

World Development Report 1982

10887

International Development Trends
Agriculture and Economic Development
World Development Indicators



Public Disclosure Authorized

Public Disclosure Authorized

Public Disclosure Authorized

Public Disclosure Authorized

**World
Development
Report
1982**

**Published for The World Bank
Oxford University Press**

Oxford University Press
NEW YORK OXFORD LONDON GLASGOW
TORONTO MELBOURNE WELLINGTON HONG KONG
TOKYO KUALA LUMPUR SINGAPORE JAKARTA
DELHI BOMBAY CALCUTTA MADRAS KARACHI
NAIROBI DAR ES SALAAM CAPE TOWN

© 1982 by the International Bank
for Reconstruction and Development/The World Bank
1818 H Street, N.W., Washington, D.C. 20433 U.S.A.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of Oxford University Press. Manufactured in the United States of America.

The maps have been prepared exclusively for the convenience of readers of this book; the denominations used and the boundaries shown do not imply, on the part of The World Bank, any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries. The world map on the cover is based on the equirectangular projection, which is attributed to the Greek astronomer-philosopher Anaximander about 550 B.C.

ISBN 0-19-503224-1 cloth
ISBN 0-19-503225-X paperback
ISSN 0163-5085

The Library of Congress has cataloged this serial publication as follows:

World development report, 1978

[New York] Oxford University Press.

v. 27 cm. annual.

Published for the World Bank.

1. Underdeveloped areas-Periodicals. 2. Economic development Periodicals. I. International Bank for Reconstruction and Development.

HC59.7.W659

330.9'172'4

78-67086

Foreword

This fifth *World Development Report* is published at a time when the world economy is beset by severe problems. Continuing recession and heavy unemployment in the industrialized countries are accompanied by real interest rates at unprecedentedly high levels; most commodity prices are at their lowest levels in three decades; the volume of international trade has ceased to grow. Many developing countries, already struggling with large debt repayments, have thus seen their problems exacerbated by the rise in interest payments, adverse trends in the terms of trade, and depressed export volumes.

The first part of the Report reassesses development prospects against this background. It finds that low growth over the 1980s is more likely than was projected in last year's Report. However, it should be possible for many middle-income countries to repeat the successful adjustment they made to the adverse conditions of the 1970s, and to achieve per capita income growth well in excess of that of the industrialized countries. The prospects of adequate growth will be greatly enhanced if restrictions on trade and capital flows are minimized.

For the low-income countries, in which the bulk of poverty is concentrated, the picture is mixed but generally bleak. China and

India, both of which managed to maintain significant growth in the 1970s, are less affected by the adverse international environment than are the smaller low-income countries with large export sectors. These countries, most of which are in Africa, fared badly in the 1970s. Their prospects are a matter of grave concern. Their progress, more than that of any other group, will depend heavily on generosity and initiative in the provision of aid. Nevertheless, two areas of promise exist. One is the longer-term growth impact of the improvements in education and health that have been achieved in virtually all developing countries. The second is the potential for improved performance in agriculture, the subject of Part II of the Report.

The discussion of agriculture stresses a key feature of development experience—the strong association between agricultural advance and overall economic growth. In virtually all countries where agricultural development has been strong, economic growth has advanced at a rapid rate. As a result, in many middle-income countries the worst kinds of absolute poverty have largely disappeared, although stark differences in standards of living persist.

The low-income countries are still predominantly agricultural. In many of them—and in some

middle-income countries too—slow agricultural progress is a major cause of sluggish economic growth. This Report uses the Bank's own experience and country illustrations to highlight some of the main policy, technical, and institutional issues involved in stimulating more rapid agricultural development. Its conclusions are basically optimistic. Agricultural growth has been rapid in the past three decades, exceeding all earlier experience and expectations. Given reasonable incentives and productive opportunities, farmers will innovate, save, and invest in agriculture; science-based agricultural research can promote new opportunities for growth; further gains can be had from past investment in institutions and infrastructure; and increased attention to the rural poor, shown in an array of new programs for small farmers in the 1970s, is already paying off.

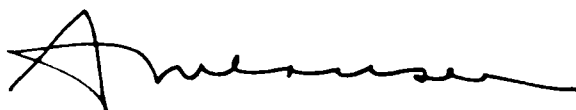
The Report qualifies this optimism in three respects. First, the management of agricultural development, including public sector policies, investment programs, and institutional support activities, is a difficult job, especially today when agricultural growth depends less on expanding the cultivation frontier and more on raising land and labor productivity. Second, unless the rapidity of population growth

abates, it will limit the rate of increase in per capita food consumption in many countries and require still faster increases in agricultural productivity. Third, taking full advantage of the possibilities offered by agriculture will require significant policy changes—both in developing countries which have neglected this sector, and in those industrial countries which continue to protect and to over-stimulate agri-

culture, thus reducing the potential gains from world specialization in production and trade.

As in previous years, the Report includes the World Devel-

opment Indicators, which provide tables of social and economic data for more than a hundred countries.



A. W. Clausen

This Report was prepared by a team led by David Turnham and comprising Chandra Hardy, Dale Hill, William Jones, Homi Kharas, Gary Kutcher, Per Ljung, Christopher Redfern, Harry Walters, and Arshad Zaman. The Economic Analysis and Projections Department prepared much of the data on which Part I is based, and supplied information and assistance for the whole Report. The team also worked closely with members of the Economics and Research staff and of the Agriculture and Rural Development Department, particularly Jean Baneth, Hans Binswanger, Graham Donaldson, Jack Duloy, Peter Miovic, and Donald Pickering. The authors would like to thank these and many other contributors, reviewers, and production and support staff. The work was carried out under the general direction of Bevan Waide.

For the discussion of agricultural development, the team would like to acknowledge the considerable help and assistance provided by the staff of the Food and Agriculture Organization (FAO) and the International Labour Organisation (ILO). FAO kindly provided material from their data collection which is used extensively in the text. Neither these organizations nor members of their staffs are responsible for views expressed in the Report.

The judgments expressed are those of the World Bank staff and do not necessarily reflect the views of the Board of Directors or the governments they represent.

Contents

Definitions *viii*

Glossary of acronyms and initials *ix*

1 Overview *1*

- International issues and past development *1*
- Development prospects *2*
- Agricultural development *3*
- Conclusions *5*

Part I International Development Trends *7*

2 The world economy in transition *7*

- Adjustment in 1973–78 *7*
- Adjustment in 1979–82 *9*
- Factors affecting adjustment *10*
- Conclusions *18*

3 Long-term development trends *20*

- Output and income growth *20*
- Improvements in living standards *23*
- Long-term trends in the international environment *26*
- The role of domestic policies *27*
- Conclusions *30*

4 Prospects for the 1980s *31*

- The industrial countries *31*
- International economic linkages *32*
- Commercial capital flows *34*
- Prospects for developing countries *35*

Part II Agriculture and Economic Development *39*

5 Agricultural development and economic growth *40*

- The pattern of recent growth *41*
- The role of agriculture in development *43*
- Managing agricultural development *45*
- The international environment *52*

6 Sources of agricultural growth *57*

- Land *59*
- Intensive agricultural development *61*
- Technology *66*
- Research *67*
- Supports for agricultural growth *72*

7 Rural poverty *78*

- Poverty and growth *78*
- Initiatives to counter rural poverty *80*
- Food security, distribution, and subsidies *86*

8 Conclusions *90*

- Agriculture and economic growth *90*
- Policy priorities *91*
- Prospects *93*

Bibliographical note *94*

World Development Indicators *99*

Text tables

2.1	Growth of GDP, 1960–82	8
2.2	Resource gap as percentage of GDP, 1974–80	9
2.3	Response of consumption, investment, borrowing, and growth to external shocks, 1970–72 to 1975–78	9
2.4	Imports of manufactures by industrial countries, 1962–80	12
2.5	Growth of merchandise exports, 1970–81	12
2.6	Remittance inflows to major labor-exporting countries, 1978–79	13
2.7	Global current account balances, excluding official transfers, 1970–82	13
2.8	Current account financing of oil-importing and oil-exporting developing countries, 1979–82	15
3.1	Growth of population, GNP, and GNP per capita, 1955–80	21
3.2	Population, GNP, and GNP per capita: Shares, relationships, and growth, 1955–80	22
3.3	Trends in life expectancy, child mortality, and literacy, 1950–79	24
3.4	Shares of world merchandise exports, 1955–80	26
3.5	Composition of net capital flows to developing countries, 1960–62 and 1978–80	29
4.1	Export growth from developing countries, 1970–90	33
4.2	Average OPEC petroleum prices, 1970–95	34
4.3	Net financing flows, all developing countries, 1970–90	35
4.4	Growth of GDP in developing countries, 1960–90	37
5.1	Growth rates of agricultural and food output by major world regions (excluding China), 1960–80	41
5.2	Growth of agriculture and GDP in the 1970s	45
5.3	Official assistance (commitments) to agriculture, 1973–80	51
5.4	Oil-importing developing countries' food and beverage trade, 1970 and 1978	53
6.1	Changes in the structure of agricultural output by subsector and region, 1961–65 and 1976–80	65
7.1	Farm structure in Northeast Brazil, 1974	83
7.2	Selected government food-distribution programs: Coverage, impact, and cost	86

Text figures

1.1	Comparative agricultural indicators for developing and developed countries, 1979–80 average	3
2.1	Growth in real GDP, 1971–82	8
2.2	Share of investment in GDP, 1970–81	10
2.3	Trends in world trade volume, 1971–81	11
2.4	Annual fluctuations in developing-country export prices, 1971–82	12
2.5	Changes in real petroleum prices, 1971–82	14
2.6	Global current account balances, 1975–82	15
2.7	Change in nominal net capital inflows to developing countries, 1971–82	16
2.8	Price trends, 1971–82	18
2.9	US real rate of interest, 1970–81	18
3.1	Per capita GNP of selected countries as percentage of US per capita: IN GNP, 1913–79	21
3.2	Per capita GDP of selected countries as percentage of US per capita GDP, 1955–79 (ICP method)	22
3.3	Long-term patterns of economic growth, 1955–79	24
3.4	The demographic transition	26
3.5	Imports of manufactures from developing countries as percentage of GNP of developed countries	27
3.6	Weighted index of commodity prices, 1950–82	28
5.1	Agricultural and food output, by major world region and by country group, 1963–70 and 1970–78	41
5.2	Cross-country share of employment and output in agriculture, 1980	43
5.3	Index and growth rate of world exports, by volume	52
5.4	Export growth rates, by country group	53
6.1	Major crop zones in developing countries	58
6.2	Features of major crop zones, 1978	59
6.3	Area expansion and intensification, by crop zone, 1961–80	59
6.4	Agricultural inputs in developing countries, 1960–79	61
6.5	Irrigation in major crop zones, 1978	62
6.6	Tractors in major crop zones, 1978	66
6.7	Fertilizer use in major crop zones, 1978	67

6.8	Food grain yields in developing countries, 1961–65 and 1976–80	71
7.1	Indian rural household income, by source and by farm size, 1970–71	79
7.2	Number of farms vs farmed area: Comparative distribution, by region, selected countries, 1970	82

Text boxes

2.1	Italy's ODA policy changes	16
2.2	Inflation, balance of payments, and debt servicing	17
3.1	What are we trying to measure?	20
3.2	The International Comparison Project	23
3.3	Regional disparities within countries	25
3.4	Response to terms of trade shocks in Sri Lanka	28
3.5	Brazilian manufactured exports	29
4.1	Growth scenarios	32
4.2	Is there a protectionist danger?	33
4.3	Prospects for ODA from DAC members	36
5.1	Food versus feed?	42
5.2	Oil and agriculture: The Nigerian experience	46
5.3	Improving incentives in Chinese agriculture	47
5.4	Nominal protection and foreign exchange evaluation	48
5.5	Brazilian soybeans: Creating a comparative advantage	50
5.6	Private complements public: The Bangladesh experiment	51
5.7	Measuring the impact of agricultural protection	54
5.8	The "food crisis" and its food security aftermath	55
6.1	Forests and fuelwood: The Sahel's ecological dilemma	60
6.2	Downstream effects of irrigation	61
6.3	Rain-fed agriculture: The Mexican experience	63
6.4	New frontiers in agricultural science	64
6.5	The international agricultural research centers	68
6.6	The Green Revolution in Punjab, India	70
6.7	The yield gap and agricultural extension services	73
6.8	Decisionmaking on the African farm	74
6.9	Productivity and small farms: Intensive vegetable production in southern Greece	75
6.10	The Indian seed industry	76
7.1	Farmer education, farm efficiency, and nutrition in Nepal	80
7.2	The milk revolution in India	83
7.3	Employment Guarantee Scheme, Maharashtra, India	85
7.4	Food security in rural China	88
7.5	Famine comes from income insecurity	89

Definitions

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 1980 gross national product (GNP) per person of \$410 and below; and *middle-income economies*, with 1980 GNP per person above \$410. Developing countries are also divided into *oil exporters* and *oil importers*, identified below.

- *Oil exporters* comprise Algeria, Angola, Bahrain, Brunei, Congo, Ecuador, Egypt, Gabon, Indonesia, Iran, Iraq, Malaysia, Mexico, Nigeria, Oman, Peru, Syria, Trinidad and Tobago, Tunisia, and Venezuela.

- *Oil importers* comprise all other developing countries not classified as oil exporters.

- *High-income oil exporters* (not included in *developing countries*) comprise Kuwait, Libya, Saudi Arabia, Qatar, and the United Arab Emirates.

- *Major exporters of manufactures* include Argentina, Brazil, Greece, Hong Kong, Israel, Republic of Korea, Portugal, Singapore, South Africa, and Yugoslavia.

- *Industrial market economies* are the members of the Organisation for Economic Cooperation and Development (OECD, identified in the Glossary) 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*.

- *Nonmarket industrial economies* include the following developed European countries: USSR, Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, and Poland. This group is sometimes referred to as *nonmarket economies*.

Economic and demographic terms are defined in the technical notes to the World Development Indicators.

Billion is 1,000 million.

Tons are metric tons (t), equal to 1,000 kilograms (kg) or 2,204.6 pounds.

Growth rates are in real terms unless otherwise stated.

Dollars are United States dollars unless otherwise specified.

Symbols used in the text tables are as follows:

.. Not available.

(.) Less than half the unit shown.

n.a. Not applicable.

All tables and figures are based on World Bank data unless otherwise specified. Data for 1981 are provisional and for 1982 are estimated.

*For purposes of statistical continuity, in the tables in Part I of this Report Spain, Romania, and Iraq have been retained in their historical groups: middle-income oil importer, centrally planned economy, and high-income oil exporter, respectively.

Glossary of Acronyms and Initials

CGIAR The Consultative Group on International Agricultural Research is an informal association of countries, multilateral organizations, and private foundations that supports research on agricultural problems of developing countries.

CIAT Centro Internacional de Agricultura Tropical, based in Colombia, is concerned with the humid lowland tropics of the Western Hemisphere. It has programs in cassava, field beans, rice, and tropical pasture.

CIMMYT Centro Internacional de Mejoramiento de Maiz y Trigo, based in Mexico, conducts research on barley, triticale (a cross between wheat and rye), and sorghum, in addition to its main research on breeding improved varieties of maize and wheat.

CIP Centro Internacional de la Papa, based in Peru, develops, adapts, and expands research to solve priority problems limiting potato production in developing countries.

DAC The Development Assistance Committee of the OECD (see below) comprises Australia, Austria, Belgium, Canada, Denmark, Finland, France, Federal Republic of Germany, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States, and Commission of the European Communities.

EEC The European Economic

Community comprises Belgium, Denmark, France, Federal Republic of Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, and United Kingdom.

FAO Food and Agriculture Organization of the United Nations.

IBPGR The International Board for Plant Genetic Resources, with headquarters in Italy, stimulates and coordinates the collection, preservation, evaluation, and exchange of seeds and other genetic materials of potential interest to plant breeders in the developing countries.

ICARDA The International Center for Agricultural Research in the Dry Areas, with its principal station in Syria, deals with crop investment (barley, broad beans, lentils, and durum wheat), soil and water management, and farming systems (including sheep husbandry) for zones of very low winter rainfall.

ICRISAT The International Crops Research Institute for the Semi-Arid Tropics, based in India, and with a large program in Africa, deals with the development of systems of farming in semi-arid zones and breeding improved varieties of groundnuts, sorghum, pearl millet, chickpeas, and pigeon peas.

IDA International Development Association.

IFPRI The International Food Policy Research Institute, based in the United States, does socio-

economic research on selected policy problems affecting production, consumption, availability, and equitable distribution of food, with particular reference to the needs of low-income economies.

IITA The International Institute of Tropical Agriculture, based in Nigeria, deals with cassava, cowpeas, soybeans, and local adaptations of internationally developed strains of maize and rice, and with the development of farming systems for the humid tropics.

ILCA The International Livestock Center for Africa, based in Ethiopia, does multidisciplinary research to improve livestock production systems in Africa.

ILRAD The International Laboratory for Research on Animal Diseases, based in Kenya, studies two protozoal diseases which infect and are often fatal to cattle in parts of Africa—trypanosomiasis (sleeping sickness) and theileriosis (East Coast fever).

IMF International Monetary Fund.

IRRI The International Rice Research Institute, based in the Philippines, has worldwide responsibility for developing improved varieties of rice and related farming systems.

ISNAR The International Service for National Agricultural Research, located in the Netherlands, provides assistance to developing countries to strengthen

their research capacity and capabilities.

OECD The Organisation for Economic Cooperation 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, Tur-

key, United Kingdom, and United States.

OPEC The Organization of Petroleum Exporting Countries comprises Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

UNDP United Nations Development Programme.

USAID Agency for International

Development, US Department of State.

USDA US Department of Agriculture.

WARDA The West Africa Rice Development Association, based in Liberia, deals with rice research and development in fifteen West African countries.

WHO World Health Organization.

1 Overview

The world economy is at a low ebb, weakened by difficulties in adjustment and by faltering growth in the major industrial countries. For much of the past thirty years, growing interdependence—through trade, capital, and migration—strengthened the forces of economic expansion and spread them around the world. But, as recent events have illustrated, these links can transmit problems from country to country just as surely as benefits. In the industrial countries, large fiscal deficits, tight monetary policies, and concern about inflation have raised real interest rates to unprecedented levels, curtailed growth, and depressed the export earnings of developing countries, contributing to severe liquidity problems for many of them. With their ability to buy imports and service their debt thus reduced, many developing countries have had little alternative in the short term but to reduce growth.

In this year's Report the discussion of the international economy and the prospects for growth is arranged in three chapters. Chapter 2 reviews the measures taken by various groups of countries to cope with the sudden and large shocks to the world economy during the 1970s. It concludes that most developing countries adjusted better than the industrial countries over the 1974–81 period. But the low-income countries have been particularly

hard hit by the recession in the industrial countries.

Chapter 3 describes the development achievements of the past three decades—a period of unparalleled economic growth, but growth which was spread very unevenly around the world. Growth was particularly slow in the poorest countries; even there, though, tremendous progress was made in improving the quality of life and establishing the preconditions for development.

Chapter 4 discusses the prospects for the 1980s in the light of recent events as well as longer-term trends. It emphasizes that, although international prospects have worsened over the past year, the middle-income countries should be able to continue their progress in narrowing the gap between themselves and the industrial countries. But the prospects for the low-income countries remain a matter of grave concern. India and China may not be able to sustain the progress they made in the 1970s without continued external assistance. In the other low-income countries, which are even more heavily dependent on aid flows, output growth is likely to remain severely depressed.

International issues and past development

During the 1970s the developing countries adjusted remarkably well to the more turbulent conditions

in the world economy. Since 1973, they have grown roughly twice as fast as the industrial countries. Faced with sharply increased prices for their imports of fuel and manufactured goods, developing countries borrowed more, boosted exports, and substituted for imports. In many of them, investment rose as a proportion of GDP.

A rising level of investment and sustained growth are both cause and consequence of successful long-run adjustment. Most developing countries were able to make good use of their additional borrowing in the 1970s. For a time, rapid inflation and negative real interest rates eroded the nominal value of their debt-servicing obligations. Inflation is a mixed blessing, however. It causes debts to be paid off earlier, because nominal interest rates rise to reflect lenders' anticipation of the lower real value of loan repayments in the future. About one-half of total developing-country medium- and long-term external debt carries variable interest rates. Much of the new debt contracted at fixed rates of interest has also incorporated expectations about future inflation. The heavier burden of repaying existing debt and the slowdown in net new borrowings caused by high interest rates has exacerbated the liquidity difficulties of many developing countries—and some of the countries of Eastern Europe. Since 1979, the rise in real interest rates has

also reduced the real value of the net resources transferred to developing countries.

Chapter 3 highlights the changing structure of the international economy over the past thirty years, with the emergence of new clusters of buoyant economic activity, notably in Japan and the Pacific rim of Southeast Asia, the Latin American economies, and the oil exporters centered around the Middle East. These changes became more conspicuous in the 1970s, as growth in North America and Europe slowed while a group of middle-income countries increased their investment and exports and maintained more rapid growth. The oil exporters and semi-industrial countries began to narrow the gap in relative terms between their per capita incomes and those of the OECD countries. The low-income countries have, for the most part, remained on the periphery, lacking the energy resources or the manufacturing capacity to achieve rapid growth through trade. But helped by very high domestic savings, China and, to a lesser extent, India and Pakistan have significantly improved their per capita incomes. In many other cases, growth was hampered by the weak performance of agriculture, a weakness that grew more marked in sub-Saharan Africa in the 1970s.

Although growth requires an increase in the primary factors used in production, improvements in the efficiency of their use have been responsible for most of the growth in developing countries. In Africa, in particular, recent analysis suggests that the absolute amount of investment makes a less important contribution to economic growth than the way investment is allocated and used. There are many examples of countries where high rates of

investment have failed to produce high growth rates.

In most developing countries, low- and middle-income alike, remarkable social progress was achieved over the past three decades. Literacy, health, and life expectancy not only reflect substantial gains made amidst extreme poverty, but also create their own momentum of growth. By broadening domestic technical and managerial skills, changing the attitudes of farmers and workers, and, it is hoped, lowering the birth rate, human development offers the prospect that per capita living standards can be improved faster in the 1980s. This long-term improvement in human capital is one bright spot that is shared by almost all developing countries.

Development prospects

Development prospects for the international economy, discussed in Chapter 4, have worsened over the past year. The list of reasons for pessimism is long: continuing recession in the industrial countries (which also heightens the threat of protectionist measures); the developing countries' adverse terms of trade and depressed export volumes; high and more volatile interest rates that limit borrowing; and large debt repayment burdens. If not soon overcome, these barriers to growth could condemn the world to the sluggish growth that is outlined in the World Bank's Low case. Developed from work with the Bank's global model, alternative scenarios illustrate some of the factors that will determine the pace of growth in the world economy. The High case illustrates the conditions for more rapid recovery from present difficulties.

For developing countries, the most salient features of an unfavorable international outlook for

the 1980s are less aid, continued weakness in commodity prices, deteriorating export opportunities, and poor prospects for commercial borrowing. The first two factors are comparatively more serious for low-income countries—and there is very little they could do about them in the near future. The other two would hurt middle-income countries more; but appropriate policy responses—flexibility in policies toward trade and industry, plus internal adjustments to enhance creditworthiness—would mitigate their harm.

The Low case growth rates are clearly inadequate in the light of the developing countries' past performance as well as their potential, expectations, and needs. Even among the major exporters of manufactures and the oil exporters, unemployment and underemployment have characterized all but a few of the fastest growing economies. Should the Low case come about, the social and political tensions created by rising unemployment would seriously complicate the tasks of economic management.

