3	84.0	78.0	70.7	68.4
Asia	42.5	35.7	74.0	71.0	54.0	25.9
Middle-income oil exporters	21.8	14.8	62.0	50.0	40.8	13.6
Middle-income oil importers, excluding major exporters of manufactures	25.2	18.0	63.0	53.0	54.2	44.8
Major exporters of manufactures	19.3	12.1	50.0	36.0	56.9	20.2
Developing countries	30.2	19.9	66.9	63.2	52.3	22.0
Industrial countries	5.1	3.1	13.7	7.1	21.4	14.1

Note: Data for developing countries are based on a sample of ninety countries.
a. Includes reexports.

Table 1.2 Agriculture's share of exports in developing countries, 1979–83

Country group	*Countries with 30–60 percent share*	*Countries with 60–80 percent share*	*Countries with 80–100 percent share*
Low-income countries	4	6	11
Africa	3	3	11
Asia	1	3	0
Middle-income countries	16	12	1
Oil exporters	1	0	0
Oil importers	11	11	1
Major exporters of manufactures	4	1	0
All developing countries	20	18	12

Note: Shares are the percentage of agricultural export earnings in total merchandise exports. Exports include reexports. Data are based on a sample of ninety developing countries.

percent of GDP and approximately 14 percent of exports.

The share of agriculture in national income generally declines as real per capita incomes rise, because as people's incomes increase, they spend a decreasing percentage on food. Also, as farmers increase the productivity of their land and labor, the share of a country's resources required to grow food for the rest of the population decreases. In low-income developing countries, a farm family provides enough food for itself and two other people; in most industrial economies, a farm family produces enough food for itself and as many as fifty other people.

For many developing countries, therefore, a healthy farm economy is connected with long-term development. It is also connected with short-term stability. Although agriculture's contribution to the export earnings of developing countries has fallen from about 52 percent in the mid-1960s, it still contributed 22 percent by the early 1980s. It was higher in low-income African countries and in those middle-income oil-importing countries that are not yet major exporters of manufactures. The importance of agricultural exports is brought out in greater detail in Table 1.2.

Food production

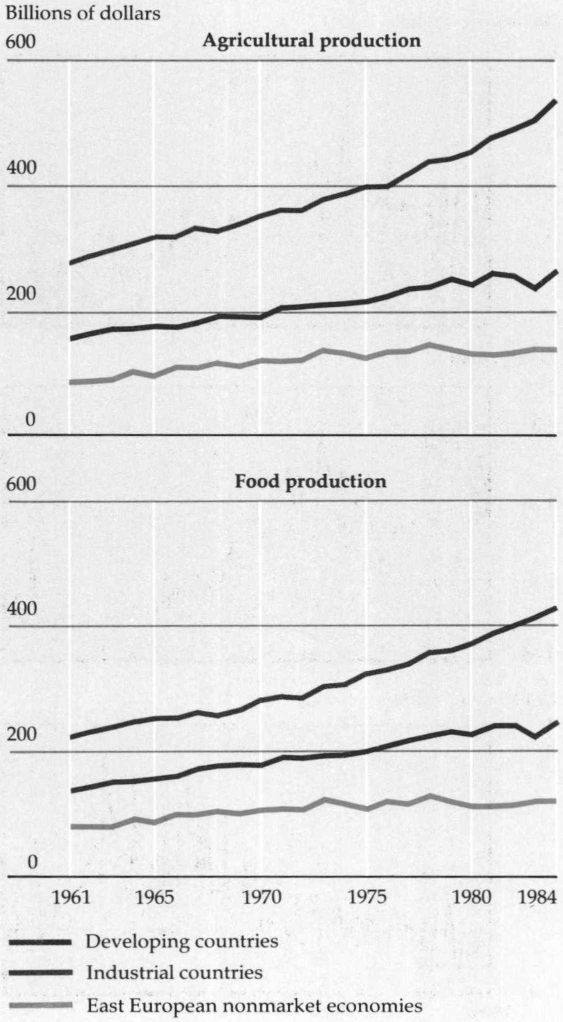
Agricultural output has grown rapidly in many developing countries during the past fifteen years. The growth in food production, which was faster in developing countries than in the industrial and East European nonmarket economies, was made possible largely by the Green Revolution (see Figure 1.1 and Table 1.3). This revolution began in the mid-1960s with the development of high-yielding varieties of wheat at the International Maize and Wheat Improvement Center (CIMMYT) in Mexico and of high-yielding varieties of rice at the International Rice Research Institute (IRRI) in the Philippines and the International Center for Tropical Agriculture (CIAT). The new seeds were so productive that they made it profitable for farmers to update their farming methods by using more fertilizer and other modern inputs and for both

Table 1.3 Growth of agricultural production by major commodity group, 1961–84
(average annual percentage change)