The Low and High cases are neither forecasts of what will happen nor firm boundaries of feasible outcomes. They are, at best, likely outcomes under combinations of either reasonably good or relatively undistinguished policies in the developing countries themselves, and of policies in developed countries that are either fairly helpful toward growth and development or rather unhelpful. If the slow-growing countries were to emulate the average growth achieved in the past, while those which had had average growth rates were to match the fastest growers, even the High case projections could be comfortably exceeded. The final outcome cannot be forecast because it is not pre-

determined; it is to be decided.

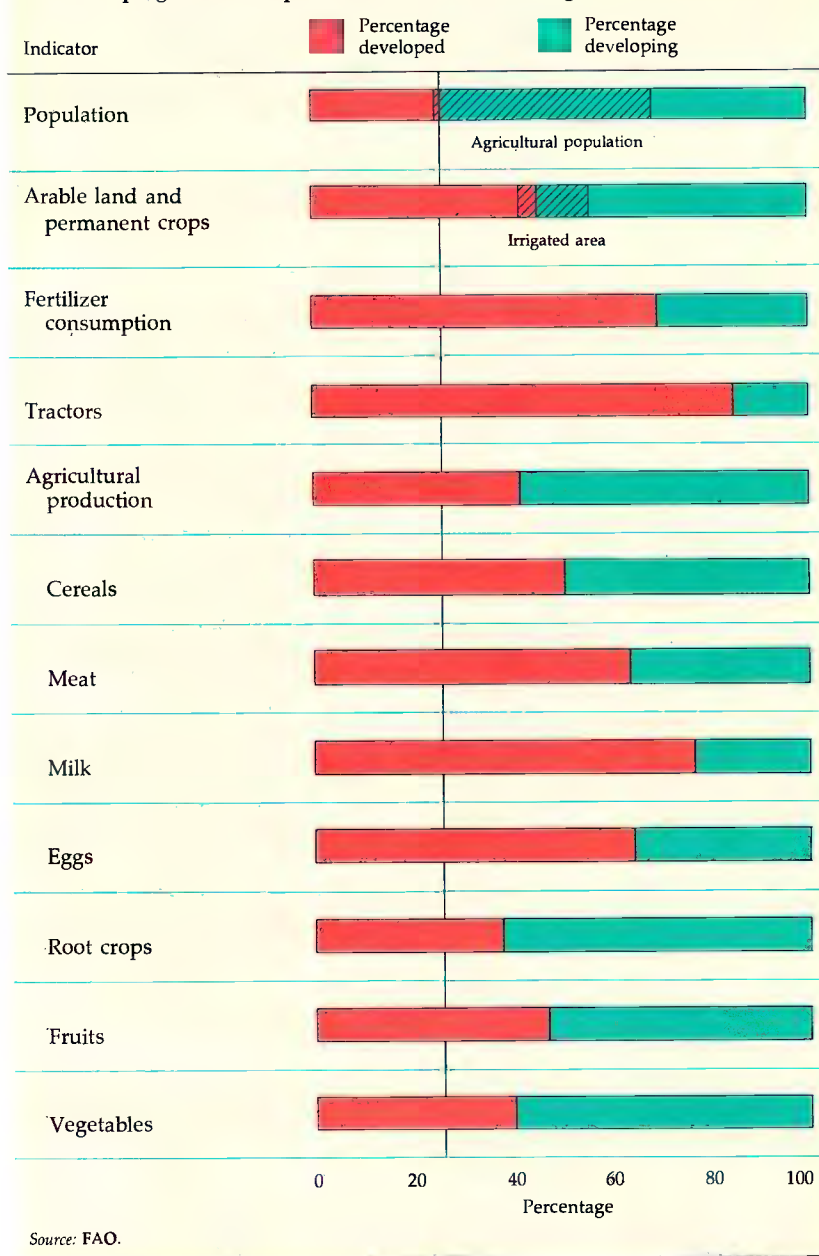
Priorities for industrial countries are, first, the restoration of their own economic health and continued growth. But the maintenance of a liberal environment for trade and capital flows is essentially their responsibility as well. Although external finance accounts for only 13 percent of the total investment in developing countries (or 4 percent of world savings), it makes an important contribution by providing essential imports of machinery, materials, and technology. It also helps cushion balance of payments shocks. To facilitate greater capital flows, aid must not be allowed to suffer from pressures to cut fiscal deficits.

The experience of the 1970s suggests that most developing countries have weathered the dislocations with remarkable discipline. Nevertheless, policymakers need to continue to stress the importance of several factors: increasing levels of domestic savings and investment, improving efficiency in the use of capital, and responsible management of external debt. To lay the foundation for development over the longer term, however, attention must be given to strengthening economic management and to developing a strategy for the 1980s. With very few exceptions, developing countries would gain significantly by giving greater priority to agriculture. This is the theme of the second part of the Report.

Agricultural development

The character of world agriculture has changed dramatically during the past thirty years. In the developed countries, scientific research together with the increased use of industrial technology, chemical fertilizers, and machinery have revolutionized production and

Figure 1.1 Comparative agricultural indicators for developing and developed countries, 1979–80 average



marketing. Elements of this revolution have been adapted to many developing countries, but the variety of their circumstances—climate and environment (and the availability of technology appropriate to them), institutions, management, and policy—has produced widely differing performance and progress. Contrasts between the agriculture

of developed and developing economies are illustrated in Figure 1.1.

The discussion in Part II is organized in four chapters. They deal with:

- The links between agricultural growth and overall economic development
- The sources of growth and

their application in differing circumstances

- Rural poverty and food security
- Policy considerations and conclusions.

Agriculture and economic growth

In the past three decades agricultural output has increased at twice the rate of earlier periods. For the developing countries, these aggregates conceal large regional and intracountry differences. In most poor countries population growth sharply reduced the benefits—for low-income countries as a group to a modest 0.2 percent a year per capita over the 1960s—and per capita agricultural and food output declined in the 1970s. The poor of the low-income countries still face a severe food problem.

Agriculture dominates low-income economies, 70 percent of whose population depends on it. Its growth in large part dictates the growth of their GDP. The mass of the population spends 60 to 70 percent of its income on food, while many nonagricultural activities depend on agriculture—not least government itself, through its agricultural tax base.

As development proceeds, agriculture's role diminishes, eventually accounting for a small fraction of both output and employment at advanced stages of development. For most developing countries, however, it remains critical, because its progress determines the speed at which countries can industrialize. In general terms, cost-reducing innovation and investment are central to speeding up agricultural growth. The benefits of productivity gains are partially transferred to consumers, because low food (and other commodity) prices

stimulate the rest of the economy, while keeping it supplied with labor leaving the land for more productive employment.

One point emerges very clearly from the diversity of experience of the developing countries: rapid growth in agriculture and in GDP go together. Where the pursuit of industrialization—the favored target of planners in the 1950s and 1960s—has been successful, agricultural progress has not been sacrificed. Success in agriculture strengthens and helps sustain the momentum of the whole economy. Of equal importance is the contribution of sustained agricultural growth to the reduction of poverty.

The balance of interests between producers and consumers is the central issue of agricultural policy, and one governed by pricing structures. In the pursuit of goals other than agriculture's development, developing-country planners have often tilted their pricing policy against agriculture—and paid a heavy price in lost agricultural growth. Incentives to farmers to invest and produce is a key stimulant to agricultural growth.

By contrast, the industrial countries protect agriculture to maintain some parity in incomes between farmers and other workers. This protection is extremely expensive—unnecessarily so, since it has spurred increases in agricultural output beyond economically justified levels and has seriously distorted international comparative advantage.

For policymakers, the challenge is to adjust domestic policies and to build a trading system in which comparative advantage can play a greater role in production. Faster progress on this front is clearly desirable to enlarge the developing countries' access to markets and, in the long run, to

ensure that the world's agricultural resources are more efficiently used to increase per capita supplies of food.

The sources of growth

The tie between agriculture and nature distinguishes farming from most other activities. Innovation and investment have to be related to the specific environmental contexts. For example, the leading role of water control (irrigation, drainage, flood control) in populous Asia contrasts with the emphasis on basic infrastructure in some areas of Latin America and Africa, where land is ample. The public sector plays a dominant role in providing both infrastructure and large-scale irrigation systems, and faces special problems of management and financing in operating them. It also takes the lead in biological research, whereas mechanical and chemical innovations are dominated by the private sector.

No universal package of prescriptions can be offered. Nature, feasible cropping systems, available technology and the means to acquire and use it—they all vary too widely for any simple formula to make sense. However, a few lessons are clear.

- Investments in agricultural research, the result of both international and national initiatives, have paid off handsomely and have fueled growth during the past twenty years. The blending of basic science, applied research, practical experience, adequate incentives, and investment has yielded tremendous increases in output for certain crops, principally rice and wheat, in certain conditions. Given this high rate of return, investment in research should be not only maintained but accelerated. Specifically, it should be aimed at the hitherto neglected areas: rain-fed crops, root crops

(cassava), and coarse grains (sorghum, millet), so as to boost productivity in humid and semi-arid areas—particularly sub-Saharan Africa.

- **Water control**—largely irrigation but also drainage and flood control—is a major source of increased productivity. If a farmer is to adopt a new variety of seed and apply the right amount of fertilizer, he must be assured of adequate supplies of water delivered on time. Such assistance has generally provided high rates of return, though it requires considerable investment and strong local organization. Private sector irrigation, mainly by means of tubewells and small pumps, complemented the Green Revolution in South Asia. Where this technology can be applied, it remains an important factor in boosting agricultural output. In the future as in the past, however, the size and collective nature of the investments will require heavy reliance on public sector irrigation. In the larger irrigation systems, intelligent water management is a precondition for high productivity. Further investment in irrigation should go hand in hand with efforts to reform the management of the systems already completed and operating. The waste of scarce and expensive irrigation water remains very large.

- **With urbanization and the growth of the cash economy, marketed food production will need to increase very rapidly. This will require considerable investments in crop storage, processing, and transport. Here especially, there is need for governments to consider carefully the respective roles of the public and private sectors in financing and managing those investments. Public schemes need continuous scrutiny to ensure that they are employed to best effect.**

Efficient and equitable private sector performance needs effective government policies and administration.

Rural poverty

Worldwide, absolute poverty is overwhelmingly concentrated in the rural areas of developing countries. The 1980 Report estimated that 780 million people, excluding China and other low-income centrally planned economies, were living in absolute poverty. In China probably 150 million people live just above the poverty line. The one-fifth to one-quarter of the rural poor who are effectively landless have much the same income as very small farmers—close to bare subsistence—but they are more vulnerable to calamities and harder to reach with development programs.

Economic growth is the ultimate remedy for rural poverty. In fast-growing economies—mainly middle-income countries—absolute poverty has been greatly reduced as new employment was created off the farm, in both rural and urban areas.

Certain special initiatives will help reduce rural poverty and stimulate growth at the same time. Projects aimed at small farmers can boost productivity, especially if the projects are simple, focused on priority problems, and well integrated with government administration. Employment away from the farm also boosts incomes and has a direct relationship with agricultural prosperity. Agrarian reform that increases security of tenure can also increase productivity, and sometimes so can land reform, though most of the rural poor live in areas where farms are already small and land intensively used. Rural public works can reduce rural poverty, often very cheaply; by converting ample labor into needed capital, they

help accelerate agricultural growth. The intensive involvement of the local population in the planning, execution, and financing of these initiatives plus sound design and good management appear to be the major determinants of their success.

Since the rural poor spend a large proportion of their budgets on food, they benefit as consumers from cost- and price-reducing agricultural development, especially if research is expanded on the crops they produce and consume. But food security for poor people will remain a priority for many years. This should include famine-related relief programs and schemes to reduce chronic undernutrition.

Without careful attention to targeting, food distribution programs to combat malnutrition often involve heavy budgetary costs—without necessarily doing much to improve nutrition among the rural poor. Governments should therefore consider whether these programs could not be better targeted and the resources saved then spent on direct investments in agriculture itself. Food subsidies are invariably politically charged, so governments may find it difficult to rearrange their budget priorities. But limiting distribution of subsidized food to the needy would cut the budgetary costs of subsidies without compromising their nutritional objectives.

Conclusions

For many years, the contribution of agriculture to growth and the capacity of traditional farmers to change were controversial and little understood issues. That is no longer so. Economic growth has gone hand in hand with agricultural progress. All farmers—small, medium, and large—respond to

economic incentives. Far from being "tradition-bound peasants," farmers have shown that they share a rationality that far outweighs differences in their social and ecological conditions. Farmers can contribute to agricultural investment. Even those farming only a few acres, save a substantial part of any extra income and invest it on their farms. They also use their own and their families' labor to level land, grow trees, dig ditches, and build paddy terraces—all activities that create the capital to produce more agricultural output in the future. Small farmers can be highly productive, typically producing more from each acre than large farmers do. Programs and policies favoring smallholders can thus offer good economic returns as well as increase employment and reduce rural poverty.

Given incentives and opportunity, farmers will expand output. That does not mean that governments and other official agencies should confine themselves solely to fixing those incentives. Research and technology need to be

developed and adapted to local conditions. The lack of technological improvements suitable for African conditions is a main reason for Africa's poor performance so far. Internationally financed projects in agriculture are necessary to overcome obstacles, to demonstrate how to increase output, and assist in devising programs to benefit the poor. Major investments in irrigation, transport, and marketing networks are also needed, which require external assistance.

The constraints on agricultural growth do not lie in the behavior of farmers; they are willing to work hard, to adopt profitable innovations, or to invest for the future. Instead, the constraints are to be found in the environment in which farmers operate: the technology available to them, the incentives for production and investment, the availability and price of materials such as fertilizers, and the provision of irrigation.

The future thus depends on a number of factors—particularly the policy framework, advances in research, and the international

environment. The proper incentive to farmers must be complemented by infrastructure. New research breakthroughs—especially for controlling tsetse fly and developing improved varieties of coarse grains, roots, and tubers—could open up and increase the productivity of vast areas. The international community can and should provide support.

Aid for agriculture increased in the 1970s, reflecting both a rising volume of aid in general and the increased share going to agriculture in particular. That in turn reflects changing perceptions among both donors and recipients about the role of agriculture and a clearer understanding of its importance in dealing with poverty. The experience of aid-supported agricultural development in the 1970s was in many cases novel. Aid helped finance a wider variety of programs and embraced more countries than ever before, forging new partnerships between donors and recipients. That past provides the spur for the future.

Part I International Development Trends

2 The world economy in transition

In the early 1970s, after more than two decades of rapid development, the world economy entered a period of transition. It became necessary to adjust to inflation, the realignment of currencies following the collapse in 1971 of the Bretton Woods system of fixed exchange rates, the 1972–74 food crisis, the 1973–74 quadrupling of oil prices, and the deceleration of growth in oil supplies. These factors led to a short, sharp recession in 1974–75. Then, after three years of recovery, a further adjustment was required as oil prices doubled in 1979–80, inflation accelerated, and exchange and interest rates became unusually volatile.

The recession these events induced has been unexpectedly prolonged. In the industrial countries, economic policies that had successfully coped with earlier cyclical downturns, and even to some extent with the recession of 1974–75, are proving inadequate, and growth has faltered. The developing countries, despite the rise in their current account deficits from \$40 billion in 1979 to \$115 billion in 1981, have been much more successful than the industrialized countries in adjusting to the new situation. Many have been helped by policies they instituted in response to events of the early 1970s, by their high investment rates, and by the help-

ful developments of the later 1970s in international trade and capital flows. Nonetheless, even for thriving middle-income countries, the current economic environment is fraught with difficulties. For many people in the poorest developing countries—particularly in sub-Saharan Africa, where income per person has not grown for a decade—the ability to maintain even basic production activities may be compromised.

This chapter reviews how countries have adjusted and describes the actions taken to restore external deficits to sustainable levels, with or without reductions in economic growth rates. The review identifies policies—both those which can strengthen individual economies and those which can improve the international environment—that would help development progress in the remainder of this decade. Alternative projections of growth in the 1980s are discussed in Chapter 4. They are based on a long-term view of determinants of growth and, in particular, on assessments of the developing countries' ability to modify their economic structures. To provide this perspective, Chapter 3 analyzes trends in the groups of developing countries, and their relations with the international economy, over the past three decades.

Adjustment in 1973–78

As described in more detail in *World Development Report 1981*, countries have four ways of responding to external shocks. The current account deficit can be brought back to sustainable levels by (1) slower growth, which cuts the demand for imports, or (2) switching production toward additional exports and import substitutes. External borrowing can be used to provide countries with additional investment resources (3) to help make these structural adjustments or (4) to postpone making adjustments.

All four mechanisms were at work after 1973: the annual growth of developing countries as a group fell sharply, from 5.8 to 4.6 percent, but there was a more drastic deceleration in industrial countries, from 5.1 to 2.4 percent (Table 2.1 and Figure 2.1). The general pattern—of better growth performance by middle-income countries than by richer or poorer countries (Figure 2.1)—conforms to that since 1960. Among developing countries, the low-income sub-Saharan countries were least able to make structural adjustments; but in India and China, with large, relatively self-sufficient economies, the effect of adverse external events was more than offset by high domestic investment and good agricultural performance.

Most oil-importing developing countries borrowed more in the immediate aftermath of the 1972–73 events. Nonconcessional capital flows, mostly from commercial banks, expanded rapidly in 1973–75, as did concessional flows from industrial countries and high-

income oil producers; thus imports other than oil were permitted to rise while adjustment measures were implemented. By 1976, most deficits had been brought down substantially (Table 2.2). In the process of implementing adjustment policies, it

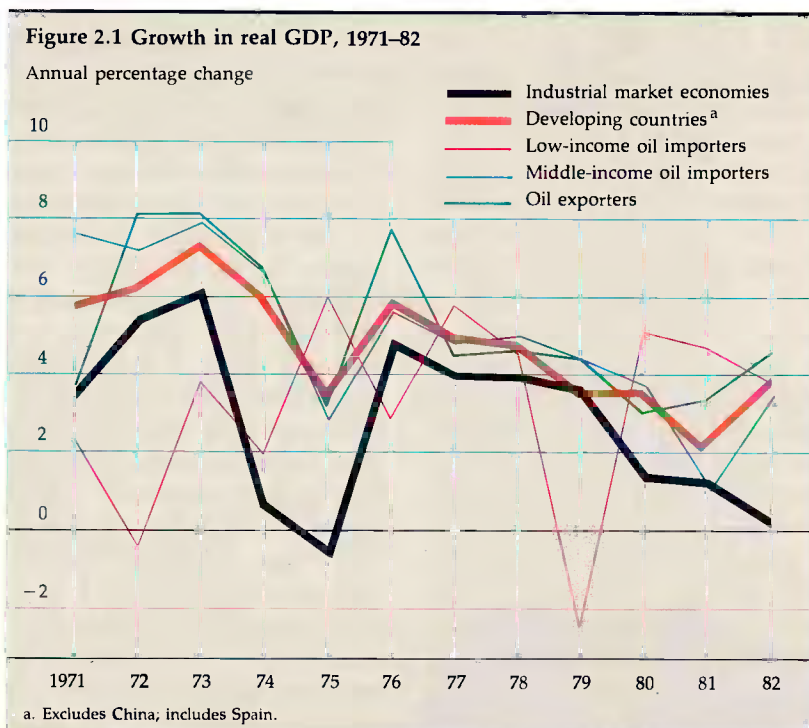
was the volume of domestic investment and consumption, rather than the need to accommodate to changes in the terms of trade, that shaped the use of external finance. The contribution of investment to the adjustment process was especially vital to raise production capacities for exports and import substitutes, notably energy, to effect permanent improvements in the structure and level of trade of developing countries. (The trade adjustment mechanism is analyzed in detail in the 1981 *World Development Report*, Chapter 6.)

All country groups, apart from the least developed and the industrial countries, increased the ratio of investment to GDP, in part at the expense of consumption (Table 2.3). The industrialized countries were unable to restrain consumption, and the least developed countries had little scope for doing so. The inability of least developed countries to raise real investment rates despite substantial foreign capital inflows jeopardized their economic adjustment and left them vulnerable to further shocks. In other groups, however, notably South Asia, the investment upsurge was helped by additional domestic savings. As noted below, the developing countries' ability to maintain high investment rates, while those of the industrialized countries fell (Figure 2.2), was a key to their superior growth performance in the 1970s.

Within groups of countries, adjustment experience of course varied widely, depending importantly on their domestic policies as well as on their economic structure and the differential impact of external forces. Among semi-industrial and primary producing countries, as noted in the 1981 Report, those with outward-looking trade policies (for exam-

Table 2.1 Growth of GDP, 1960–82
(average annual percentage change)

Country group	1960–73	1973–80	1980	1981	1982
All developing countries	5.8	4.6	4.0	2.2	3.9
Low-income	4.1	4.5	5.9	3.9	3.9
China	4.7	5.3	6.8	3.0	..
India	3.5	3.8	6.5	5.6	..
Other	3.8	3.1	2.9	4.3	..
Africa	3.8	1.3	0.4	2.7	..
Asia	3.8	5.2	5.5	5.9	..
Middle-income	6.4	4.7	3.5	1.7	3.8
Oil exporters	6.4	4.4	3.0	3.3	4.6
Oil importers	6.3	4.8	3.7	1.0	3.5
East Asia and Pacific	8.2	7.5	3.5	7.2	..
Latin America and Caribbean	5.9	5.4	5.6	-2.5	..
Sub-Saharan Africa	4.4	3.3	4.2	1.7	..
Middle East and North Africa	5.0	3.6	4.7	-0.5	..
Southern Europe	7.0	3.4	1.4	2.0	..
High-income oil exporters	8.6	8.3	4.5	-11.3	-1.0
Industrial market economies	5.1	2.5	1.4	1.2	0.2
Industrial nonmarket economies	..	..	2.7	1.8	3.0



ple Ivory Coast, Republic of Korea, Philippines, Singapore, Thailand, Tunisia, or Uruguay) generally adjusted more effectively than those with inward-looking policies (such as Colombia, Kenya, Peru, Turkey, or Yugoslavia).

Adjustment in 1979–82

Overall, the immediate slowdown in growth rates in 1980–81 was less marked than in 1974–75, suggesting that previous adjustment actions had created more resilient economic structures. The doubling of oil prices in 1979–80 brought about the same terms of trade loss, some 2 percent of GDP, as the quadrupling in 1973–74, but

in the industrial economies output continued to grow at moderate rates through 1979. Output began to stagnate in the course of 1980, beginning a slowdown which is likely to continue through

1982, as many of these economies seek to curtail inflation through restrictive demand management policies while adapting their production structures.

The developing countries' per-

Table 2.2 Resource gap as percentage of GDP, 1974–80

Country group	1974	1975	1976	1977	1978	1979	1980
Primary producing	3.0	5.3	3.2	4.6	4.0	3.0	4.6
Least developed	7.3	11.2	6.9	5.5	9.0	7.2	5.2
Populous South Asia	1.9	2.3	0.6	1.2	1.5	..	..
Semi-industrial countries	5.9	5.8	3.5	2.5	1.9	2.7	4.2
Latin America	3.4	3.4	1.3	-0.4	-0.2	0.5	1.9
Southeast Asia	7.2	6.3	2.0	0.4	3.6	5.6	6.1
Others	8.6	8.4	6.6	6.2	4.0	4.4	6.1
Oil exporters	-15.7	-0.9	1.0	5.0	7.1	-1.3	-3.2
Industrial market economies	0.4	-0.6	0.3	0.5	0.0	0.5	0.9

Note: Country groups are as defined and analyzed in the *World Development Report 1981*, p. 65. Fifty-six countries, for which adequate data exist, are included in the calculations of the analytical group totals.

Table 2.3 Response of consumption, investment, borrowing, and growth to external shocks, 1970–72 to 1975–78

(percentage of 1970–72 GDP)

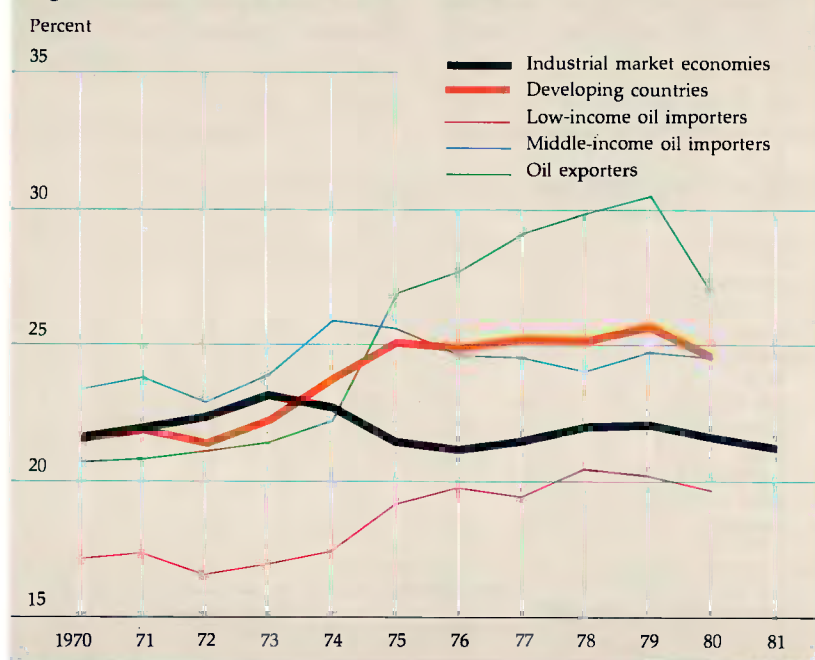
Item	Least developed	Populous South Asia	Primary producing	Semi-industrial Southeast Asia	Semi-industrial Latin America	Other semi-industrial	Oil exporters	Industrial market economies
<i>Impact of external shocks</i>								
Loss due to relative price changes	1.0	1.0	0.4	1.8	0	1.8	-20.2	1.7
Investment price effects	0.6	2.4	0.8	0.4	-0.3	1.1	-4.0	0.9
Consumption price effects	0.4	-1.4	-0.4	1.4	0.3	0.7	-16.2	0.8
<i>Mode of adjustment</i>								
Absorption reduction	-4.1	1.3	-2.3	3.4	0.2	-1.2	-24.8	1.2
Decrease in real investment shares	0.3	-1.5	-2.0	-4.5	-1.8	-1.2	-13.6	2.6
Decrease in real consumption shares	-4.4	2.8	-0.3	7.9	2.0	0	-11.2	-1.4
Additional real external capital flows	5.5	-0.8	2.8	0.4	0	3.4	4.6	0.5
Change in external deficit due to change in GDP ^a	-0.4	0.5	-0.1	-2.0	-0.2	-0.4	0	0
<i>Memorandum item</i>								
Growth in GDP per capita, 1970–79	0.6	1.5	2.7	6.1	4.2	3.2	3.5	2.3

Note: Country groups are the same as in Table 2.2. The above table may be interpreted as follows. Losses in national income arise from unfavorable movements in import prices compared with export prices. When these price movements are measured relative to the GDP price index, they can be translated into increases in the price indexes of investment or consumption goods relative to the GDP price index. The distribution of the total shock between these components is influenced by government policies. This information is shown for the major country groups in the upper part of the table: their sum equals external shocks to which adjustment was necessary. Countries responded to these shocks by (1) reducing absorption which was distributed over consumption and investment; (2) borrowing from abroad and, where necessary, (3) slower growth. The relative reliance on these modes of adjustment appears in the lower part of the table.

Thus, in the semi-industrial Southeast Asia group, for example, the average annual terms of trade loss in 1975–78 relative to 1970–72 was 1.8 percent of average 1970–72 GDP. These fell more on consumption goods (1.4 percent) than on investment goods (0.4 percent). The losses were more than fully accommodated by reduced real domestic expenditure relative to GDP; the net domestic resources thus conserved (3.4 percent of 1970–72 GDP) were attributable to large reductions in the real consumption share (7.9 percent) offsetting a rise in the real investment share (4.5 percent). Real external capital flows accounted for an additional 0.4 percent of 1970–72 GDP. Together these modes of adjustment were sufficient to permit growth. For a more detailed discussion of the methodology, see Hardy and Kharas.

a. This line reflects the impact on the external deficit of changes in GDP measured in 1970–72 US dollars. It therefore incorporates both real domestic growth and real exchange rate movements.

Figure 2.2 Share of investment in GDP, 1970–81



formance improved in 1980. Some benefited from increased oil exports, and others were able to draw on substantial accumulated reserves and short-term funds. Investment had reached 25 percent of GDP in 1975 and was maintained at that level thereafter (Figure 2.2), and many countries had considerable success in attracting capital from new sources, improving the allocation of resources, and expanding exports. In 1981, however, growth declined, especially in middle-income oil-importing countries. Latin America experienced its worst year in over three decades, with negative growth in Brazil and substantial slowdowns in most other countries. Africa, including low-income African countries; continued in a decade-long trend of sluggish growth. Some exceptions to the general pattern were found among East Asian countries, where strong trade penetration of existing markets in the industrial countries and exploitation of new markets in the buoyant oil

exporters' economies offset the overall slowdown in world trade, and among the large countries of South Asia, where higher investment and good harvests were joined by migrant workers' remittances.

Additional developing countries have recently joined those that pursued successful adjustment policies in the 1970s. Brazil responded to its crisis by raising agricultural producer incentives—and exports quickly followed. Turkey was able to stimulate exports through monetary, fiscal, and exchange rate reforms, even though world trade as a whole was stagnant, and thus brought some idle industrial capacity back into use.

The tentative recovery of developing countries' growth in 1982 is likely to be similar to that in 1976, and similarly aided by the current weakness in oil prices. The main difference between the aftermath of the events of the early 1970s and those of 1979–80 lies in the behavior of the industrial

economies which, by 1979, had already exhibited six years of slow growth and partial adjustment.

In most of these countries, fixed capital formation has yet to revive. Although some adjustment has occurred—principally in energy conservation—many countries have found it difficult to speed the pace of change in their economic structures. In the OECD countries, civilian employment increased by 30 million between 1970 and 1980: with a decline in agricultural employment of 7 million, other sectors absorbed 37 million workers, of whom 35 million or 95 percent have gone into the service sector, while only 2 million more jobs have been created in industry. But this structural shift, though large, was not enough. Both unemployment and inflation continued to grow, aggravated by productive capacities that are high in cost and by rigidities in labor markets.

Governments of the major industrial countries continue to give priority to curtailing inflation, principally through tighter monetary policies. Higher interest rates have depressed investment, however, and differences in these rates between countries have induced wider fluctuations in exchange rates and capital flows. This has brought a new element of uncertainty into the international environment of the early 1980s.

Factors affecting adjustment

In this section we examine in more detail how developing countries responded to changes in the international environment in the 1970s, drawing some lessons for future policymaking. Long-run trends from the 1950s, analyzed in Chapter 3, and events since 1973 indicate that those developing countries that have increased the level of investment and domestic

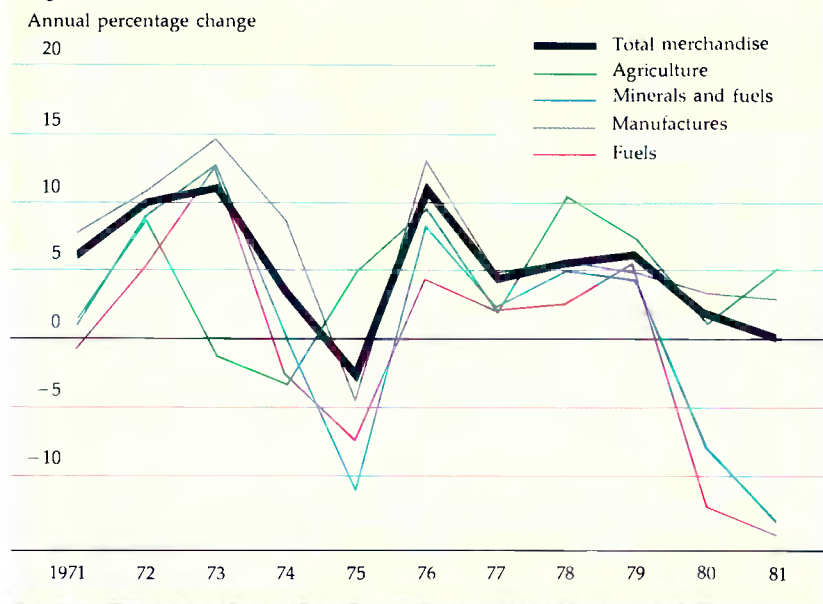
savings and diversified their exports have generally grown more rapidly than those that have not. Outward-looking developing economies with vigorous export promotion policies captured growing shares of the market for manufactured goods, largely at the expense of industrialized countries. For countries that were creditworthy, much more private capital became available, and at low real rates of interest through 1980.

The large economies of India and China, with half the population of the developing world, a high degree of self-sufficiency, and sustained high investment rates based largely on domestic savings, have been relatively insulated from the international economic changes of the 1970s. But for many small poor countries, whose export earnings and incomes are highly susceptible to fluctuations in primary commodity markets, the 1970s were a harrowing decade. These economies remained dependent on imported fuel, were unable to raise commercial loans, and suffered from aid levels still low, though rising, in per capita terms. They managed to make progress in developing human resources through education, health, and other public services, but by and large they have not yet been able to undertake the shifts in their production structures that would make them less vulnerable to external shocks.

Trade

Though growth in world trade has slowed down during the recent economic difficulties (Figure 2.3), until recently it has remained faster than the growth of output, as it has been for the past twenty-five years. Although the industrialized countries' GDP growth rates declined in the 1970s, their imports of merchandise other than fuel from developing countries

Figure 2.3 Trends in world trade volume, 1971-81



nonetheless expanded. Worldwide, a doubling in the growth of imports of manufactures more than made up for slower growth in imports of food and raw material other than fuel. This expansion of trade in manufactures was spearheaded by a small group of industrializing countries which, by vigorously promoting exports and diversifying production into new, more skill-intensive product lines, were able to widen their markets even in the recessionary 1973-75 period and provide a base from which to expand thereafter.

A second group of countries, including Cyprus, Indonesia, Jordan, Malta, Mauritius, and Morocco, expanded manufactured exports from a low base at a rate of over 20 percent a year in the 1970s, faster than the major exporters of manufactures. Reflecting their export gains, these economies grew faster than others at comparable income levels. Their increased exports of manufactures were accompanied by rising investment, higher per capita growth rates, and rapid reduction of external deficits from around

4.5 percent of GDP in 1974-75 to around 1.8 percent in 1978. While still strongly protectionist, these newcomers have begun to lower trade barriers, following in the footsteps of the earlier exporters of manufactures.

Also like the pioneers, these new exporters of manufactures have concentrated at first on clothing, textiles, footwear, and other labor-intensive goods. The more established exporters meanwhile have moved into higher quality goods and into markets in new areas. East and Southeast Asian exporters have continued to specialize in labor-intensive exports, now producing types of clothing, textiles, and electronics that require more design and other skills, and supplying a greater variety of consumer goods and light engineering components. They have also expanded into heavy engineering products such as ships, oil rigs, and hydroelectric generators that require considerable drafting and other skilled labor inputs. Because they are able to combine the latest technology with skilled management and rel-

atively low wages for technicians, these countries have become internationally competitive in heavy industries. Producers of capital goods in the Republic of Korea,

for example, now compete with Japanese firms in the US market. By thus displacing other exporters, they avoid protectionist pressures from local manufacturers.

Developing countries were able to raise their share in the manufactured goods imports of industrial countries to 13 percent in 1980 from under 7 percent in 1970. Although the pressures for increased trade barriers remain strong, this has been done without eliciting higher protection, partly because of the continued low absolute weight of such trade—just 1.3 percent of industrial-country GDP, despite a tripling over the past decade. Indeed, markets in the industrial economies grew more open throughout the 1970s, and manufactured imports took 9.6 percent of the industrial countries' GNP in 1980, up from 6 percent in 1970 (Table 2.4).

Table 2.4 Imports of manufactures by industrial countries, 1962–80

Industrial countries	1962	1970	1975	1980
<i>Imports of manufactures as percentage of GNP</i>				
All industrial countries	4.1	6.2	7.7	9.6
Europe	7.7	11.1	12.6	15.2
Germany	5.9	8.8	9.7	12.4
Japan	2.3	2.3	2.1	2.6
United States	1.2	2.6	2.3	4.9
<i>Percentage of imports of manufactures from developing countries</i>				
All industrial countries	5.3	6.8	10.0	13.1
Europe	4.2	4.8	7.5	9.6
Germany	4.6	6.3	10.8	12.9
Japan	5.9	11.4	21.4	25.1
United States	12.3	14.7	21.0	26.7

Table 2.5 Growth of merchandise exports, 1970–81
(average annual percentage change)

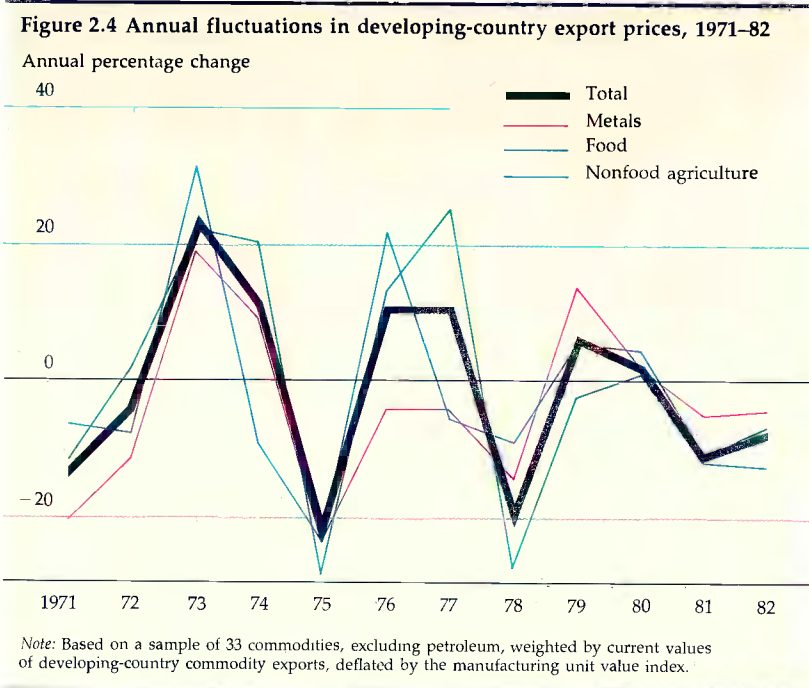
Country group	1970–78	1978	1979	1980	1981
All developing countries	5.1	7.1	6.3	-4.0	-2.3
Oil importers	8.8	12.6	9.8	3.5	3.1
Oil exporters	0.4	-1.6	1.1	-18.0	-16.0
Industrial market economies	6.4	5.7	5.5	4.0	2.0
World ^a	6.0	5.4	5.9	1.5	0.0

a. Excluding centrally planned economies.

In their markets for agricultural products, however, the industrial countries are far from open. Behind protectionist walls, the European Economic Community (EEC), for example, has become increasingly self-sufficient in a broad range of agricultural commodities. This topic is pursued further in Chapter 5. Since 1973, the demand for agricultural imports has grown most rapidly in oil-exporting countries, other newly industrializing countries, and the nonmarket economies.

All told, world trade continues to be an engine of growth for many countries. The oil-importing developing countries, whose exports account for only one-eighth of the world's total, have not been as severely affected as the industrial countries by the recent slowdown in world trade (Table 2.5). In 1982, continuing a pattern of the 1970s, exports from these economies are likely to grow faster than those of the world as a whole and those of the industrial market economies.

For countries dependent on primary commodity exports, however, the trade environment



of the past decade has been uneven. Peaks in the prices of commodities other than fuel were recorded in 1973–74 and again in 1976–77 (Figure 2.4) and helped many countries offset the rise in fuel import bills. But many poor countries, such as Bangladesh, Tanzania, and Zambia, suffered greatly in the 1970s from low commodity prices, which led to squeezes not only on their balances of payments but also on fiscal budgets. In the current world recession, commodity prices are severely depressed. For oil-importing countries, these adverse trends have been mitigated somewhat in 1982 by a 9 percent fall in the real price of petroleum. Even so, low-income countries have suffered far more from falling commodity prices and export volumes than they have gained from falling petroleum prices.

Remittances

Remittances into Portugal, Turkey, Yugoslavia, and other countries of southern Europe from their nationals working abroad grew at over 30 percent a year from 1960 to 1972, and thereafter grew at 15 percent in current dollars. From 1973 onward, the large flow of migrants to the sparsely popu-

lated oil-exporting countries (notably Kuwait, Libya, Qatar, Saudi Arabia, and the United Arab Emirates) led to a massive growth of remittances to South Asia and Arab labor-exporting countries. There are also considerable remittance flows from the United States to Mexico and Central America and from South Africa and certain West African countries to neighboring nations. For more than a dozen countries, remittances became a sizable frac-

tion of merchandise exports; for Egypt, Pakistan, and Turkey, the fraction was over 75 percent in 1978–79 (Table 2.6). Some countries, notably the Republic of Korea, became successful in winning construction contracts in the Middle East. Earnings from such activities are an important source of funds for adjustment. Certain countries can increase their share in construction activity in the Middle East, but overall the real rate of growth of remittances from

Table 2.6 Remittance inflows to major labor-exporting countries, 1978–79

<i>Region and country</i>	<i>Remittance inflow (millions of dollars)</i>	<i>Remittance inflow as percentage of merchandise exports</i>
Europe and North Africa		
Cyprus	70	18
Greece	990	30
Morocco	760	51
Portugal	1,690	69
Spain	1,750	13
Tunisia	220	25
Turkey	1,010	77
Yugoslavia	2,940	43
Middle East		
Egypt	1,760	89
Sudan	70	12
Asia		
Bangladesh	115	21
India	1,020	15
Pakistan	1,300	77
Africa		
Benin ^a	25	17
Mali	30	33
Upper Volta	65	60

a. 1977.

Table 2.7 Global current account balances, excluding official transfers, 1970–82

(billions of current dollars)

<i>Country group</i>	1970	1975	1976	1977	1978	1979	1980	1981	1982
All developing countries ^a	-10.9	-40.2	-24.5	-27.7	-43.6	-40.2	-77.5	-115.2	-109.2
Oil importers	-8.6	-37.1	-25.2	-23.2	-25.3	-43.7	-73.3	-88.0	-82.4
Low-income	-1.7	-3.7	-0.8	-1.6	-4.8	-7.1	-12.1	-12.2	-12.9
Middle-income	-6.9	-33.4	-24.4	-21.6	-20.5	-36.6	-61.2	-75.8	-69.5
Oil exporters	-2.2	-2.5	-0.3	-5.5	-17.6	5.1	-1.7	-29.3	-26.8
High-income oil exporters	2.8	31.2	36.6	33.0	18.6	57.3	103.3	76.1	35.0
Industrial nonmarket economies	2.0	-6.4	-4.5	-2.1	0.5	0.8	2.4	..	..
Industrial market economies	12.1	22.1	1.7	-3.2	28.0	-11.8	-40.1	1.8	15.3
World	6.0	6.7	9.3	0.1	3.5	6.1	-11.9	-37.3	-58.9

a. China is included in "all developing countries" but not in the subaggregates.

the Gulf states is expected to slow down.

Capital flows

The global pattern of current account balances and net capital flows in 1979–81 in part followed that of 1974–76. Rapid initial increases in the surplus of high-income oil exporters—to over \$100 billion in 1980—began to be eroded as the latter absorbed imports and reduced exports. Whereas the volume of oil exports from the major producers fell about 20 percent following the first price rise, by 1982 it is projected to be almost 40 percent below its 1979 level. The surplus of high-income oil exporters, \$76 billion in 1981, may fall to about \$35 billion in 1982. In the industrial market economies the contraction of aggregate demand reduced a \$40 billion deficit in 1980 to near balance in 1981; a surplus in excess of \$15 billion could emerge in 1982 (Table 2.7).

This decline in the high-income oil producers' surplus, and the reemergence of a surplus on the part of the industrialized countries, has been more rapid than expected. This change has resulted partly from an unexpect-

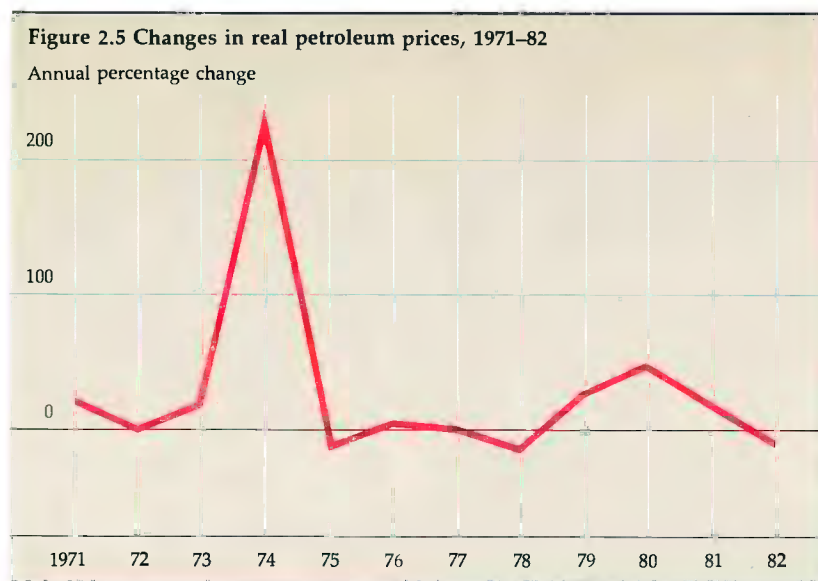
edly sharp drop in the demand for oil as consumption in the industrial countries was curtailed, both by price effects (Figure 2.5) and by the growth slowdown. The oil producers restrained output to some extent, despite burgeoning development expenditures, but not by enough to prevent the oil price from falling in real terms in the second half of 1981 and early 1982. The shift in the ownership of the balance of payments surpluses is not expected to have a significant effect on the pattern of financing of developing countries' deficits.

Oil-exporting developing countries moved from a near balance on current account in 1980 to deficits of \$29 billion in 1981 and perhaps \$27 billion in 1982 as their accelerated development plans got under way. Their borrowing requirements have therefore expanded. The oil-importing developing countries have been dissuaded from additional borrowing by high interest rates, both nominal and real, and their receipts of aid flows have grown only slightly. The deterioration of their current account deficit in 1981 (Table 2.7, Figure 2.6) to \$88 bil-

lion resulted almost entirely from increases in interest payments triggered by higher interest rates. In 1982 no further significant increase in their deficit is expected: a growth slowdown has been used to curtail borrowing requirements.

The composition of total financial flows (Table 2.8, Figure 2.7) is changing. First, until 1978, growing financial transfers from commercial banks provided foreign exchange well in excess of developing countries' total debt-service obligations. These commercial bank loans were largely untied and provided a welcome element of flexibility in balance of payments management. This easy relationship did not last for long; a substantial and growing proportion of commercial bank loans now consists of export credits tied to specific supplies, and financing tied to specific projects. The decline in net flows and the reduced availability of untied balance of payments financing are an underlying reason for the increasing liquidity difficulties experienced by many developing countries.