	Beverages		*Food*		*Raw materials*		*Total agriculture*	
Country group	*1961–70*	*1971–84*	*1961–70*	*1971–84*	*1961–70*	*1971–84*	*1961–70*	*1971–84*
Developing countries	−0.4	1.9	2.2	3.2	4.5	2.3	2.4	3.0
Low-income countries	1.9	1.2	1.3	3.2	5.7	3.8	1.9	3.3
Africa	2.3	−0.5	2.6	2.0	6.0	−1.8	3.0	1.2
Asia	1.2	3.6	1.2	3.4	5.7	4.3	1.8	3.6
Middle-income oil exporters	3.5	0.5	3.0	3.1	1.5	−0.9	2.7	2.2
Middle-income oil importers	−2.9	2.8	3.5	3.2	4.8	1.0	2.9	2.9
High-income oil exporters	−6.8	0.6	4.9	14.6	8.0	−0.5	5.0	14.1
Industrial market economies	0.9	0.4	2.9	2.1	−4.9	0.4	2.2	2.0
East European nonmarket economies	5.3	7.0	3.6	0.5	4.3	1.9	3.7	0.7
World	−0.3	1.9	2.7	2.4	2.2	2.0	2.5	2.3

Note: Data are weighted by the 1978–82 world export unit prices to permit cross-country comparisons. Growth rates are least-squares estimates. Beverages comprise coffee, cocoa, and tea. Food comprises cereals, sugar, meat, poultry, dairy products, roots and tubers, pulses, fruits, and vegetables. Raw materials comprise cotton, jute, rubber, and tobacco.
Source: Based on FAO data.

Figure 1.1 Trends in agricultural and food production, 1961–84



Note: Data are weighted by the 1978–82 world export unit prices. The decline in production in the industrial countries in 1983 was caused by a fall in U.S. output due to the effects of the acreage reduction program and a drought.
Source: Based on FAO data.

farmers and governments to invest more on improving irrigation. In India's Punjab, for example, thousands of irrigation wells were dug between 1967 and 1972, mainly by farmers. Fertilizer consumption rose from 0.76 million tons in 1966 to 2.38 million tons in 1972.

The combination of improved seeds, more fertilizer, and improved irrigation doubled yields on irrigated land in developing countries. China and India, the two most populous countries, expanded cereal production at the rate of 3.2 and 4.1 percent a year, respectively, both rates exceeding population growth. Some countries achieved even higher growth rates (see Table 1.4). But the Green Revolution was, for the most part, confined to irrigated land. It left some areas untouched, especially in Africa.

Table 1.4 Growth of cereal production in selected developing countries, 1971–84

Country group	*Average annual percentage change*
High performers	
Indonesia	5.2
Korea	5.0
Philippines	4.5
Pakistan	4.3
Low performers	
Gambia	−0.3
Haiti	−1.1
Zambia	−2.2
Ghana	−2.4

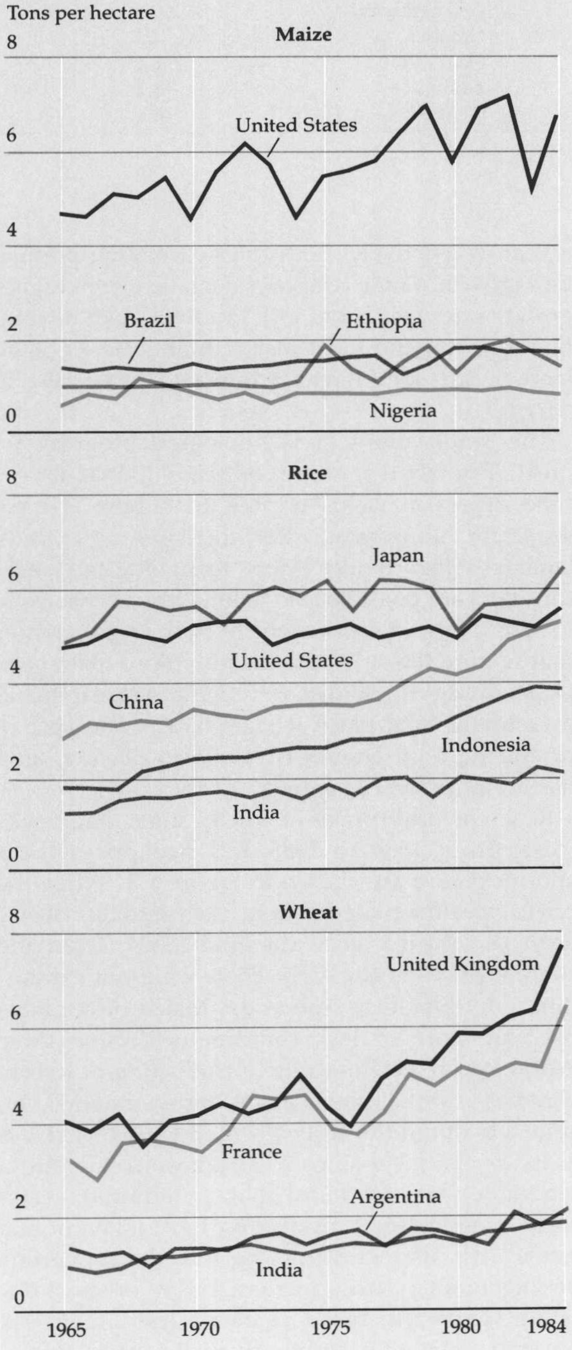
Source: Based on FAO data.