Second, the role of aid in relation to net capital flows diminished; the share of official development assistance (ODA) in these flows fell from 43 percent in 1970 to 35 percent in 1979. Though their share declined, aid flows rose markedly over the decade, and played a crucial role in easing the adjustment process, especially for the low-income countries. In addition to the 4 percent annual real increase in net aid disbursements from the industrial countries, the high-income (and even many middle-income) oil exporters devoted a sizable fraction of their greatly increased income to aid. Relative to their incomes, OPEC members were six times more generous in their aid efforts than the industrial countries. Official



development assistance from OPEC jumped from about \$350 million in 1970 to \$5.9 billion in 1977, and declined in 1978, but after further oil price rises in 1979 and 1980 it reached an estimated total of \$7 billion by 1980. All in all, almost one-fourth of the total ODA provided in 1975–80 came from the high-income oil-exporting countries. Since 1980, growth in ODA has remained weak, with direct detrimental effects on the poorest countries. Some DAC donor countries, however, are planning to improve their performance (Box 2.1).

Debt and debt service

Another characteristic of the recent adjustment period has been the rapid rise in levels of debt and debt service. Net disbursements of medium- and long-term loans stagnated at \$56 billion in 1979–80, before rising to an estimated \$71 billion in 1981 and perhaps to \$81 billion in 1982. Total debt outstanding reached \$517 billion in 1981, with debt to private lenders accounting for \$334 billion and the

remaining \$183 billion owed to official lenders. The interest payments of all developing countries rose to \$51 billion in 1981 and are likely to be \$56 billion in 1982, more than twice the level in 1979. Part of this increase reflects the

adjustments on variable rate loans, the rise in interest on which partly compensates lenders for the reduced real value of repayments relative to the principal lent. Interest payments rose from about one-third of total debt service in

Figure 2.6 Global current account balances, 1975–82

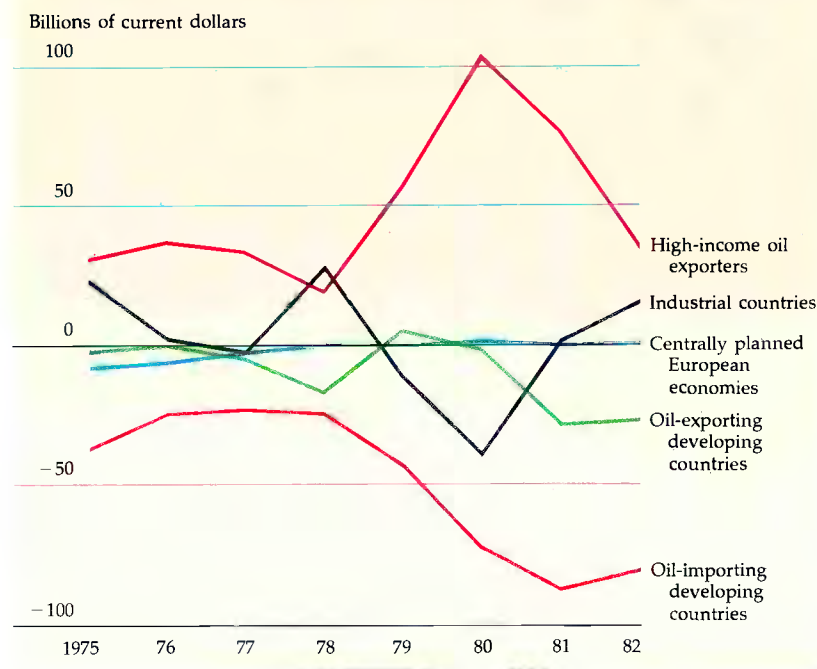


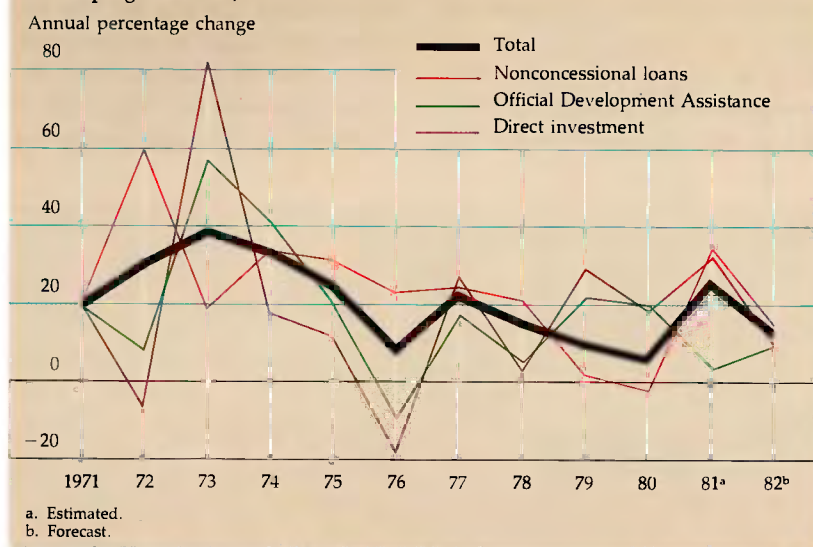
Table 2.8 Current account financing of oil-importing and oil-exporting developing countries, 1979–82 (billions of current dollars)

Item	Oil importers				Oil exporters			
	1979	1980	1981	1982	1979	1980	1981	1982
Current account balance (excluding official transfers)	-43.7	-73.3	-88.0	-82.4	5.1	-1.7	-29.3	-26.8
Net official transfers	8.0	9.8	10.3	10.1	2.1	2.3	2.5	3.5
Net private direct foreign investment	6.0	7.9	9.4	9.9	3.3	4.4	5.9	5.9
Medium- and long-term loans, net disbursements	39.6	41.9	51.4	59.0	16.3	15.4	20.0	22.0
Official	12.4	15.7	17.4	19.0	3.3	4.7	6.0	6.0
Private	27.2	26.2	34.0	40.0	13.0	10.7	14.0	16.0
Other capital	0.5	9.2	4.9	-1.4	-13.5	-9.3	1.4	-3.5
Changes in reserves	-10.4	5.0	12.0	4.8	-13.3	-11.1	-0.5	-1.1
<i>Memorandum items</i>								
Net official development assistance	15.1	18.3	19.2	21.1	4.0	4.5	4.4	4.7
Debt outstanding and disbursed	265.4	307.3	358.7	417.7	117.1	137.9	157.9	179.9
Official	101.2	116.9	134.3	153.3	35.9	42.5	48.5	54.5
Private	164.2	190.4	224.4	264.4	81.2	95.4	109.4	125.4
Debt service payments ^a	46.5	56.2	71.7	81.9	24.8	26.0	33.6	37.1
Interest payments	17.1	23.9	34.2	37.8	8.2	11.3	16.9	18.2
Amortization	29.4	32.3	37.5	44.1	16.6	14.7	16.7	18.9
Debt service as percentage of exports ^a	14.7	15.2	19.3	19.5	17.5	16.0	20.7	20.5
Net transfers	22.5	18.0	17.2	21.2	8.1	4.1	3.1	3.8

Note: Developing countries exclude China.

a. Includes debt service payments on private nonguaranteed debt.

Figure 2.7 Change in nominal net capital inflows to developing countries, 1971–82



Box 2.1 Italy's ODA policy changes

As a percentage of its GNP, Italy's contribution to multilateral official development assistance (ODA) has traditionally been up to the average of the members of the Development Assistance Committee (DAC); but its contribution to total ODA was well below this average because of the very limited scope of its bilateral aid. Italy's determination to enlarge its aid program substantially is an encouraging illustration of the potential impact of a dedicated, well-informed, and energetic information campaign. Though its GNP per capita is about half the DAC average, Italy has recently laid the foundation for a much larger and more diverse assistance program despite severe budgetary and balance of payments constraints.

In 1979 the government agency responsible for aid policy (Interministerial Committee for Foreign Policy—CIPES) stated the medium- and long-term targets in this sector:

- Rapid growth of official development assistance to raise the ratio of ODA to GNP in 1983 to the average level for DAC countries (0.37 percent in 1980); a further increase in this ratio to the level of 0.70 percent by the end of the decade.
- An increase in bilateral aid to the average level of DAC member countries

(66 percent of the country's total ODA in 1980), with special efforts to channel it to cofinancing operations with other donors and international financial institutions.

To speed the enactment of the latter directive, Italy has recently agreed to provide 450 billion lire of concessional assistance for cofinancing of World Bank (IDA and IBRD) projects over a three-year period. With this agreement, the largest of its kind concluded so far by the World Bank, Italy intends to support the role of multilateral institutions, while expanding its bilateral aid.

In the context of a development assistance plan for 1981–83, the legislature has approved appropriations totaling 4,700 billion lire (\$4 billion). The government is also committed to strengthening the Department for Development Cooperation in the Ministry of Foreign Affairs, which is mainly responsible for implementing the development assistance policy.

Italy's ODA commitments in 1981 are estimated to have reached US\$1.5 billion, a level three times as high as that of 1977–79. Net ODA disbursements in 1981 were more than twice as high as the average level of 1977–79, equivalent to almost 0.2 percent of GNP (against 0.10 percent in 1977–79).

1979 to almost one-half in 1981 (Box 2.2).

The changing composition of international capital flows, and the high level of interest rates, have placed a number of developing countries in a liquidity squeeze. Debt renegotiations by the Paris Club and by commercial banks increased sharply in 1980 and 1981. Eight multilateral agreements were reached in 1981 for the Central African Republic, Liberia, Madagascar, Pakistan, Senegal, Togo, Uganda, and Zaire. In addition, Bolivia, Jamaica, and Sudan signed agreements with commercial banks, Turkey arranged debt relief with noninsured creditors, and Guinea and Tanzania continued to refinance bilateral debt with China. The ratio of debt service to exports of the oil-importing developing countries rose from 9 percent in 1972 to 15 percent in 1979, accelerated to 19 percent by 1981, but is expected to remain at this level in 1982.

Inflation, interest, and exchange rates

Over the past decade, inflation has accelerated and interest and exchange rates have become more volatile—trends that complicate the management task of policymakers. Inflation predates the oil price increases as a global problem. Double-digit inflation arose in oil-importing developing countries in 1971, in oil-exporting countries in 1973, and in industrial countries in 1974, but efforts to reduce inflation were clearly made more difficult by the two large and sudden increases in oil prices during the 1970s. While the inflationary surge of the early 1970s subsided for a period in the latter two groups, inflation continued at rates of over 20 percent in oil-importing developing countries and accelerated further to

Box 2.2 Inflation, the balance of payments, and debt servicing

Inflation affects the value and significance of certain balance of payments items in several ways. First, it reduces the real impact of nominal increases in current account deficits and debt. For example, the \$88 billion deficit of the oil-importing developing countries in 1981 is only two and a half times greater—in terms of the volume of manufactured imports that this represents—than the \$11 billion deficit of 1971.

Similarly, when interest rates on the stock of outstanding foreign assets and liabilities (debt) are not fully adjusted for inflation, a country's overall current account position may not be an accurate reflection of the change in the real value of its net external assets. Cumulative net disbursements to oil-importing developing countries from official and private lenders were \$237 billion (in 1978 dollars) from 1973 to 1980. But overall real debt increased by only \$81 billion. The difference (\$156 billion) represents the capital gain to developing countries from the erosion in the real value of their debt obligations. This far outweighs the \$86 billion of deflated interest payments they paid, an indication that real interest rates were on average negative during this period.

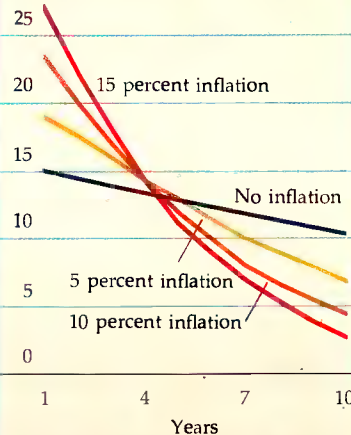
Recently real interest rates have risen sharply. The nominal dollar interest rate averages over 16 percent and the real interest rate about 7 percent in 1981. The difference compensates the lender for the decline in the real value of repayments of principal by shifting a larger portion of the real debt service over the life of

the loan onto interest payments. For borrowers this means that the burden of exceptionally high interest rates is, in effect, an acceleration of principal repayments.

Developing countries are currently servicing large amounts of debt at variable interest rates incurred since the mid-1970s. With new capital inflows discouraged by the historically high level of real interest rates, the effective shortening of the maturities of outstanding loans has created severe liquidity problems. These have been additionally compounded by

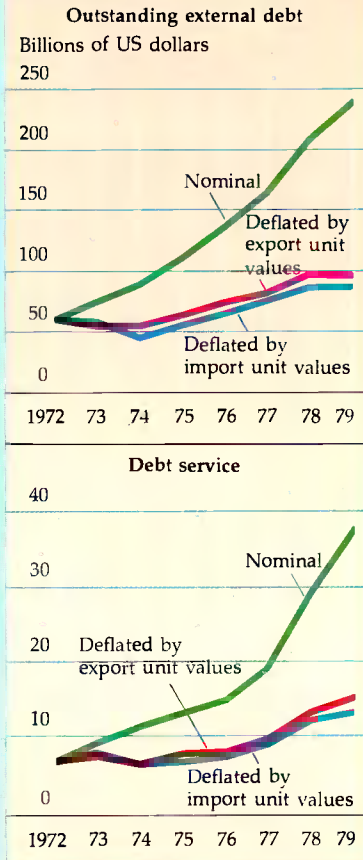
Impact of inflation on real debt burden of a ten-year maturity loan

Real debt service as percentage of loan



Note: A variable interest rate is assumed. Amortization payments are equally divided and the real interest rate is 5 percent. The nominal interest rate fully incorporates the inflation.

Public external debt and debt service for 87 developing countries, 1972-79



falling export revenues from commodities and limited supplies of aid. The drain on real incomes and deceleration of investment growth exacerbate the long-run problems of managing external debt.

ward the end of the decade (Figure 2.8).

Some countries managed to control price increases. Industrial countries that did so included Austria, the Federal Republic of Germany, Japan, the Netherlands, and Switzerland. Among developing countries, India, Malaysia, Senegal, and Singapore were successful. Their experience suggests that world inflation, transmitted through imports, has not been a leading cause of infla-

tion in individual countries. Econometric studies indicate that, fluctuations transmitted through changes in the price of traded goods explain less than a quarter of the change in country inflation rates over the past twenty years, even when the cases of acute and chronic inflation are excluded. Indeed, experience suggests that inflation has been better controlled in open economies—though they are most susceptible to imported price increases because of their

high ratios of imports to GDP. Although the statistical evidence on a direct causal relationship between inflation and economic growth is as yet inconclusive, it is clear that the problems of economic management are accentuated when prices are rising rapidly.

Differences in inflation rates and the type of adjustment undertaken by industrial countries have also affected interest and exchange rate movements (Figure

2.9) and the capital flows that link them internationally. The oil-exporting countries ran large payments surpluses after 1973–74 and again after 1979–80. In those with ambitious development programs, especially the larger countries, the incremental resources

were rapidly absorbed. But whereas after the first oil price increase real interest rates were low and even negative, after 1980 the rate of interest was sharply higher.

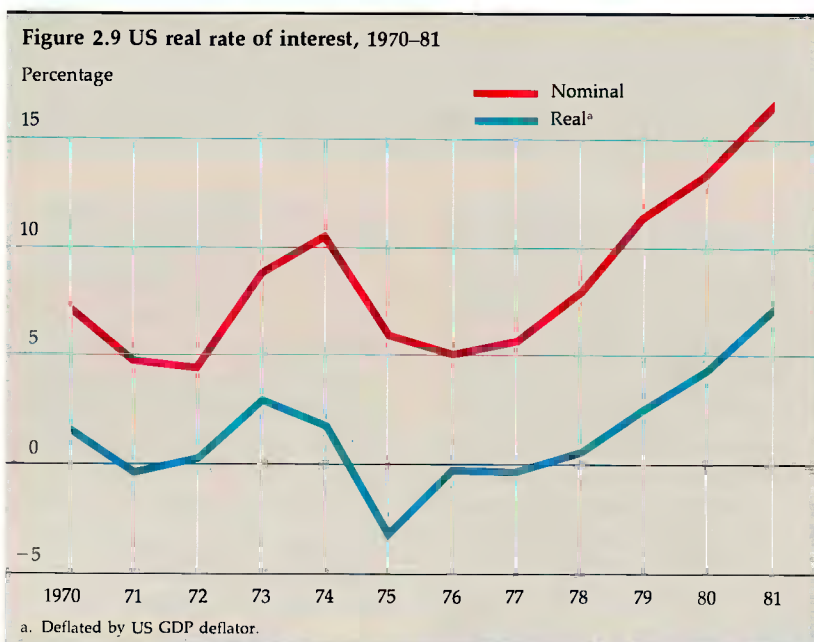
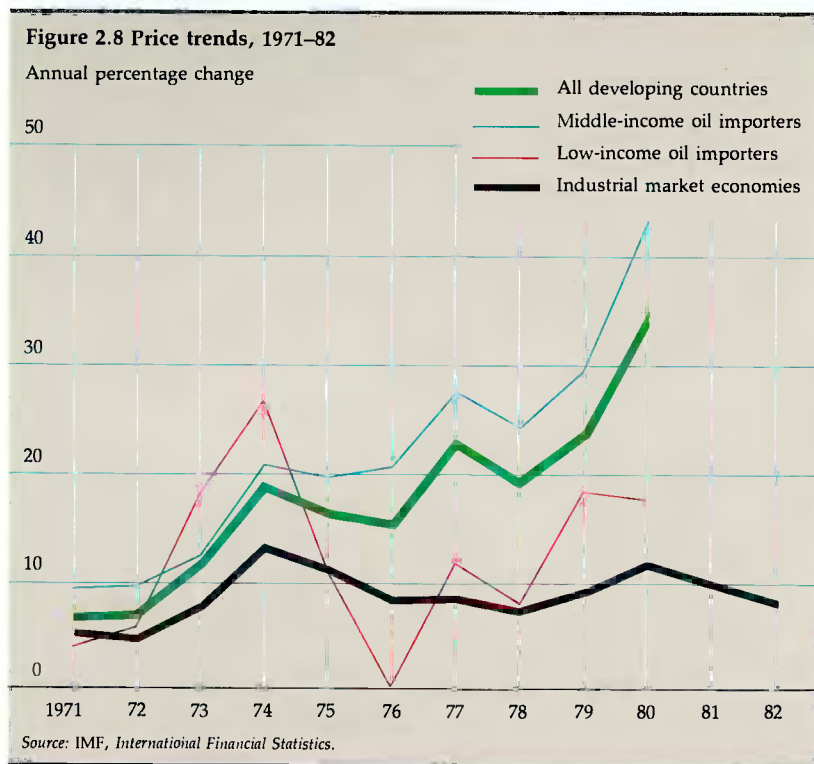
This trend is strongly reinforced by the tight monetary policies that now accompany adjust-

ment in many industrial countries. Because almost all debt from private sources is at variable rates of interest, the emergence of high rates affected not only new loans, but also the stock of debt. In 1980–81 the transfer of income from lenders to borrowers was thus rapidly replaced by transfers from borrowers to lenders, a shift that ended the long-term decline in real income from lending.

The sharp appreciation of the US dollar against other major currencies in 1981 and 1982 has brought exchange rate management issues to the fore in many developing countries. First, those that tie their currencies to the dollar may have lost competitiveness in export markets against products from countries whose currencies are not so tied, such as those in West Africa which are tied to the French franc. Second, fluctuations in the major currency exchange rates imply rapid shifts in competitiveness and greater uncertainty about the real prices at which international trade is conducted. Third, exchange rate movements can create shifts in the terms of trade. Primary product prices are sensitive to exchange rate movements. As the dollar appreciates, the price of, say, cocoa falls, but there is no corresponding fall in dollar-denominated debt service. This introduces an exchange-risk element into national planning and cost-benefit analysis of projects.

Conclusions

The current prolonged recession is a reflection of the major industrial countries' attempt to curb inflation while adapting their productive structures to the changes in the world economy, even though adjustment is retarded by low investment rates. Developing countries have, overall, per-



formed better than industrial countries in both recessions of the past decade and in the intervening recovery period. Multiple growth poles have emerged in East Asia, South Asia, the Middle East, and Latin America, and in all these regions are economies that have responded vigorously to the changed economic environment. Many other developing countries, in particular the least developed, have yet to adjust. Since these countries have limited room for maneuver, the adverse terms of trade developments have taken their toll of GDP growth and consumption progress. Necessary actions to raise investment are likely

to be very painful. The decline in real aid in 1981, the hard terms and constrained volume of other real capital inflows, and the collapse in commodity prices have severely affected those countries which have least adjusted and are least able to adjust. Sub-Saharan low-income countries have faced, and continue to face, the problems to a severe degree.

On balance, it appears that a number of external factors that helped developing countries' adjustments in the 1970s (notably, growth in remittances, trade, and concessional aid) are now operating less strongly and others (especially interest rates) are work-

ing against them. Even if these deteriorating trends are halted and reversed, more of a premium is placed on developing countries' own development efforts and policies. Before examining prospects for the 1980s, however, we discuss in Chapter 3 some of the longer-term determinants of growth, such as human and institutional development, and the immense expansion in international trade and capital flows that has changed the production structures of countries and strengthened the economic links between them.

3 Long-term development trends

The temptation to succumb to the rampant pessimism surrounding the 1980–82 recession should be avoided. In this chapter we examine briefly the trends and lessons of the past three decades, so as to lay a firm base for the analysis of prospects for the 1980s in Chapter 4. As the events described in Chapter 2 make clear, the current recession is unexpectedly prolonged. But it should not obscure the achievements of the developing countries or the important structural changes that have taken place in the world economy, both of which are positive elements for future progress. The growth performance of most developing countries has improved markedly over the past three decades. The international environment has been more favorable to growth than ever before, and the relative income gap between the industrialized countries and most middle-income countries has narrowed. Even during difficult periods of adjustment to external shocks, the momentum of growth and change has been sustained, as has the closer integration of all but the very poor countries into the world economy.

Output and income growth

From 1955 to 1980 world output tripled in real terms, as growth in

every region of the world surpassed both expectations and previous records. Though population rose from 2.8 billion to 4.4 billion, income per capita doubled. While incomes do not strictly measure well-being (see Box 3.1), the quality of life improved in most parts of the world. Many devel-

oping economies grew faster than the industrial ones, but higher population growth limited their per capita income gains (Table 3.1). The oil exporters, benefiting from changes in the terms of trade, and the major developing-country exporters of manufactures made striking gains in real income rel-

Box 3.1 What are we trying to measure?

Gross national product (GNP) measures economic activity—not welfare. But as a measure of aggregate economic output and expenditure, GNP data are often ambiguous or deficient. Ambiguity exists, for example, because public services such as administration and defense are treated as final rather than as intermediate services, and purchases of consumer durables other than residences are regarded as consumption rather than investment. Moreover, GNP does not make allowance for the varying amounts of capital, including mineral and other natural resources, used up during production. These are notoriously difficult to estimate. Gaps exist in basic data, most notably for subsistence production in developing countries and for illegal activities in most countries. Measurement problems also arise because of lack of consistency among countries in calculating changes in real output over time; this is particularly true between the market economies and the centrally planned economies. Moreover, major problems arise in intercountry comparisons of levels of GNP converted to a common currency by using exchange rates.

Welfare could not be fully measured even if it were possible to collect perfect GNP data for each country, based on Standard National Accounting definitions, and make international comparisons based on the International Comparison Project (which overcomes some of the limitations of exchange rate conversions; see Box 3.2). GNP does not measure items that are important to welfare in most societies, such as the distribution of income and wealth, employment status, job security and opportunities for advancement, availability of health and education services, unpaid services, the quality of the environment, and climatic differences. The complexity of incorporating these conditions into a comprehensive welfare indicator leads economists to settle for partial measures such as GNP—which at least covers most of the goods and services available to meet important consumption needs. GNP data, however, need to be complemented by other indicators, particularly those which relate more directly to the “quality of life” such as the social data in Table 3.3.

ative to the United States, and other middle-income countries were able to grow in relative terms too.

The structure of the world economy has changed out of all recognition over this period. In 1955, the United States dominated the world economy, producing two-fifths of global output. As this share has fallen—to less than a quarter in 1980—other groups of countries have risen in economic importance (Figures 3.1 and 3.2, Table 3.2). Western Europe, growing annually at 3.4 percent per capita, became a larger economy than the United States, which grew at 2 percent. Japan, with a 7.2 percent per capita growth rate for twenty-five years, has become the second largest OECD economy. The Soviet bloc has grown in relative strength too.

These poles of economic activity had already emerged a decade ago. Since then, the income and trade map has changed still further with the rise of the Middle Eastern high-income oil exporters. About a dozen middle-income countries in Latin America and southern Europe and on the Pacific rim of Asia accelerated their relative growth, rapidly expanding production in both agriculture and manufacturing and capturing increasing shares of world markets. This group has a record of growth in industry and agriculture second only to Japan's. The middle-income oil-exporting countries grew almost as fast. The progress of other middle-income oil-importing countries was less spectacular, particularly in agriculture in which their share of world production fell, but their real income per capita nonetheless doubled in a generation. The low-income countries, by contrast, achieved only a 2 percent annual rate of increase in income per capita (Table 3.1). Even this

growth rate mainly reflects the relatively strong performance of China and, more recently, India. Income per capita in the other low-income economies, mostly in sub-Saharan Africa and South Asia, grew at 1.2 percent on average over the twenty-five years, and unfortunately not at all over the past

decade.

The country groupings used in this Report are based on current income levels. (Box 3.2 explains the way in which the use of international prices would modify the comparisons of income levels based on US dollars that are used in the Report.) However, the slow

Table 3.1 Growth of population, GNP, and GNP per capita, 1955–80

(average annual percentage change)

Country group	Population		GNP		GNP per capita	
	1955–70	1970–80	1955–70	1970–80	1955–70	1970–80
All developing countries	2.2	2.2	5.4	5.3	3.1	3.1
Low-income	2.1	2.1	3.7	4.5	1.6	2.4
China	2.0	1.8	3.3	6.0	1.3	4.1
India	2.2	2.1	4.0	3.4	1.8	1.3
Other	2.4	2.7	4.4	2.7	2.0	0.0
Middle-income	2.4	2.4	6.0	5.6	3.5	3.1
Major exporters of manufactures	2.1	1.8	6.1	5.6	3.9	3.6
Other oil importers	2.6	2.6	5.9	5.3	3.2	2.6
Oil exporters	2.5	2.7	6.0	5.7	3.4	2.9
High-income oil exporters	3.7	5.1	8.6	6.3	4.7	1.3
Industrial nonmarket economies	1.4	1.1	7.3	3.9	5.8	2.8
Industrial market economies	1.1	0.8	4.7	3.2	3.6	2.4
Europe	0.7	0.2	4.8	2.6	4.1	2.4
Japan	1.0	1.1	10.3	5.4	9.2	4.2
United States	1.4	1.0	3.4	3.1	2.0	2.1
World	1.9	1.9	5.1	3.8	3.1	1.9

Figure 3.1 Per capita GNP of selected countries as percentage of US per capita GNP, 1913–79

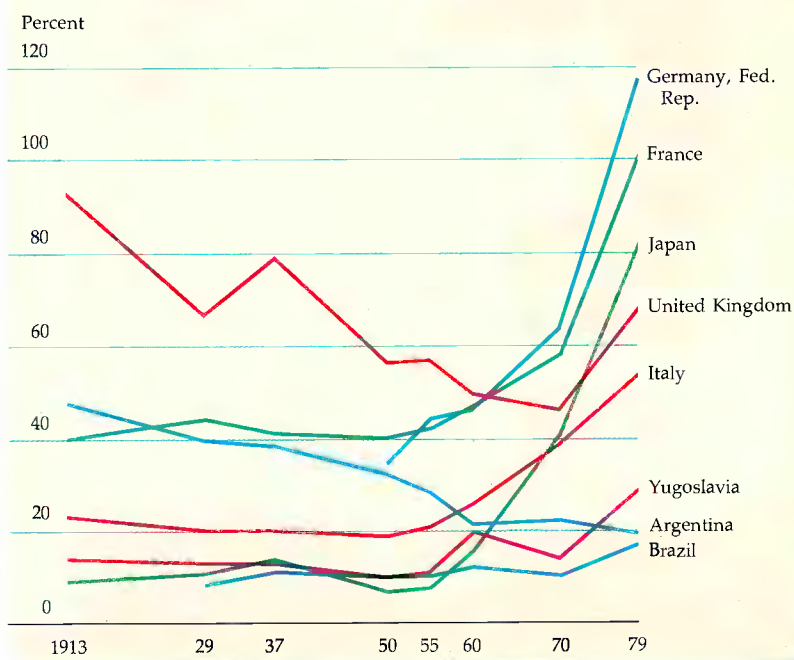
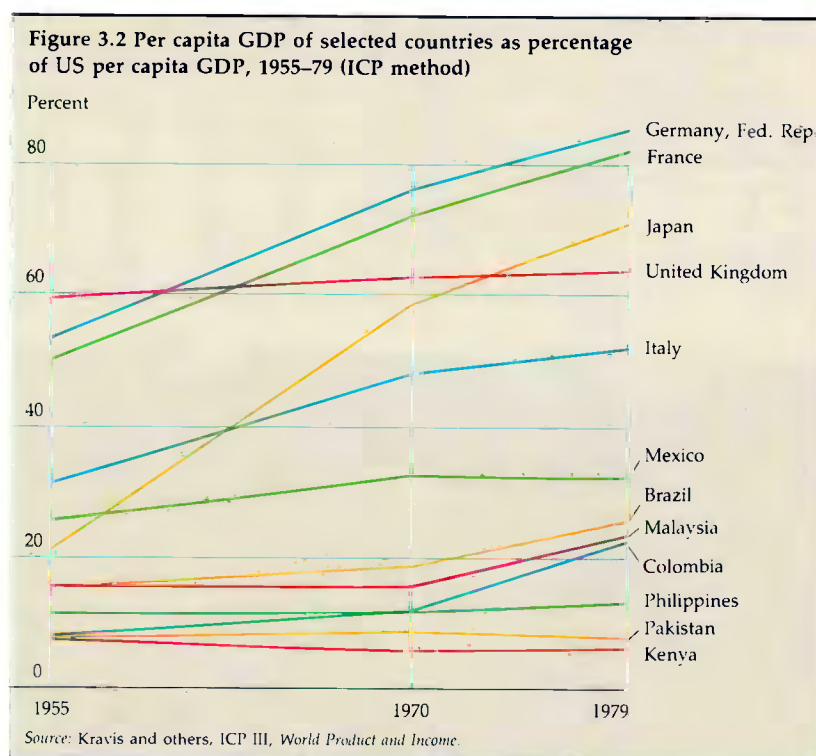


Table 3.2 Population, GNP, and GNP per capita: Shares, relationships, and growth, 1955–80

Country group	Share in world population		Share in world GNP ^a		Per capita GNP in current prices as percentage of US GNP		Per capita GNP in constant 1980 dollars	
	1955	1980	1955	1980	1955	1980	1955	1980
All developing countries	68.1	73.6	20.7	21.5	4.5	6.4	340	730
Low-income	44.7	47.1	8.1	4.8	2.7	2.2	160	260
China	22.0	22.2	4.7	2.5	3.2	2.5	160	290
India	14.4	15.2	2.2	1.6	2.3	2.2	170	260
Other	8.3	9.7	1.2	0.7	2.1	1.7	140	190
Middle-income	23.4	26.5	12.6	16.7	8.1	13.7	700	1,580
Major exporters of manufactures	7.1	7.3	5.1	7.7	10.7	22.9	1,050	2,650
Other oil importers	6.7	8.0	3.8	4.0	8.4	10.9	600	1,260
Oil exporters	9.6	11.2	3.7	5.0	5.8	9.7	500	1,120
High-income oil exporters	0.2	0.3	0.1	1.4	8.1	95.8	4,900	11,080
Industrial nonmarket economies	12.4	10.7	8.6	12.4	10.4	25.0	940	2,880
Industrial market economies	19.3	15.4	70.6	64.8	54.7	91.8	4,940	10,610
Europe	9.2	6.5	26.6	27.9	43.2	92.8	4,640	10,720
Japan	3.3	2.6	2.4	9.5	11.0	77.9	1,600	9,010
United States	6.0	5.1	40.3	23.7	100.0	100.0	7,030	11,560
World	100.0	100.0	100.0	100.0	14.9	21.7	1,320	2,510

a. Evaluated at current prices and exchange rates.



growth of the low-income countries is not explained by the fact that fast-growing countries no longer belong to this group: although there were marked shifts in relative positions within groups, few countries have moved from one income group to another over the past three decades.

Among developing countries with relatively low per capita income at the beginning of the period, the majority have achieved only slow growth since then (Figure 3.3). Most of the rapidly growing developing countries were in the middle-income group in the 1950s and had the advan-

tage of a long development history. Agricultural and political reforms had occurred, education was widespread, and these countries were well situated to benefit from the expanding trade and capital flows of the 1960s and 1970s. Investment levels were above average and were supported either by large capital inflows or by oil revenues. Among the fastest growing economies, all except Brazil and the oil producers had above average literacy rates for their income levels; all achieved growth across sectors, including vigorous market-based agriculture; and most, especially in the 1970s, considerably expanded their trade with industrial and developing countries alike.

In the world at large, standards of living are much higher than they were thirty years ago. But although the differences between middle-income and industrial nations have been reduced, there are now greater gaps between rich and poor, both in real purchasing power, as indicated in the International Comparison Project (ICP), and in more simple nominal income comparisons (Table 3.2). By the end of the 1970s, the 47 per-

cent of the world's population living in the low-income countries accounted for only 4.8 percent of the dollar value of world output (perhaps two to three times more in ICP numbers), whereas the richest 15 percent of population accounted for 65 percent of output.

In the past it has taken decades, sometimes centuries, to establish the preconditions for accelerated growth. The accumulation of educated and skilled people, of physical infrastructure, of directly productive capital, and of institutions which encourage and reward entrepreneurship and savings is a difficult process at low-income levels. It may be impeded by a shortage of resources or interrupted by unfavorable external events, mismanagement, or political disorder. But it is a process which inescapably depends on policy actions. To prevent a further widening of the income gap between rich and poor nations requires actions both from the international community and from domestic policymakers.

Improvements in living standards

As stressed in *World Development Report 1980*, improvements in literacy, health, nutrition, and other aspects of social welfare not only alleviate the worst aspects of absolute poverty, but also create a momentum for growth in output and incomes. Although the low-income countries' per capita income growth has lagged, their standards of social welfare have risen fast and converged with those of richer countries (Table 3.3). By broadening technical and managerial skills, by improving the knowledge and efficiency of farmers and workers, and by helping to reduce fertility, the investments in human develop-

Box 3.2 The International Comparison Project

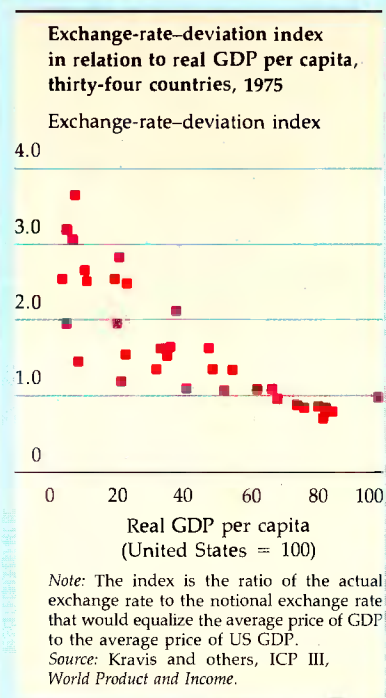
For want of a better alternative, comparisons of income levels across countries have for years been made at official exchange rates. These comparisons yield estimates that are known to misrepresent the actual purchasing power of currencies. In particular, they tend to understate incomes in poor countries relative to those in rich ones. This is because the prices of nontraded goods are generally lower in poor countries than in rich. International trade tends to drive the prices of tradable goods toward equality across countries; with equal or nearly equal prices, differences in wages among countries reflect differences in labor productivity in the production of tradable goods. Wage levels are the basis for evaluating items that are not traded internationally, most notably services. In most services, productivity differs little among countries, so in the high-income countries high wages lead to high-priced services while in countries with low wages, services are cheap.

The United Nations International Comparison Project (ICP), which the World Bank has helped support since 1969, has developed a methodology for comparing incomes in terms of the real resources needed to purchase precisely specified goods and services. With this methodology, comparisons can be made not only across countries but also across, say, different socioeconomic groups which face different price levels.

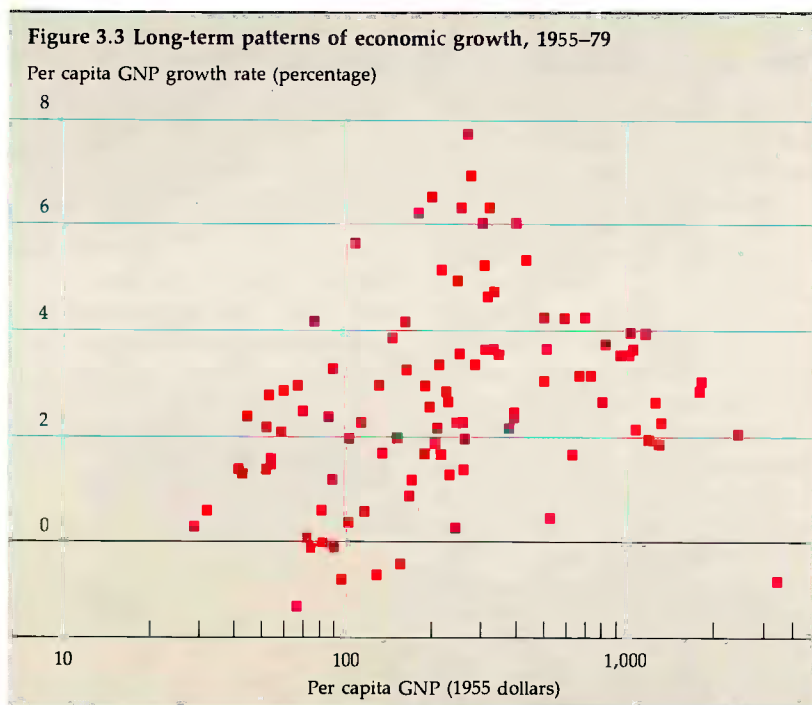
The results of the third study in the ICP, recently published, provide comparisons of real GDP per capita for thirty-four countries in 1975, made up from price and quantity estimates for 151 categories of goods and services. Because the study provides estimates of detailed components of GDP, it affords insights into comparative economic structures. For example, it shows the extent of country-to-country price differences in investment goods and other components of GDP in real (price-corrected) terms.

ICP information can be used to make comparisons of per capita welfare or of economic power between countries at different income levels. It can also be used to interpret the catching-up process. When a relatively fast-growing

country reduces the productivity gap between itself and a slow-growing, high-income country, its overall relative price level rises: its currency tends to appreciate in *real terms*. When fast-growing countries are compared with countries with slower growth, their relative GNP at current prices and exchange rates tends to converge faster than their relative GNP



at constant prices. For similar reasons, this is also true for countries with improving terms of trade. Thus, from 1955 to 1980, Japan's constant (1980) price per capita GNP rose 3.4 times faster, while its current price per capita GNP rose 7.1 times faster, than those of the United States. The corresponding ratios were 1.4 and 2.15 for northwestern Europe, and 1.53 and 2.14 for the developing countries which are major exporters of manufactures. In the future, the same phenomenon can be expected to help reduce the apparent gap between fast-growing developing countries and the industrial countries, and to increase it between both these groups and the slowest growing low-income countries.



ment of the past thirty years offer hope that incomes in these countries can improve faster in the coming decades.

Many countries, despite their growth in aggregate income, continue to have large pockets of poverty, both among disadvantaged residents of relatively wealthy areas and in backward regions (Box 3.3). Governments that have given sustained attention to the social policies that affect the distribution of consumption and access to public services—

especially education, preventive health services, and family planning—have not done so at the cost of long-run growth. Rather, the reverse is true.

Literacy

About one-third of adults in the developing countries were literate in 1950. By 1979, the literacy rate had risen to 56 percent. The middle-income developing countries have already achieved a literacy rate of 68 percent. There have also been impressive gains

in the low-income countries: only one-fifth of the population could read and write in the 1950s, but today about half can do so. If progress continues at recent rates, a literacy rate of 78 percent in the low-income countries of today can be expected by the year 2000.

Health

Life expectancy in the developing countries now averages 58 years, a level attained in the industrial countries only in the 1930s. Over the past thirty years developing countries, aided by medical advances, have achieved as much progress as had the industrialized countries in two centuries. There are, however, considerable differences among income groups and regions. Life expectancy in southern Europe and Latin America, for example, stands at 68 and 64 years, respectively—comparable to that in the industrial countries in the 1950s—while in Africa it lags considerably behind, at 48 years. The gains made by industrialized countries in lengthening life expectancy are thought to be approaching the biological maximum. If developing countries continue to progress at the rates achieved in the past three decades, they should reduce the remaining differential quite rapidly.

Experience in improving nutri-

Table 3.3 Trends in life expectancy, child mortality, and literacy, 1950–79

Country group	Life expectancy (years)				Child mortality ^a				Literacy rate (percent)			
	1950	1960	1970	1979	1950	1960	1970	1979	1950	1960	1970	1979
All developing countries	43	48	54	58	28	22	16	12	33	38	46	56
Low-income	41	47	53	57	28	22	16	12	20	27	29	51
Africa	35	39	43	46	44	38	32	27	..	17	17	29
Asia	41	48	53	58	27	21	15	11	20	28	31	52
Middle-income	46	50	55	59	28	22	16	11	48	49	64	68
Africa	37	41	46	50	42	35	27	22	16	22	37	..
Asia	42	47	53	59	28	22	14	9	54	54	69	75
Latin America	51	56	60	64	23	17	12	8	57	65	72	78
North Africa	42 ^b	47	52	57	40 ^b	36	27	15	19 ^b	19	24	40
Middle East	..	48	53	57	..	30	18	16	..	17	35	49
Southern Europe	59	62	66	68	10	7	5	3	75	80	85	85
High-income oil exporters	..	46	51	57	..	35	20	11	..	14	26	32
Industrial market economies	68	70	71	74	3	2	1	1	95	97	98	99

a. Deaths per thousand children aged 1 to 4 years.

b. The 1950 data for North Africa include the Middle East.

tion and reducing child mortality has varied widely among countries, a variation that mainly reflects the performance of government programs in these fields. Remarkable improvements in some or all key measures of welfare have been attained even at low levels of per capita GNP, as in China, Sri Lanka, and Tanzania. In contrast, progress in health and literacy lags behind rises in average incomes in some wealthier countries such as Brazil, Mexico, and Peru where incomes are much less equally distributed. In health, as in literacy, average achievements in Asian countries far exceeded those in Africa, reflecting, in part, the capacities of public administration.

Population growth

Improvements in health and nutrition have led initially to higher rates of increase in population in both low- and middle-income developing countries, and this is holding back the achievement of higher per capita income. This is particularly the case in the low-income countries, where output expansion has been sluggish and where high population growth has imposed heavy demands on public expenditure and administration. Population growth in many countries of this group has reached 2.6 percent a year and is accelerating; this compares with a rate of population increase in the industrialized countries of 0.7 percent a year currently or 0.5 percent a year at the time of their own industrial revolutions.

The rise in population growth rates, whether in nineteenth-century Europe and Japan or in developing countries this century, has largely reflected declining rates of mortality. Although birth rates have varied much more widely than mortality rates, they generally remained stable in develop-

Box 3.3 Regional disparities within countries

The common overall policy framework provided by a central government does not ensure equal progress in living standards for different regions of a country. Specific policies to reduce income differentials among regions can, however, be quite effective over time.

In India, with the major exception of West Bengal, the states with the highest income levels in 1960 have grown fastest since then. They have also had higher levels of education and better health facilities than the less favored states. Interstate differences have been diminished by large-scale movements of people to regions with higher income levels and better opportunities.

In Brazil, there are poor people in all areas, but by far the majority are in the Northeast. Thirty-five million people live there, about a third of Brazil's population. In 1979 average per capita income in the region was just under \$800, about 40 percent of the national average. The Northeast's infant mortality rate was 40 percent higher, and its adult literacy rate 40 percent lower, than the Brazilian average.

The Brazilian government has been trying for at least a century to reduce the disparities between the Northeast and the rest of the country. Before World War II, most of these efforts took the form of public works programs. More recently, they shifted to promoting integrated rural development and, through fiscal and credit incentives, a modern industrial base.

These direct action programs, substantial emigration (over 2 million Northeasterners migrated to other regions during the 1970s), and the increased growth momentum within the region as its per capita income has grown have at last begun to reduce the Northeast's lag behind the rest of the country. During the 1970s its real per capita GNP increased somewhat faster than that of the country as a whole, while infant mortality declined and literacy rates improved more than the national average. Further progress will depend on the continued energetic pursuit by the government of programs to reduce the disparity.

India: Progress in living standards related to income levels of 1960-61, by groups of states

<i>Per capita net domestic product (1960 rupees)</i>			<i>Growth rate, 1960-61 to 1977-78</i>	<i>Share of population, 1960-61</i>	<i>Literacy rate, 1971</i>	<i>Hospital beds per 1,000 population, 1979</i>
<i>Group limits, 1960-61</i>	<i>Group average, 1960-61</i>	<i>Group average, 1977-78</i>				
Under 254	235	263	0.66	32	26.4	4.8
255-329	281	320	0.77	35	29.3	6.2
Over 330	382	456	1.05	33	39.3	9.8

ing countries at slightly over 40 per thousand for some two centuries before 1950, but declined to just above 30 per thousand by 1980 (Figure 3.4). Only China, among the low-income developing countries, and a group of smaller middle-income countries (such as Cuba, Greece, Hong Kong, Portugal, Singapore, Romania, and Yugoslavia) have managed to lower the birth rate to below 20 per thousand.