The ramifications of technological progress are great. The fact that some countries still lag far behind others in yields implies that there is great scope for future production increases on existing land (see Figure 1.2). More technological breakthroughs are possible. Biogenetic research is likely to lead to the development of new crop varieties that require fewer inputs and are more tolerant of pests, drought, and disease. As more research and investment take place in agriculture, the cost of producing food should continue to decline, as it has for more than a century.

Real wholesale prices of wheat, sugar, and maize (corn) from 1800 to 1985 and rice prices for a shorter period are shown in Figure 1.3. While the prices have fluctuated widely, the trend has clearly been downward since the mid-1800s. Even the soaring prices of the early 1970s were not extraordinary by historical standards. Maize prices have been in more or less continuous decline since World War II, owing to the introduction of hybrid varieties and their subsequent improvements. Despite a boom in the early 1970s, the price of rice is at its lowest level since 1900. These trends are a reminder that, for more than a hundred years, costs of agricultural production have fallen in real terms. It is also worth noting that the numerous periods of sharp price increases were of short duration, generally three years or less. Table 1.5 presents a broader summary of the price trends since 1950.

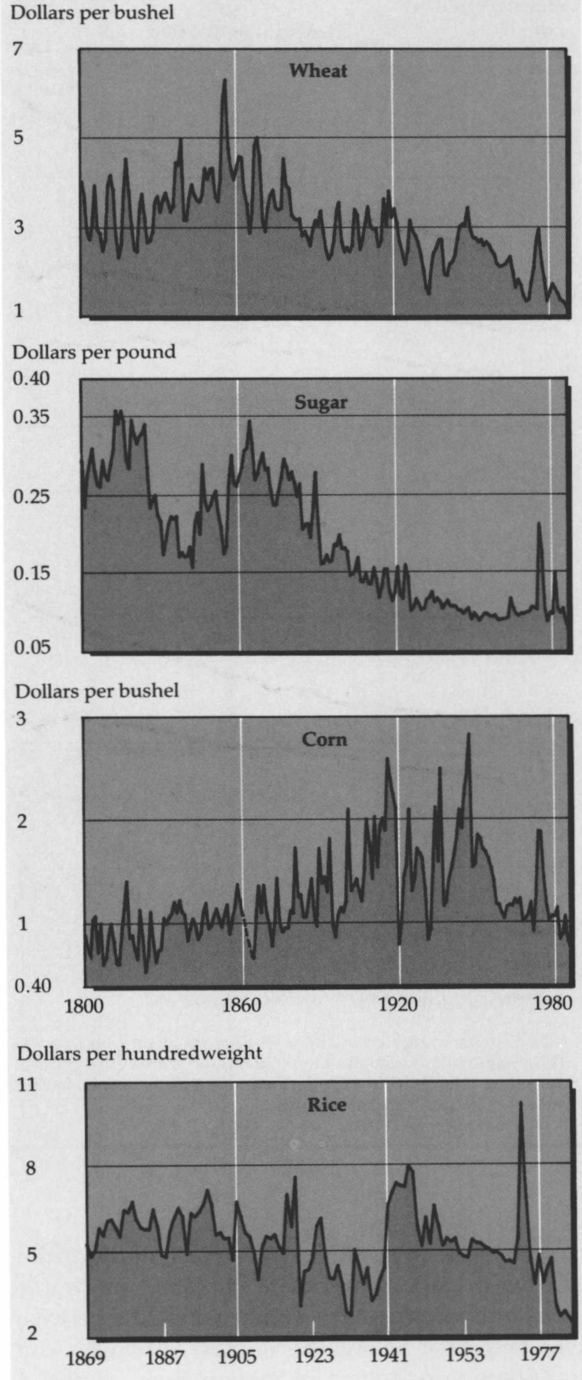
Robert Malthus had suggested in the early nineteenth century that the world would run short of food as population expanded faster than the capacity to produce food. The decline in real food prices

Figure 1.2 Grain yields in selected countries, 1965–84



Source: FAO.

Figure 1.3 Trends in U.S. real agricultural prices, selected years, 1800–1985



Note: Producer prices are deflated by the U.S. wholesale price index (1967 = 100). Corn prices before 1866 are estimates based on Virginia prices. Rice prices before 1904 are estimates based on New York prices. The broken line indicates data are not available.
Source: USDA *Agricultural Statistics*, various years; U.S. Bureau of the Census 1975, 1982, 1985; Strauss and Bean 1940; Peterson 1928.