The causes of reductions in birth rates are complex. Among the economic factors to which birth rates are related are per capita income, the extent of education (especially primary education and the education of women), income distribution, the degree of urbanization, and, more broadly, the various costs and benefits associated with childbearing and family size. Given all these influences, family planning services are

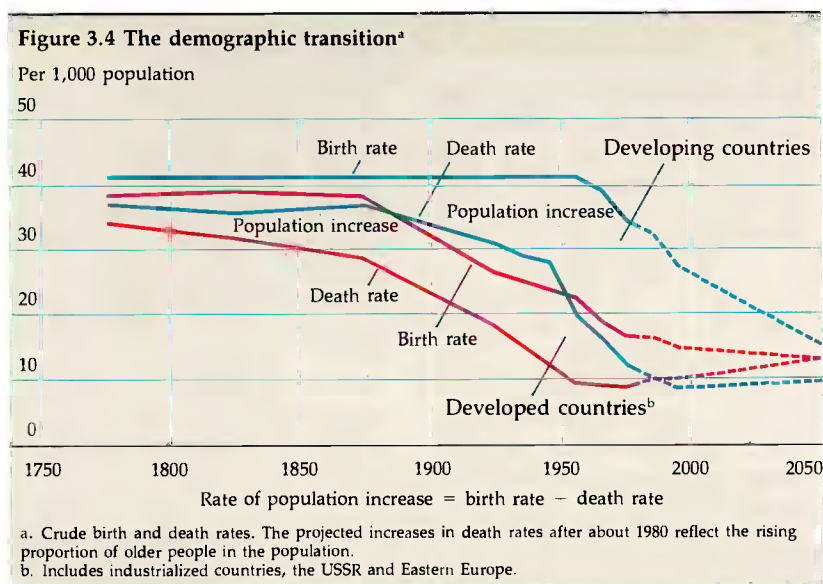


Table 3.4 Shares of world merchandise exports, 1955–79
(percent)

Country group	1955	1965	1970	1980 ^a
All developing countries	27.3	20.2	18.4	21.4
Low-income	5.6	3.4	2.5	1.9
China	1.4	1.0	0.7	0.9
India	1.4	0.9	0.6	0.4
Other	2.8	1.5	1.1	0.6
Middle-income	21.7	16.8	19.5	19.5
Major exporters of manufactures	6.8	5.7	6.2	8.0
Other oil importers	6.9	4.1	4.3	3.9
Oil exporters	8.0	7.0	5.4	7.6
High-income oil exporters	2.1	2.5	2.4	10.2
Industrial nonmarket economies	8.5	10.9	10.1	7.9
Industrial market economies	62.1	66.5	69.0	60.5
Europe	36.1	41.1	42.5	38.5
Japan	2.1	4.5	6.2	6.5
United States	16.5	14.6	13.6	10.9
World	100.0	100.0	100.0	100.0
<i>Memorandum item</i>				
World exports (billions of dollars)				
Current prices	94	186	313	1,995
1978 prices	420	542	821	1,405

a. Includes some estimates.

a necessary but not a sufficient component of population policy. Many countries in the Middle East, Latin America, and Africa have yet to formulate social policies in these areas.

Long-term trends in the international environment

All countries faced essentially the same favorable international economic environment in the 1950s and 1960s and faced similar con-

straints in the 1970s, yet they have performed very differently. In trade, the General Agreement on Tariffs and Trade (GATT) led to a series of multilateral reductions in tariffs and other protective barriers. World trade grew much faster than output, averaging 5.1 percent annually from 1955 to 1980 and 6.9 percent annually from 1965 to 1980.

Export growth is crucial to the developing countries' ability to

import the goods and services necessary for overall growth, and it also determines, together with overall growth, their capacity to service debt and hence to borrow abroad. The developing countries' export performance in a widening global trading environment has been one of the most successful aspects of the past thirty years' growth. The middle-income exporters of manufactured goods were able to raise their share in world exports, as were countries that export oil, in the wake of rising oil prices: the latter in 1980 supplied 18 percent of world trade (Table 3.4). In manufactured goods there was growing market penetration (Figure 3.5).

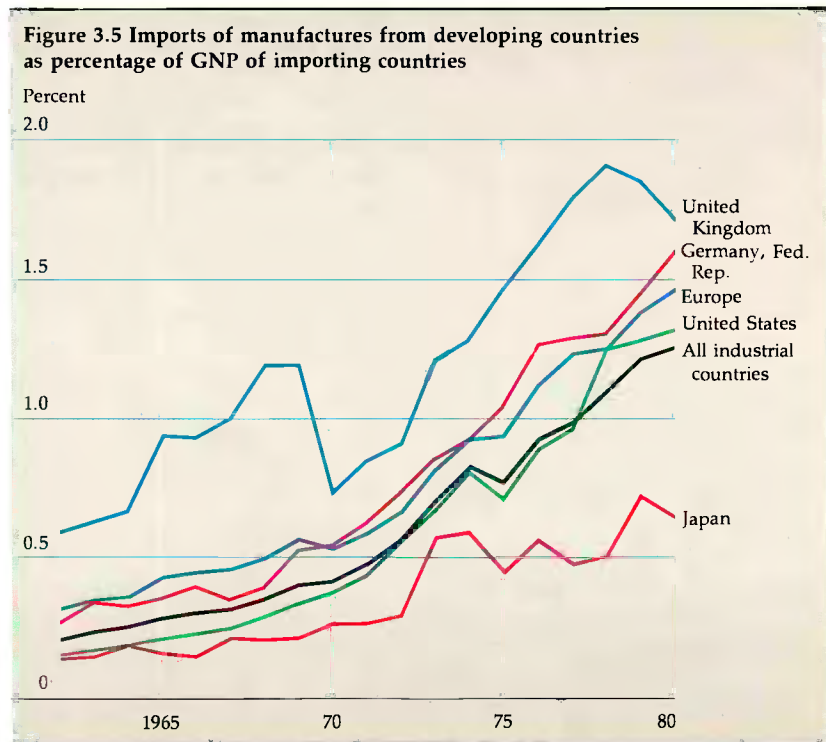
By contrast, most primary commodity exporters, including most of the low-income and many primary-producing middle-income countries, did not have the productive structure to allow them to participate in manufactured goods trade. They also suffered a deterioration in their terms of trade (Box 3.4), since prices of most nonfuel primary commodities weakened with respect to those of petroleum (Figure 3.6) and of manufactured goods. The low-income countries now supply only 2 percent of world exports.

Some primary producers, such as Colombia, Ivory Coast, Malawi, and Malaysia, were able to move into processing or expand output and did relatively well. Difficulties in supply limited the expansion of primary commodity exports elsewhere, particularly in sub-Saharan Africa, where most countries were unable to take advantage of recent opportunities for expanded food trade. Indeed, the weakness of agriculture has been an important reason for the poor growth performance in sub-Saharan Africa. In Latin America, rising domestic demand coupled with agricultural protection by the

industrial market economies caused the loss of export markets for several agricultural products in the 1960s. Despite the fall in Latin America's share of world merchandise exports—from 12 percent in 1950 to 8 percent in 1960 and about 5.5 percent in the 1970s—some countries, notably Brazil, nonetheless made remarkable progress in manufactured exports (Box 3.5). South Asian countries' exports, large and diverse in the 1950s, fell in relative terms over this period, as did those of Middle Eastern nations, except for petroleum. The East and Southeast Asian countries increased their share of trade rapidly from decade to decade. About a third of the exports from the newly industrializing countries went to other developing countries.

The rapid expansion of world trade over the past three decades was paralleled by similar growth in capital flows, aided by reductions in controls on capital movements, easier convertibility among currencies, and the development of international financial institutions. After World War II the United States fueled the growth of the world economy through aid flows of unprecedented generosity, and gave impetus to the creation of the international framework for monetary relations, trade, and financing reconstruction and development. The latter began and continued the virtuous circle of capital flows and trade.

On average, foreign capital has financed about one-seventh of total investment in developing countries. Although domestic savings are almost always the principal source of finance for investment, foreign capital significantly augments countries' capacities to import the machinery, materials, and techniques needed for investment and production.



Furthermore, foreign capital inflows typically play an important role in countries characterized by rising investment and accelerating growth, and also help cushion balance of payments shocks.

Official flows to developing nations grew rapidly in the 1950s, reaching about 0.4 percent of industrial countries' GNP in the early 1960s, and have grown more slowly since then. The centrally planned economies' contribution to aid has been negligible, but high-income oil exporters have made substantial contributions since the early 1970s. There have been slow but steady improvements in the quality of aid, as the grant element of total flows has increased and less aid has been supplied in kind.

Commercial capital flows to developing countries account at most for 4 to 5 percent of world savings—and usually for less. They have evolved steadily (Table 3.5), especially since the emergence of OPEC surpluses. Although there

have been misjudgments by borrowers and lenders alike (for example, the excessive use of suppliers' credits in the 1960s or overborrowing by countries such as Turkey and Zaire in the 1970s), on the whole, flows from private sources have gone to those countries best able to use these additions to domestic savings.

The role of domestic policies

Economic structures become more flexible as a country accumulates resources. There are obviously structural reasons behind the different patterns of development of the past thirty years. Yet a review of these patterns shows emphatically that the degree to which countries managed to participate in international economic expansion was determined largely by the policies they pursued.

Economic management after the depression and during World War II demonstrated that public policy could be used to help solve eco-

Box 3.4 Response to terms of trade shocks in Sri Lanka

Sri Lanka provides a dramatic example of adjustment to external shocks, and of the elusiveness of success in the face of continued deterioration of the international environment. At independence, Sri Lanka's exports consisted largely of tea, rubber, and coconut products, whose relative prices have fallen almost continually. The increase in the value of per capita gross domestic product between 1960 and 1980 was reduced from 2.6 percent a year in real terms to 1.1 percent after changes in the terms of trade are taken into account.

Despite the loss in the terms of trade, Sri Lanka adjusted by raising investment; but in the face of declining capital inflows, this necessitated consumption restraint. Thus, as shown in the table, while the volume of production rose in the 1960s, per capita consumption fell markedly. This was enough to allow Sri Lanka to raise per capita investment in constant prices by more than 60 percent.

Rising investments helped further to increase the growth momentum of GDP in the 1970s, notably through the development of food crops, some import-substituting industries, tourism, and, more recently, exports of manufactures. How-

ever, the increase in the volume of GDP was once again offset by deteriorating terms of trade, although to a lesser extent than in the 1960s. Per capita consumption stagnated, but investment grew even faster than in the 1960s, this time largely financed by sharply rising capital inflows. Throughout the postwar period, Sri Lanka was exceptionally successful in protecting the poor from the worst effects of falling consumption and in improving, albeit slowly, the high quality of life as measured by various social indicators.

In 1980 Sri Lanka found itself with a

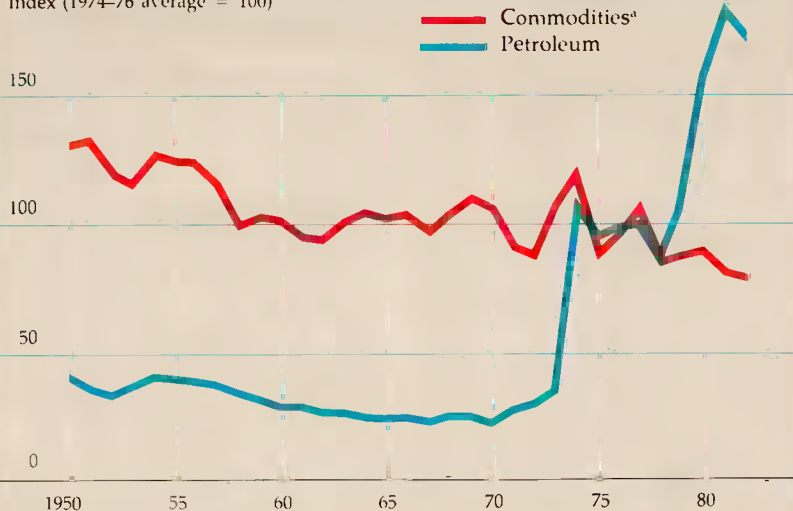
volume of per capita GDP almost 70 percent higher than in 1960, a fourfold increase in real per capita investment, an extraordinarily high (and clearly unsustainable) capital inflow, yet reduced per capita consumption. Sri Lanka represents an extreme, although perhaps not a unique, case of the terms of trade loss that can affect a specialized, raw-material-exporting economy. It also shows the difficulty of adjusting to continuous terms of trade losses despite considerable success in reducing consumption and increasing production.

Sri Lanka

Item	1960	1970	1980
<i>Indexes in constant prices per capita</i>			
GDP	100	126	167
Gross domestic income adjusted terms of trade loss	100	100	125
Consumption	100	90	90
Investment	100	163	407
<i>Percentage of GDP in current prices</i>			
Net capital inflow	4.2	3.1	22.0
Consumption	90.4	84.2	86.2
Savings	9.6	15.8	13.8
Investment	13.8	18.9	35.7

Figure 3.6 Weighted index of commodity prices,^a 1950–82

Index (1974–76 average = 100)



a. Thirty-three commodities, excluding petroleum.

economic problems in essentially market-oriented systems, and greatly improved capacities for policy formulation and administration gradually emerged. The importance of trade policy has been documented elsewhere (see, for example, *World Development Report 1981*). Here, two domestic determinants of growth—investment and human resource development—are noted.

The shares of national income used for investment go some way toward explaining the very slow growth rates of most low-income countries and the much faster growth rates of China and the middle-income countries. The low-income countries other than China

Table 3.5 Composition of net capital flows to developing countries, 1960–62 and 1978–80
(percent)

<i>Net capital flows</i>	1960–62	1978–80
Official development assistance	59	34
Other nonconcessional flows, mainly official	7	13
Private nonconcessional flows	34	53
Direct investment	20	14
Export credits	7	13
Financial flows	7	26
Total	100	100
<i>Memorandum item</i>		
Total amount (billions of dollars)		
Current prices	9	84
1978 prices	25	76

Source: OECD.

and India had average investment shares of about 10 percent of GNP in 1960, rising to 18 percent in 1980. China devoted 23 percent of its GNP to investment in 1960 and 31 percent in 1980. The corresponding ratios were 21 and 26 percent in the middle-income countries.

Increasing investment shares is a painful process, especially if achieved by rapidly raising domestic savings. By 1960, at very different levels of development, China, Romania, Yugoslavia, the other nonmarket economies of Eastern Europe, and the USSR had savings and investment rates much higher than those of most other countries at similar income levels. Each had relatively high growth rates during the late 1950s and early 1960s, though declines in investment rates and in the efficiency of investment were important reasons for their lower growth in the 1970s. Except for substantial food aid in the mid-1960s, India financed its investment largely through its own savings efforts: after a slow rise from 17 percent in 1960, the investment share reached 24 percent in 1980. Although it is too soon to be certain, this apparently supported an acceleration of growth late in the 1970s, despite the negative impact of external shocks.

Many countries with improved growth records raised investment shares with the help of high capital inflows. Pakistan, for example, in contrast to India, was able to use foreign financing to reach an investment rate of over 20 percent in the early 1960s. That was followed by the only period during which its economic growth rate markedly exceeded India's.

Throughout this century, sustained growth has been associated not only with investment in physical facilities but also with prior educational achievements, especially widespread primary education. The spread of basic education tends to lower birth rates as well as increase productivity—for example, by making producers more responsive to economic signals. In all economies businessmen, farmers, laborers, and housewives make daily decisions on how to work and what to consume. In industrialized as well as in developing countries, the weight of evidence points to the benefits of education in quickening adjustment to new events. In the farming sector in developing countries, where output expansion and export growth are closely tied to the spread of new technology, schooling has played an important role in the rapid diffusion of high-yielding

Box 3.5 Brazilian manufactured exports

Since the mid-1960s Brazil's economy has been growing at 8.4 percent a year. Exports make up quite a small share of GDP, but their composition has shifted markedly from primary products (notably coffee) to manufactured goods. Overall, the proportion of manufactures in exports grew steadily from 8 to 49 percent between 1965 and 1981. This trend was accompanied by increases in real wages in manufacturing to relatively high levels, whose effect on the international competitiveness of Brazil's exports was offset in part by energetic export promotion policies.

Brazil's manufactured exports grew at 19.5 percent a year between 1965 and 1981. The growth in exports of capital goods and certain technologically sophisticated products was more spectacular, even considering the low base. The current dollar value of exports of non-electrical machinery, for example, increased from \$17 million in 1965 to \$864 million in 1979, that of transport equipment from \$8 million to \$1,248 million, and that of scientific and other equipment from zero to \$65 million.

The example of aircraft exports is typical. Brazil's first aircraft was built in 1910, and a Brazilian, Santos-Dumont, was one of aviation's pioneers, but the story of this industry really began with the creation of a Ministry of Aeronautics in 1940. Other public research and training institutions were organized later and provided a tradition of strong government involvement. The drive for export markets began in 1969 with the formation of Embraer, a mixed state-private enterprise. The public sector contributed capital and a team of engineers from its aerospace research center, which had designed a prototype, the Bandeirante. Embraer produced 2,070 aircraft, mostly under license, in its first decade.

The Bandeirante, a twelve- to eighteen-seat turboprop designed for markets in the developing countries, found a niche in industrialized countries for feeder routes as fuel prices rose. In 1980, out of a total production of 250, 90 planes were exported, 30 of them to the United States.

varieties of crops. Studies of productivity for a variety of food crops in Latin America, Africa, and Asia indicate strongly that where modern farming technology is available, its use, and hence the yields achieved, depend to a great extent on the literacy of farmers.

Although the conditions for steady growth are impossible to prescribe, high levels of investment, efficiently deployed, are obviously necessary. This in turn requires either substantial domestic savings or foreign capital inflows. Human development that reduces the rate of natural population growth is also vital: high rates of population growth reduce savings, use up capital, diminish the ratio of available land and other resources to population, and thus, especially in agriculture, increase the capital required for additional output. Social programs have succeeded in reducing fertility in many middle-income countries and several low-income countries, and strikingly so in China, Sri Lanka, and parts of India. By contrast, population growth rates in many other South Asian, Middle Eastern, Latin American, and most African countries remain high despite high mortality. A stable set of public policies, capable of being ad-

justed to new circumstances from time to time, is also important. This requires a degree of political cohesion and administrative capacity.

Conclusions

This review of long-term trends emphasizes that there is something of a virtuous circle in successful countries. Growth is not automatic, but must be carefully nurtured, more so in times when the international environment is unfavorable. Investment is sustained over long periods if returns are high, which in turn encourages both domestic savers and foreign lenders. The ability to produce exports and import substitutes at internationally competitive prices helps provide foreign exchange and raise investment efficiency. For the remainder of the 1980s, most of the middle-income developing countries now have sufficient flexibility to continue their growth, provided that the international framework of trade, capital, and labor movements is sustained.

For many of the low-income countries, the long-term trends offer less reassurance for the future. The achievements of these countries in developing human

resources at low-income levels have been impressive, although continued poverty, as measured by both economic and social indicators, remains the dominant characteristic of their economies. Slow growth in many low-income countries reinforces the central worldwide concern with the growing gap between rich and poor. Only the relatively self-sufficient economies of China and India have laid foundations for continued per capita income growth through high rates of investment. The majority of low-income countries, however, remain extremely vulnerable to international economic pressures.

The problems faced by the less successful middle-income countries, particularly those still dependent on primary commodity exports, and by poor groups in middle-income countries, should not be underestimated. Nonetheless, it is clear that in the years to come, development assistance should be concentrated in the low-income countries. The people of these countries start the decade most vulnerable to failures in growth, but with enough aid to sustain the implementation of rational policies, they could now begin the transition to a rapid expansion in incomes.

4 Prospects for the 1980s

This chapter updates the extensive discussion of the prospects for the world economy in the 1980s contained in last year's Report. While the events of the past year, described in Chapter 2, have not substantially changed the longer-term view, it will clearly be less easy than was earlier thought for growth in the developing countries to reach the High case (see Box 4.1 for discussion of illustrative growth scenarios). Industrial-country growth may be restrained; aid and remittances will grow more slowly than forecast earlier; new debt will be costlier and will come on top of existing debt, the repayment of which is less likely to be eased by inflation than was the case in the 1970s. It may be more difficult for developing countries to repeat past achievements in export growth and in penetrating markets in industrial countries. The prospects for nonfuel commodity prices are particularly poor. Given the liquidity squeeze and the greater difficulty of borrowing at high interest rates, developing countries' external adjustment may have to be achieved by accepting lower growth, especially in the first half of the 1980s.

The industrial countries

Last year a plausible set of scenarios for the annual growth of

output in the industrial countries in the 1980s lay between 2.8 and 3.6 percent. As unemployment reaches 30 million in these countries, many observers have become increasingly concerned about the adequacy of existing policies for achieving the joint goals of stable prices, full employment, and satisfactory output growth. Unless industrial countries come quite close to the High case, it is unlikely that they will be able to reduce unemployment to acceptable levels in this decade. The High case implies growth of output from now until 1990 at 4.3 percent a year (which compares, say, with 5.1 percent in 1960-73). This could be achieved, but with considerable difficulty. Such a high rate of growth would at first be facilitated by cyclical recovery, but it would need to be sustained by high investment in the productive and service sectors and in energy conservation. Such investment is at present held back in many OECD countries by high real interest rates.

For the industrial nonmarket economies, the outlook has also worsened over the past year as the magnitude of their structural crises has become apparent. Their growth prospects are important for the few developing countries tied to Eastern Europe and the USSR through trade and aid. The

Polish debt difficulties have had a chilling effect on the world environment for capital flows, which is beginning to be felt by several countries including Romania and Hungary.

In addition to recovery in the OECD, the High case presupposes strong efforts to maintain and enlarge international trade flows. Such measures are particularly important for the middle-income countries needing to service large debt obligations. But low-income countries would also benefit. In particular, smooth increases in energy export volumes and prices are desirable, since erratic changes have in the past induced inflation and large swings in trade and payments balances, and inhibited growth. In addition, trade expansion facilitates, and is in turn encouraged by, larger capital movements. Low-income economies are especially constrained by shortages of foreign exchange; greater flows of aid and other capital are an integral component of High case growth for these countries.

These elements of the High case scenario, however, are only partly visible at present. The current weakness in oil prices is a mixed blessing for developing countries. For the oil exporters, who make up one-fifth of the population of developing countries, it often means curtailing planned devel-

opment expenditures—as in Nigeria. For oil importers, both developed and developing, there is a useful pause in the rising trend in import costs, but progress toward adjustment to higher energy prices in the long term is inhibited by price weakness or uncertainty. Countries that receive concessional aid and other capital flows from oil-producing countries are also adversely affected by the decline in the oil producers' surpluses. Despite weak oil prices, many of the industrial countries are still not adjusting—in the sense of bringing investment and savings into equilibrium at a high enough level to sustain rapid growth—and if governments that are making the effort to do so are stymied by political pressures, then low global growth for the rest of the decade would follow.

International economic linkages

The world economy is gradually becoming less dependent on a single source of growth—it is increasingly an oversimplification to see it as driven exclusively by developments in the advanced countries. South-South trade (including trade with high-income oil exporters) accounts for over 7 percent of world trade and over a quarter of the South's exports, despite trade restrictions. There are also multiple development poles for which trade with nearby countries is important; for example, the development plans of the Middle Eastern oil exporters affect Turkey's exports, and the countries of the Pacific rim share links with each other and with Japan.

Nevertheless, actions by the industrial economies shape the outlook for developing countries in many important ways. In 1972–73 the simultaneous actions of the

Box 4.1 Growth scenarios

Growth projections in the form of alternative scenarios are useful ways to illustrate possible outcomes under various combinations of decisions and events. The World Bank uses a global model to yield internally consistent projections of developing-country growth rates. The model takes into account likely developments in world trade and capital flows that enforce internal and external balance across all regions of the developing world.

The High case scenario would illustrate successful economic adjustment by the industrial economies to current problems of low growth and high inflation. Rapid recovery from the current recession would be followed by sustained growth of over 4 percent a year for the remainder of the decade. Under the High case assumptions, the developing countries would benefit from higher levels of trade with the developed world, in both manufactured goods and primary products. Increases in aid and exports would help alleviate the problems of the least developed countries. Oil exporters would

be able to borrow to maintain the high imports which have helped them expand quickly. Such an international environment would enable developing countries to sustain growth at least at their 1970–80 rates.

The unfavorable set of assumptions embodied in the Low case would result in a very different world in 1990. Lower growth in the industrial economies would depress demand for primary products and thus keep the prices and volume of developing-country exports of these products down. Trade barriers, especially against manufactured goods, could tend to grow as a means (albeit self-defeating) of containing the rise in unemployment in the industrial nations. As a result, adjustment problems would be exported to developing countries. This would restrict the growth of non-oil imports into those countries; debt repayments on loans disbursed in the past decade would, for many borrowers, prevent further large net financial transfers, so rates of growth would be constrained.

High and Low case assumptions

Item	Low case	High case
<i>Average real annual growth rates, 1980–90</i>		
Industrial economies' GDP ^a	2.8	3.6
Industrial countries' exports	3.8	5.5
Industrial countries' imports	3.0	4.8
<i>1990 scenarios</i>		
Demand for capital	Low	High
Trade barriers	High	Low
Official development assistance as percentage of GNP (DAC countries)	0.33	0.37

a. Given estimated rates of growth from 1980–82 (Table 2.1), the implied rate of growth from 1983 to 1990 is 4.3 percent a year in the High case and 3.3 percent in the Low case.

industrial countries contributed to the overheating of the world economy, a primary product boom, and subsequent oil price increases and recession. Their overall growth rates and their openness to imports have strongly influenced the volume and prices of developing country exports. Fiscal and monetary policies, and the related balance of savings and investments, not only in the industrial countries but also in high-

income oil-exporting countries, influence the cost and the volume of credit to the developing countries. In some countries high growth and reduced unemployment also tend to facilitate, and slow growth to restrict, flows of aid. The outlook in each of these areas is discussed below.

Trade

The recession in the industrial countries is limiting demand for

Box 4.2 Is there a protectionist danger?

Attempts by interest groups in various countries to gain protection from imports now make frequent front-page news. Beef, sugar, tobacco, clothing, textiles, footwear, electronics, automobiles, and steel are cases in point. With the reduction of tariffs in the industrial countries to negligible levels for most products, protection has largely taken the form of nontariff barriers: quotas, so-called voluntary restraints, orderly marketing arrangements, price-maintenance agreements, more intense application of anti-dumping legislation, countervailing duties and safeguard procedures, subsidies for supplier's credits, as well as, more recently, measures that directly increase incentives for domestic producers—such as subsidies to industries (notably shipbuilding) or to individual firms facing foreign competition. Unlike tariffs, many of these forms of protection are bilateral, restricting imports from only one country. They are largely outside the scope of GATT regulations, and many need only administrative, rather than legislative, decisions to come into force.

The degree of protection offered by such increasingly important nontariff forms cannot be measured directly, and it is therefore far more difficult than with tariffs to assess how greatly they restrict trade. For example, imports did not surge following the expiration of the US restraint agreement on footwear in 1980,

just as they had not declined following its implementation in 1978. In the first five months under the automobile restraint agreement between the United States and Japan, Japanese automobile exports to the United States were only 0.2 percent higher than a year earlier, but the average price per car was almost 25 percent higher. Therefore, without the quota, a larger number of automobiles at lower prices would presumably have been available to consumers. Quotas clearly restrict imports of Japanese automobiles to France and of textiles and footwear into Norway and Canada. The impact of the EEC's cartel-like arrangements on steel trade is more uncertain.

Some observers feel that recent calls for protection are unlikely to be reflected in new legislation and that this augurs well for the future. They note that unfilled quotas still exist even in the Multi-Fibre Arrangement, and that most new protection mechanisms are selective and not yet institutionalized. When implemented, the cuts agreed to in the Tokyo Round will offset some administered restrictions, and the next round of GATT discussions is likely to address many of the new protective mechanisms specifically. In addition, economic recovery is expected to reduce domestic demands for protection.

A less sanguine view is that there has been no systematic analysis of world trade

changes since the mid-1970s from which to conclude that protection has not increased significantly. Further, exports may well have been discouraged by threats of restrictions. Today's institutionalized restrictions (in textiles and steel, for example) were yesterday's temporary measures. The very "grayness" of present measures may help interest groups in importing countries resist future reductions in barriers. And the coming economic recovery may not immediately reduce the pressures for protection, since it will take time to reduce unemployment substantially and put slack industrial capacity back into full use. New restrictions might therefore continue to mount.

Though inward-oriented policies are not warranted, since they would sacrifice the immense potential gains from trade, nevertheless there are valid reasons for fearing increased protection. In the words of the director general of GATT, "There may be a need for the friends of the open trade system to recognize that passive support is no longer enough if the system is to be preserved." Preservation of the system is, of course, a minimum target. Policies that have led over the past thirty years to the trends toward growing openness, in developed and developing countries alike, must be actively and forcefully encouraged.

imports from developing countries, and the relative prices of primary products are likely to recover only slowly. There are also increasing pressures in developed countries for protection against imported manufactured products (Box 4.2), although so far most have been successfully resisted. If the High case is achieved, however, and there is sustained growth from 1983 onward, productive capacity would be more fully used and the pressures for protection lessened before further trade barriers are constructed.

The High and Low scenarios imply that exports from the developing countries will grow at the rates shown in Table 4.1. The developing-country export growth rates implied by the High case are crucial for permitting adjustment with sustained growth. Nothing is more likely to jeopardize the

strong growth momentum built up over the past thirty years than a renewal of protectionism. Imports into the high-income oil-exporting countries, and remittances from them, should also grow at more modest rates than those since 1973. On balance, the prospects over the next few years

Table 4.1 Export growth from developing countries, 1970-90
(average annual percentage change)

Exports	1970-79	1980-90	
		Low case	High case
Total exports	5.2	3.5	6.8
Exports of manufactures	14.0	4.7	11.4

are for the relatively slow growth of world trade and only a modest recovery from the present severely depressed commodity prices.

Oil prices

After rising until mid-1981, the real price of oil fell for a period, as it did from 1975 to 1978; but this fall is not likely to affect the long-term upward price trend. This trend is determined by demand and supply conditions, which have not substantially changed over the past year. As expected, some successful oil exploration has added modestly to reserves, but investment in alternative fuel sources has declined somewhat. Gas developments are also lagging. Exploration for oil and gas and investment in new developments are capital-intensive activities with long lead times. Such activities tend to be curtailed when interest rates are high. The impetus for substituting coal for oil has become, for the time being, less strong, and investment in the extraction of fuel from tar sand and shale has likewise been almost abandoned as capital costs have risen. The price increases from 1973 to 1981 have induced substantial conservation in most countries, but more fundamental changes in the design of new buildings and equipment have been delayed by the slowing down of investment in industrial countries. The stock of capital is, by and large, still much more energy intensive than available technology would permit, and this constrains efficiency.

Overall, a real increase in the price of oil of some 2 percent annually from 1982 to 1995 seems most likely (Table 4.2), although it is impossible to be precise about the trajectory. Rates of growth in industrial countries, the main consumers, will exert the major

influence on prices, as will production levels, which in Iran and Iraq are now curtailed by war. Barring disruptive events, the most likely outcome is no change in real terms until about 1985, with increases of 2.5 to 3 percent annually thereafter if production expands roughly in line with demand. It would take until around 1995 to reach a price of \$41 per barrel (in 1981 prices). This is slightly lower than was assumed last year, and such a trajectory would help support higher growth. But if, because of supply constraints, the oil price rose by over 3 percent annually over the 1980s or increased sharply in a single year, this would have an adverse effect on growth. Both oil importers and oil exporters have an important role in avoiding the price fluctuations that have proved so damaging to their own economies, to those of the oil importers, and to the world economy as a whole.

Commercial capital flows

The international environment affects commercial capital flows to developing countries in two ways. First, interest rates (determined mainly by the industrialized mar-

ket economies but modified by the "spread" each borrower pays) affect the volume of debt a country can prudently afford to incur. Real interest rates are now very high (the London Interbank offer rate averaged 16.5 percent in 1981, while real interest rates on US dollar commercial loans seem to be well over 7 percent), and nominal rates still exceed most forecasts of inflation by a wide margin. Although both inflation rates and interest rates are expected to decline as monetary policies begin to achieve their objectives, real interest rates are likely to remain well above the 2 percent real rate that prevailed from 1960 to 1970, and far above the negative rates of much of the 1970s. Second, the developing countries' ability to service future debt depends on the buoyancy of their exports. Thus, for both reasons, if the present austere environment were to continue throughout the 1980s (that is, if the Low scenario were to prevail), developing countries' borrowing from financial institutions would scarcely grow at all in real terms (Table 4.3). Net medium- and long-term borrowing would average about \$90 billion a year for the rest of the 1980s.

If the industrial countries recover rapidly, the developing countries' borrowing would increase, underwritten by larger export revenues; their net annual borrowing over the decade would average at least \$115 billion. Economic recovery in industrial countries would not only enlarge the market for manufactured exports but also strengthen those for agricultural products and minerals. The rapidly growing and exporting countries may well find access to capital markets easier than the High scenario implies for the group as a whole. Low-income countries, whose share is 2.2 percent of total private flows,

Table 4.2 Average OPEC petroleum prices, 1970-95

<i>Year</i>	<i>1981 dollars per barrel</i>
1970	4.1
1974	19.9
1978	15.3
1979	19.8
1980	29.4
1981	34.3
1982	32.0
1985	32.0
1990	37.0
1995	41.0

Note: For 1970 this price refers to Saudi Arabian light, f.o.b. Ras Tanura; for the following years it refers to the weighted average f.o.b. price of petroleum exports from OPEC countries.

are likely to gain little additional access to capital markets.

Private direct investment may also be a source of buoyancy. After remaining at a plateau in the 1974–77 period, private direct investment in developing countries has grown at over 20 percent a year in nominal terms. Some countries that earlier had not sought to attract private investment are now changing their policies to take advantage of the technology and management package it can bring. This change in policies is likely to increase total capital inflows somewhat, particularly to countries that are growing well.

In the 1980s some forty countries will continue to rely almost entirely on official development assistance (ODA) to supplement domestic resources for physical and human development. This is particularly the case in sub-Saharan Africa. For some countries, if aid flows are large enough and combined with improved domestic policies, the 1980s could be the turning point in development. Another fifty countries should be able to reduce their dependence

on ODA, provided they replace such assistance with nonconcessional flows gradually enough to remain creditworthy and to manage their debt-service obligations. Official flows can play a key role in the transition because the maturity of these loans is relatively long.

If industrial countries' recovery is further delayed, aid flows are assumed to grow in real terms even more slowly than GNP, thus reducing the share of official development assistance in the GNP of DAC member countries to about 0.33 percent. The share of private financing in total capital flows would thus grow markedly. In the High scenario a slightly higher growth of aid is postulated to maintain the ratio of ODA to GNP at about 0.37 percent. If the developments of the past three years are continued, the latter could be achieved (Box 4.3). Official assistance from OPEC, and in particular from the high-income oil exporters, has been much higher in relation to GDP than that from OECD countries; this has been made possible largely by their

balance of payments surpluses. Despite the expected reduction in the size of these surpluses, in the absence of data on official intentions, aid from high-income oil exporters is assumed to remain at its present level in relation to GNP.

Prospects for developing countries

The performance of developing countries in the 1980s will depend partly on developments in the international environment, described above, and partly on domestic policies. As was stressed in Chapter 2, in very large developing countries and in industrial and newly industrializing countries, growth paths depend largely on domestic policies, which can be chosen from among a variety of possible options. But small low-income countries have limited policy options, and global economic conditions are of the utmost importance to them. The development of the poorest, most slowly growing countries in sub-Saharan Africa in the immediate

Table 4.3 Net financing flows, all developing countries, 1970–90
(billions of current dollars)

Net financing	1970	1980	1981	1982	Projected, 1990		Annual growth rates		
					Low case	High case	1970–80	1980–90 Low case	1980–90 High case
Official transfers	1.2	12.1	12.8	13.6	28.3	32.7	26.0	8.9	10.5
Private direct investment	2.5	11.8	15.3	15.8	19.4	24.4	16.8	5.1	7.5
Medium- and long-term loans, net disbursements	9.1	57.3	71.4	81.0	99.2	151.1	20.2	5.6	10.2
Official	4.1	20.4	23.4	25.0	44.0	54.9	17.4	8.0	10.4
Private	5.0	36.9	48.0	56.0	55.2	96.7	22.1	4.1	10.1
Total ^a	12.8	81.2	99.5	110.4	146.9	208.2	20.3	6.1	9.9
Total (1980 prices)	32.7	81.2	99.5	102.5	82.1	116.3	9.5	0.1	3.7
<i>Memorandum items</i>									
Net exports (goods and services)	-8.5	-59.1	-88.7	-75.8	-61.3	-110.0	-21.4	-0.4	-6.4
Current account balance ^b	-10.9	-75.0	-117.3	-109.2	-124.5	-182.7	-21.3	-5.2	-9.3
Net official development assistance ^c	4.1	22.8	23.6	25.8	53.6	65.7	18.7	8.9	11.2
Debt outstanding and disbursed	63.7	445.2	516.6	597.6	1,287.0	1,450.0	21.5	11.2	12.5

Note: Developing countries exclude China.

a. Excludes short-term capital and reserve changes.

b. Excludes official transfers.

c. Net ODA is defined as net disbursements of concessional official loans plus official transfers.

Box 4.3 Prospects for ODA from DAC members

Over the past decade official development assistance (ODA) grew at 4 percent a year in real terms, twice as fast as in the 1960s. This was largely due to the increased levels of aid from the oil-exporting countries, but aid from the industrial countries also grew faster than the GNPs of the donors.

From 1977 to 1981 total ODA grew at 4.4 percent a year in real terms, and if this growth were to be maintained this would help meet the requirements of the High case. Also since 1977, total ODA has grown faster than nonconcessional flows to countries receiving ODA—a reversal of the 1973–76 trend. This was largely due to the rapid growth of multilateral ODA, in particular the disbursement of the IMF's Trust Fund. In 1980 disbursements of multilateral ODA accounted for 23 percent of the total, up from 13 percent in 1970. In 1981, however, these disbursements fell with the exhaustion of the Trust Fund resources.

The prospects for growth in the resources of the multilateral development institutions are uncertain, but it seems likely that multilateral ODA will grow in line with the overall growth in resources and thus that its share of total ODA will not increase further. For bilateral ODA the prospects are mixed. All DAC members (except the United States and Switzerland) have committed themselves to achieving the target level of multilateral and bilateral aid of 0.7 percent of GNP, and some have agreed to do so by 1990. Denmark, the Netherlands, Norway, and Sweden exceeded this target several years ago and plan to increase the level of their assistance over the next several years. Italy (Box 2.1) and France also plan substantial increases, and more moderate increases are expected from Canada, the

Federal Republic of Germany, and Japan. For the United Kingdom and the United States a marginal decline in the real level of aid flows is expected in the near term. The United States contributes less than one-fifth of the total in the DAC countries and the figure is falling. Aid

ODA projections, 1985

DAC countries	Millions of current dollars	Percentage of GNP
Australia	1,180	0.53
Austria	350	0.30
Belgium	900	0.57
Canada	1,870	0.49
Denmark	800	0.75
Finland	300	0.50
France	6,670	0.68
Germany, Fed. Rep.	5,750	0.47
Italy	2,030	0.35
Japan	6,420	0.36
Netherlands	2,340	1.00
New Zealand	90	0.27
Norway	950	1.00
Sweden	1,710	0.95
Switzerland	540	0.35
United Kingdom	2,490	0.34
United States	8,030	0.20
Total DAC	42,410	0.37

Note: This table uses the same concepts as Table 16 in the World Development Indicators. It is based on staff projections for official aid, GNP, and the relevant exchange rates; official projections are not available for all countries. The figures cover official development assistance as defined by the DAC.

flows from DAC members, excluding the United States, should grow in real terms by 4 percent a year to 1990. The flows of ODA projected in the High case depend in particular on a determined effort by the United States to reverse the declining trend, and on an acceleration of output growth in industrial countries.

future depends very much on aid and trade trends, but in the longer run, domestic policies are critical.

Middle-income countries

Table 4.4 illustrates a range of outcomes consistent with the assumptions described above. Even if growth remains slow in the industrial countries, middle-income

developing countries can be expected to achieve a per capita growth rate of at least 2 percent in the 1980s. Though somewhat faster than that of North America and western Europe, this rate of growth means that for the average person in middle-income countries, income would increase by only about 25 percent in ten

years. Compared with past performance and present potential, needs, and expectations, such a rate is clearly inadequate. If growth is slower than projected here, unemployment problems would mount, causing hardship and exacerbating social and political tensions that would make economic management more complicated.

Within the middle-income group, the experience of individual countries will obviously vary, depending on the composition and geographic distribution of their trade, their resource endowments, and the policies followed. The major exporters of manufactures would continue to grow most rapidly, because they have acquired an ability to respond to the changing structure of world markets. Several countries with still low but rapidly increasing manufacturing production and exports are likely to grow faster than those which still rely heavily on primary commodity exports other than fuel. For the latter, depressed terms of trade and slow growth of export volume would limit imports and their ability to borrow.

Low-income countries

The low-income countries, considered as a group, would also maintain some growth momentum in the 1980s, even if world economic conditions remain as unfavorable as they are now. China's growth record has been above average for a low-income country, and India's recent increases in savings and investments and its improved agricultural productivity should lead to continued increases in per capita incomes during the 1980s. But the average income per person in most other low-income countries would probably show negligible growth, especially in the Low case, al-

though some, such as Pakistan, may outperform the group as a whole.

Even for China, the prospect of low growth in the 1980s presents grave difficulties. Increased imports of high-technology capital goods are essential to the success of China's efforts to improve overall efficiency, and the country must produce enough food for its growing population to prevent food imports from absorbing the gains of its new export effort. Productive employment must be created for well over 100 million people who will enter the labor force over the decade. The marginal productivity of labor in agriculture is already low, and not much additional labor can be productively employed there. Yet efforts to modernize the techniques of manufacturing production will probably mean that in the short run new investments in this sector will generate less employment than those undertaken hitherto.

India's problems are also serious, although the trend of agricultural production promises self-sufficiency in food grains and a gradual reduction of malnutrition. More efficient use of manufacturing, power, and transport capacities should result if recent policy changes are followed through. Nevertheless, since Indian states accounting for about a third of the country's population have recorded almost no per capita income growth over the past twenty years, one cannot consider with optimism the prospects for India's poor if world economic recovery is delayed.

The prospects for sub-Saharan African countries remain poor, and many are in a situation even more desperate than a year ago. In all low-income countries, sustained investment in human resources, development institutions, and physical infrastructure

Table 4.4 Growth of GDP in developing countries, 1960-90
(average annual percentage change)

Country group	1960-70	1970-80	GDP, 1980-90		GNP per capita 1980-90	
			High	Low	High	Low
All developing countries ^a	5.9	5.1	5.7	4.5	3.3	2.2
Oil importers	5.7	5.1	5.4	4.1	3.1	1.8
Low-income	4.2	3.0	4.1	3.0	1.8	0.7
Sub-Saharan Africa	4.0	2.4	3.0	1.9	0.1	-1.0
Asia	4.3	3.2	4.4	3.2	2.1	1.0
Middle-income	6.2	5.6	5.6	4.3	3.4	2.1
East Asia and Pacific	7.9	8.2	8.1	6.4	6.0	4.3
Latin America and Caribbean	5.3	6.0	5.6	4.6	3.2	2.3
Middle East and North Africa	4.1	4.9	4.1	3.2	0.9	0.0
Southern Europe	7.0	4.6	4.6	3.0	3.3	1.7
Sub-Saharan Africa	4.1	3.5	3.1	2.8	0.3	0.0
Oil exporters	6.5	5.2	6.5	5.4	4.0	2.9

a. Excludes China.

is, for the reasons spelled out in Chapter 3, essential to sustained growth in per capita output. This would be helped by directing a larger proportion of bilateral concessional aid to low-income countries.

Under the more favorable conditions of the High case, even the small low-income countries would experience some growth; in others, including China and India, substantial income growth would be registered and would allow productive employment to lag less far behind the rising labor force. The fastest-growing middle-income countries would approach the income levels of post-war western Europe and would be well on their way to catching up with the industrial countries early in the next century.

Oil exporters

Prospects for the oil-exporting developing countries look quite similar under both scenarios. Both scenarios envisage a rapid expansion of productive activities other than those based on oil, and under the High case they would enjoy more favorable markets for their non-oil exports and would be able to borrow more. Reducing reli-

ance on oil exports is difficult and complex, but these countries have enough internal resources and borrowing potential to effect such a change. Several members of this group may be able to improve their performance faster than can now be anticipated.

Indeed, this holds for all country groups. The sets of circumstances that make up the Low and High cases are neither forecasts of what will happen nor firm boundaries of what is feasible. Recent developments, however, make the achievement of the High case a more distant possibility than was expected last year. Nevertheless, if the low-performing countries were to emulate average performance levels, or the average performers to reach those of the best, even the growth rates of the High case could be exceeded by a wide margin. It is nonetheless certain that if the Low case comes about, the prospects for a world of growing prosperity, linked by efficient flows of trade, capital, and labor, will be dimmed. For the developing countries, particularly the poorest of them, the implications extend beyond slow growth to a dramatic increase in poverty, unemployment, and human misery.

Part II Agriculture and Economic Development

Great strides have been made in transforming the lives and the livelihoods of tens of millions of people in the developing world over the past three decades. Yet for close to two-thirds of these countries' populations—among whom are the vast majority of the world's poor—agriculture is still the main source of income, just as farming is their chief occupation.

This part of the Report concentrates on the policies and programs needed to sustain and in many instances to accelerate agricultural development, and on agriculture's contribution to ameliorating the problems of poverty. In the 1970s, a growing concern in the world community with problems of poverty coincided with massive evidence from the Green Revolution in Asia and elsewhere that rapid growth of production and productivity in agriculture was possible. The result was a variety of new programs in agricultural development, many addressed to the problems of the small farmer, supported by a large increase in capital and technical assistance from aid donors. This Report draws on the rapidly accumulating body of experience from these recent efforts and the lessons that are emerging from it.

Lessons from the more distant past are also relevant. While the role of agriculture in development has been debated for

hundreds of years, the evidence, both historical and contemporary, is remarkably consistent. In Europe, Japan, and the United States, for example, a dynamic agriculture accompanied—and in some instances led—the process of industrialization and growth. The evidence, discussed in the next chapter, is equally convincing that this is still the case among contemporary developing economies.

History provides other pointers relevant to current problems. The key to agriculture's growth among the present industrial economies was the farmer himself, who sparked a stream of cost-reducing innovations and also financed and carried out the investment in land improvement needed to exploit new technology. The evidence from a wide range of developing countries shows that farmers behave no differently today. The key factors are still the opportunity and the incentive to improve the land and with it the farmer's livelihood.

In two respects, though, conditions today are fundamentally different. First, the rapid growth of population and the concomitant need to expand food production far surpass the historical experience. In the developing world of the eighteenth and nineteenth centuries, agricultural growth was much slower than the rates achieved by developing countries in the past thirty years.

Second, farmers have access to an agricultural science that is a much greater source of innovation and a better catalyst of productivity growth than ever before. But this is true much more for some groups of farmers than for others.

Agricultural development in the recent past is characterized by an extraordinary diversity both within and between countries. Many still largely traditional farming systems that were sustainable with a low density of population are becoming increasingly strained by, and vulnerable to, the pressure of rising population. Spectacular environmental damage exemplifies the consequences of this pressure as land-hungry cultivators push into the tropical forests, up the hillsides, and across drought-prone, semi-arid savannah. Thus a growing prosperity among some groups is contrasted with deepening poverty among others less fortunate.

Winning the race between a growing population and the food supplies needed to match it is a still formidable challenge in many low-income countries. So, too, is the task of alleviating poverty in these largely rural societies. Technology and sensible policy are the means of successfully transforming agriculture for the benefit of the economy and of the people who live and work in agriculture—and who will eventually leave it.

5 Agricultural development and economic growth

Agriculture has been transformed in the past three decades. Output has increased at nearly twice the rate of earlier periods, fueled partly by the developing world's greatly increased capacity to produce food and partly by changes in the developed countries. Above all else, there has been unprecedented technical change in agriculture throughout the world.

Alongside this remarkable and sometimes underestimated achievement stands the "world food problem." Hundreds of millions of people in the developing world are still without enough food. Population growth, the effects of which are often exacerbated by a highly unequal income distribution, has sharply reduced both the per capita benefits of increased food production and the associated increases in income per capita.

This paradox—of poverty in the midst of plenty—has long plagued popular understanding of the role of agriculture in economic development. On the one hand, it has led to a sense of hopelessness about the world's malnourished; on the other, to technological overconfidence. Overanxiety about food crises has alternated with taking agriculture for granted, even neglecting it.

None of these extreme reactions is appropriate or helpful. Agriculture does indeed face special problems, of which two in particular stand out. The first is biological—the close dependence on the natural environment. This results in output levels that fluctuate unpredictably from season to season, and growth that varies greatly from one region to another depending on natural re-

sources and the extent to which their potential has already been developed. The second is economic—the problem of the radical adjustments farmers face in the process of agricultural development. While its output may continue to grow, agriculture's share of both GDP and employment invariably decreases as economies develop and industrialize. Indeed, at later stages of development, the absolute size of the labor force in agriculture declines, ultimately to a very small fraction of the total.

In most ways, though, agriculture is not unique. Farmers, like other workers, respond to incentives. In buying food, consumers are influenced by relative prices and available income, as they are when they buy other things. Agriculture's success or failure therefore owes much to factors that influence all economic activity. If it lags, it is because of inadequate investment, lack of incentives, and inappropriate policies, as well as problems of technology, climate, and soil.

This chapter describes some key elements in the worldwide expansion and transformation of agriculture. It discusses where growth has taken place, where it has not, and the problems which patterns of growth have produced or failed to solve. In particular it highlights the following features of agricultural development:

- Progress has been slowest in the low-income countries. These countries account for most of the world's poor, the vast majority of whom work on the land.

- There are strong links between agriculture and overall eco-

nomical growth. Few countries have achieved sustained economic growth without first, or simultaneously, developing their agriculture.

- As it proceeds, development dictates a declining role for agriculture. Initially dominant, it eventually accounts for only a small fraction of net output, employment, and income. Successful adjustment to agriculture's changing role determines not only the pace and pattern of development as a whole, but also the severity of the problems rural people face in the development process.

- The international economic environment—trade, technology, commercial capital, and development assistance—has contributed to major changes in world agriculture. Most changes have been beneficial, but some serious problems remain: notably the agricultural protection policies of the developed countries, which limit the market access of developing-country producers, at high cost both to governments and to consumers in the developed world.

The pattern of recent growth

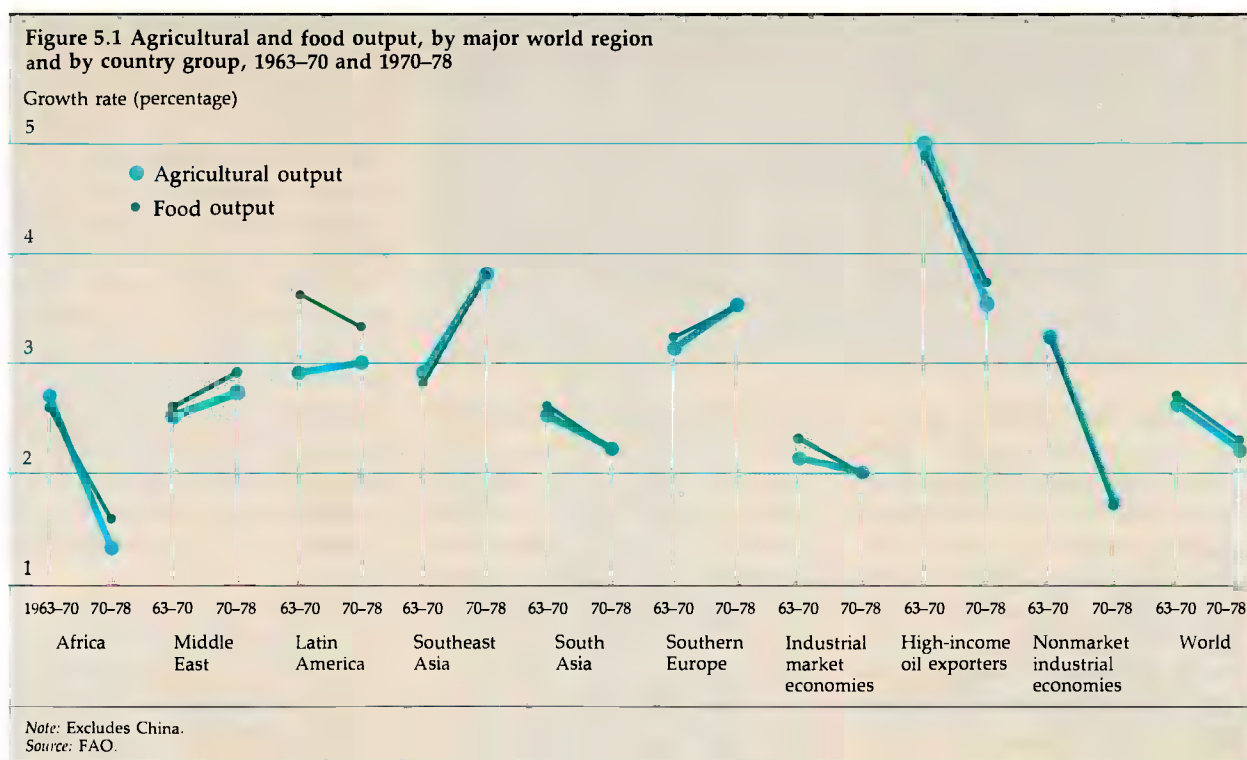
While the rate of growth of agricultural output over the past three decades was about double that of earlier years, it was decelerating during the period. Worldwide, output rose at 3.1 percent a year in the 1950s, 2.6 percent in the 1960s, and 2.2 percent in the 1970s. The broad pattern was one of declining growth rates in the non-market industrial economies, while rapid growth was maintained in developing countries and

Table 5.1 Growth rates of agricultural and food output by major world regions (excluding China), 1960–80

Region and country group	Agricultural output				Food output			
	Total		Per capita		Total		Per capita	
	1960–70	1970–80	1960–70	1970–80	1960–70	1970–80	1960–70	1970–80
Developing countries	2.8	2.7	0.3	0.3	2.9	2.8	0.4	0.4
Low-income	2.5	2.1	0.2	-0.4	2.6	2.2	0.2	-0.3
Middle-income	2.9	3.1	0.4	0.7	3.2	3.3	0.7	0.9
Africa	2.7	1.3	0.2	-1.4	2.6	1.6	0.1	-1.1
Middle East	2.5	2.7	0.0	0.0	2.6	2.9	0.1	0.2
Latin America	2.9	3.0	0.1	0.6	3.6	3.3	0.1	0.6
Southeast Asia	2.9	3.8	0.3	1.4	2.8	3.8	0.3	1.4
South Asia	2.5	2.2	0.1	0.0	2.6	2.2	0.1	0.0
Southern Europe	3.1	3.5	1.8	1.9	3.2	3.5	1.8	1.9
Industrial market economies	2.1	2.0	1.1	1.2	2.3	2.0	1.3	1.1
Nonmarket industrial economies	3.2	1.7	2.2	0.9	3.2	1.7	2.2	0.9
Total world	2.6	2.2	0.7	0.4	2.7	2.3	0.8	0.5

Source: FAO.

Note: Production data are weighted by world export unit prices. Decade growth rates are based on midpoints of five-year averages, except that 1970 is the average for 1969–71.



industrial market economies. (Table 5.1 and Figure 5.1 show the pattern for the 1960s and 1970s.)

In the industrial market economies agricultural growth has been led by rising demand for high-value products such as meat, poultry, dairy produce, fruit, and vegetables. This stimulated rapid growth in the production of ce-

reals, especially in North America and Australia, because changes in animal husbandry led to heavy demand for feed grains. Today, grain fed to livestock accounts for 70 percent of their grain consumption. Between them, livestock and feed grain account for over 65 percent of gross agricultural output (see Box 5.1 and Chapter 6).

Rapid economic growth has drawn people away from agriculture. Agriculture's share of the labor force in most developed countries is now only one-third of what it was in 1960, averaging only 6 percent in the developed market economies in 1980. As a result of a major shift toward labor-saving technology, labor productivity (output per worker) has

Box 5.1 Food versus feed?

"Sheep eat men" was the seventeenth-century slogan of English peasants dispossessed when common land was enclosed for private pastures. Today, some 600 million tons of cereals are fed to animals every year. This amount could feed 2.5 billion people, more than twice the number in poverty. Moreover, grain converted to meat loses 75 to 90 percent of its calories and 65 to 90 percent of its protein. Accordingly, a lively school of thought maintains that feeding grain to cattle, pigs, and chickens takes food away from the hungry.

The issue is not a simple one, however. The main use of cereals for feed occurs in developed countries, where over two-thirds of the grain consumption is accounted for by animals. This pattern of grain use reflects the high incomes of consumers in the developed countries. If cereals were not fed to livestock, cereal production in these countries would decline sharply.

A massive transfer of purchasing power from rich countries to poor ones would be needed to shift consumption from animals to people. Even if this unlikely prospect were realized, the longer-term

consequences are problematic. Most of the world's hungry are farmers or live in farm areas where basic cereals are grown. It would be difficult if not impossible to inject large amounts of cereals into these areas without reducing incomes and production in the very regions where increased income is most needed. Direct food assistance has an important role to play, but it needs to be carefully balanced with other forms of assistance that stimulate food production and incomes.

As development proceeds, the interaction between livestock producers and grain farmers plays an increasingly important part in sustaining agricultural growth. The rapid growth in demand for feed is one factor responsible for the dramatic increase in cereal yields in the industrial countries—to nearly 3.5 tons a hectare. In the 1930s cereal yields were almost identical in developed and developing countries, about 1.1 tons per hectare. Rapidly developing middle-income countries are already following the pattern established by agriculture in the developed world; about 25 percent of the grain they consume is used for livestock feed.

frequently risen faster in agriculture than in other sectors. Agriculture has greatly increased its use of other inputs such as fertilizer and machinery, which now represent nearly half the value of gross output. Agricultural value added has therefore risen less rapidly than gross output—at less than 1 percent a year during the 1970s in many countries.

In the nonmarket industrial economies of eastern Europe and the USSR, output grew rapidly in the 1950s and 1960s because virgin land was opened up and the use of fertilizer and machinery increased. Between 1970 and 1980, however, agricultural growth slowed sharply in the two largest countries, the USSR (averaging 1.9 percent a year) and Poland (1.3 percent a year). This slowdown

came at a time when the demand for meat and other livestock products was rising rapidly. Despite greatly increased imports of feed grains, agriculture has been slow to adapt to this changing pattern of demand. Some of the reasons for this failure lie in history—Soviet agriculture suffered heavily from war and neglect for thirty-five years after the Revolution of 1917—while others lie in the difficulties of an overly centralized system.

Agricultural output in the developing countries considered as a group grew at historically high rates, with growth of just under 3 percent a year during both the 1960s and the 1970s (see Table 5.1). But the rate of growth of population was also unprecedentedly high. The outcome was a modest

(0.3 and 0.4 percent a year) increase in agricultural and food output per capita.

As is usually the case, these aggregates conceal substantial differences. In particular, there was an acceleration of growth of agricultural output in Southeast Asia; from being near the average for developing countries (0.3 percent per capita a year) in the 1960s, it rose to 1.4 percent a year in the 1970s. The Latin American countries also increased their growth of agricultural output per capita, up to 0.6 percent a year in the 1970s from 0.1 percent in the 1960s.

By contrast, the yearly rate of growth of agricultural output in Africa declined (from 2.7 percent in the 1960s to 1.3 percent in the 1970s)—and the rate of population growth accelerated. These changes meant that output per capita grew at 0.2 percent a year during the 1960s, but then fell by 1.4 percent a year in the 1970s. Part of the decline was associated with a slowdown in the production of nonfood crops (tropical beverages and fibers); but the growth of food output per capita was also transformed from a modest increase in the 1960s to a decline (–1.1 percent) in the 1970s.

In South Asia, the balance between population growth and agricultural growth remained essentially unchanged over the two decades. In spite of growth rates of agricultural output which averaged 2.5 and 2.2 percent, respectively, output per capita grew at only 0.1 percent in the 1960s and about zero percent in the 1970s. This performance—disappointing, since South Asia had been one of the major beneficiaries of the Green Revolution and of massive investments in irrigation and fertilizer—is a salutary reminder of the consequences of

high and sustained rates of population growth.

Of course, these growth rates were not uniform within each region, nor were they uniform within countries. In India, for example, not all regions are endowed with the fertile soil, effective flood control, and irrigation and drainage systems that have permitted some areas to show spectacular increases in agricultural production by adopting the new crop technologies. In the 1960s, agricultural growth exceeded 5 percent a year in about a third of the country's 281 districts, but output actually fell in a fifth of the districts and rose at less than 1 percent a year in another fifth.

Such regional differences in agricultural growth rates are a common phenomenon in most countries, both developed and developing. Within each of the EEC countries, for example, there are regions of increasing and decreasing agricultural income during the 1960–80 period. These regional disparities tend to be accentuated during early development stages, however, because of the proportionately greater impact of natural conditions, the variable effect of technology, and the limited capacity of governments to support agricultural growth in less favored regions. In the United States, for example, which provides both national and state support for agriculture, agricultural output increased in every state between 1930 and 1970, although growth rates still varied significantly between 1.7 and 6 percent.

Low or negative growth in agricultural production per capita in South Asia and Africa presents a major challenge to domestic policymakers and the international community alike. The unprecedented advances in plant breed-

ing, in the use of fertilizer, and in investment in irrigation over the past twenty years have resulted in a tie in the race between population growth and agricultural production in South Asia. In Africa, where no comparable advances in agricultural technology have been realized, the race is at present being lost. The challenge is to accelerate the pace of biological innovation, to provide the policy environment and the complementary resources that make the new technologies effective in increasing output and incomes, and to reduce the rapid rate of growth of population.

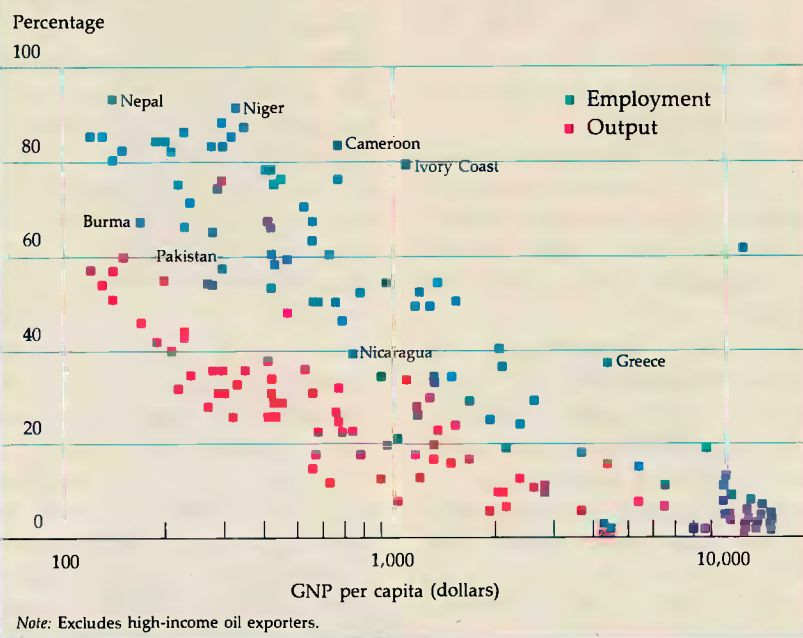
The role of agriculture in development

Economic growth is invariably accompanied by a declining share of agriculture in total output, income, and employment. At advanced stages of development, the labor force in agriculture starts to decline absolutely. Two main forces, which together produce the

major structural transformations shown in Figure 5.2, are at the heart of the development process. First, the pace of agricultural growth is limited by the growth of demand for its output, 90 percent of which is food in all but a handful of countries (see Chapter 6). In turn, the growth of demand is limited by the tendency for the proportion of household spending on food to decline as incomes rise. In India, with a per capita income of \$240, for example, households spend 60 to 70 percent of their income on food; in a \$10,000 per capita economy such as Canada, they spend less than 20 percent on food and are able to enjoy variety and quality to a greater extent.

This tendency, known as Engel's Law, is observed in all economies as they grow. The limits to agricultural growth imposed by the growth in domestic demand can, however, be raised if income growth is broadly diffused in the economy and countries export their surplus produc-

Figure 5.2 Cross-country share of employment and output in agriculture, 1980



tion. (This option is available only to a limited extent, because Engel's Law operates on a global scale, as well as for individual countries.)

In the case of nonfood agriculture, competition from industrial substitutes grows as investment and innovation lower the price of industrial goods and services relative to agricultural raw materials. Common examples are the use of synthetics instead of natural fibers (cotton, wool, jute) for clothing, the substitution of oil or coal for wood, and the switch from timber to steel and cement in construction. Substitution is seldom total, however, so demand for natural products usually continues to grow. To benefit, producers have to concentrate on marketing as well as on efficient production.

With development, farmers become increasingly removed from consumers. As subsistence farming gives way to marketed production, the scope for specialized marketing, transport, processing, and packaging is enlarged. In the industrialized economies, these activities produce much more value added and employment than does agriculture itself; the farm-gate value of food is now only one-third of the price consumers pay for it.

The second main force accounting for the structural change in agriculture is increased agricultural productivity, made possible by technological innovations and accumulated public and private investment. Employment expands and diversifies as a consequence of the relative decline in the agricultural work force. In the early stages of development, almost everybody works in agriculture. Most of the activities later classified as "industrial" and "service" are initially carried out, if not within agriculture, at least

in rural areas—the manufacture of clothing, furniture, and tools; construction of housing and other buildings; transport, processing, and marketing; education, medicine, social and cultural activities. As development progresses, these activities become differentiated and separated from agriculture, until only core agricultural production functions remain. While some nonagricultural activities are still carried out in rural areas, modern industry and services open up new and qualitatively different opportunities, many of which require relatively high skills and education. Although this process is one of the most desirable benefits of growth, it is also the most difficult to handle in human terms (see Chapter 7).

The transfer of labor from agriculture (where the amount of capital per worker and average productivity is relatively low) to industry and services (where capital per worker and average productivity are relatively high) is the key to raising incomes and output. The higher average productivity of labor in the nonagricultural economy is reflected in income differences between it and agriculture. In most countries, incomes are lower in agriculture than elsewhere, as shown by the fact that farming's output share is consistently lower than its employment share (Figure 5.2). This income difference provides the incentive for people to move out of agriculture into nonagricultural activities in urban centers. The agricultural shares of output and employment are roughly equalized only at a comparatively late stage of development.

The process of change can be very rapid in historical terms: in Japan and the less developed parts of Europe, the agricultural labor force represented 40 to 50 percent of total employment as recently

as 1950. Developed countries no longer depend heavily on agriculture: it accounts for only 4 percent of output and 6 percent of employment in industrial market economies, and 15 and 17 percent, respectively, in planned economies. In low-income countries, by contrast, agriculture still accounts for 30 to 50 percent of output and an average of 70 percent of employment. Even in most middle-income countries, 10 to 20 percent of output and over 40 percent of employment are derived from agriculture.

The continuing importance of agriculture in the economies of the developing countries is reflected in the association between the growth of agriculture and of the economy as a whole. Among countries where the agricultural share of GDP was greater than 20 percent in 1970, agricultural growth in the 1970s exceeded 3 percent a year in 17 of the 23 countries whose GDP growth was above 5 percent a year (Table 5.2). During the same period, 11 of the 17 countries with GDP growth below 3 percent a year managed agricultural growth of only 1 percent or less. Agricultural and GDP growth differed by less than two percentage points in 11 of 15 countries experiencing moderate growth. There have been exceptions, of course, but they prove the rule: fast GDP growth and sluggish agriculture was a feature of some of the oil- or mineral-based economies such as Algeria, Ecuador, Morocco, and Nigeria (see Box 5.2).

The parallels between agricultural and GDP growth suggest that the factors which affect agricultural performance may be linked to economy-wide social and economic policies. In the many low-income countries where agriculture predominates, effective policies, institutions, and investment

Table 5.2 Growth of agriculture and GDP in the 1970s

<i>Agricultural growth</i>	<i>GDP growth</i>			
	<i>Above 5 percent</i>		<i>3-5 percent</i>	<i>Below 3 percent</i>
Above 3 percent	Cameroon China* Colombia Dominican Rep. Guatemala Indonesia Ivory Coast Kenya Korea, Rep. of	Malawi* Malaysia Paraguay Philippines Thailand Tunisia Turkey Yemen Arab Rep.	Bolivia Burma* Mali* Somalia* Tanzania*	Liberia Nicaragua Senegal
1-3 percent	Costa Rica Ecuador Egypt Lesotho		Bangladesh Central African Rep.* El Salvador Haiti* Honduras India* Pakistan* Sri Lanka* Sudan* Upper Volta*	Burundi* Sierra Leone* Zaire*
Below 1 percent	Morocco Nigeria		Togo*	Angola* Chad* Congo, Rep. Ethiopia* Ghana Madagascar* Mauritania* Mozambique* Nepal* Niger* Uganda*

*Low-income countries.

Source: World Development Indicators.

programs for agriculture are virtually synonymous with effective overall management. This is not surprising since there are many important growth linkages between agriculture and the rest of the economy. Expanding agricultural production through technological change and trade creates important demands for the outputs of other sectors, notably fertilizer, transportation, commercial services, and construction. At the same time, agricultural households are often the basic market for a wide range of consumer goods that loom large in the early stages of industrial development—textiles and clothing, processed foods, kerosene and vegetable oils, aluminum holloware, radios, bicycles, and construction materials for home

improvements. In most middle-income economies, agricultural policies are only slightly less influential. Despite the similar resources and history of the countries, agricultural productivity has increased twice as fast in Cameroon and Liberia in recent years as it has in neighboring Guinea and Ghana—and four times as fast in Tunisia and Colombia as in Morocco and Peru.

Managing agricultural development

The process of transformation is well advanced in many middle-income countries, where agriculture's contribution to output and employment has already declined to modest levels and the agricultural labor force is starting to

shrink in absolute terms. In these circumstances, mechanization and other labor-saving techniques (such as the use of herbicides) play a major role in sustaining agricultural growth. Education and training are needed to help people move into industrial and service jobs—especially people from backward areas. In some of the advanced middle-income economies, marketed farm produce is increasing sharply, often several times faster than the overall rate of increase in agriculture. Heavy investment in roads, railways, ports, and other links in the marketing chain are required, together with policies and institutional arrangements to ensure efficient transport, processing, and storage. Similar considerations apply to the timely availability,

variety, and cost of industrial inputs such as chemical fertilizer. Finally, farmers and traders rely more on efficient (and increasingly complex) financial arrangements to provide credit for investment and working capital (see Chapter 6). Among the middle-income economies, rural poverty becomes a less severe, and hence more manageable, problem. In better-off rural communities, nonfarm employment is increas-

ingly important; for many, farming itself becomes a part-time occupation. Where problems do persist, many countries have targeted investment toward rural health, nutrition, and infrastructure.

While middle-income countries expanded their agricultural output by 3.1 percent a year in the 1970s, low-income countries managed only 2.1 percent. As a consequence, agricultural output

per capita increased by 0.7 percent a year in middle-income countries, while because of the poor performance of the African economies it actually declined in low-income countries by 0.4 percent a year.

The challenges of agricultural development are clearly much harder to meet in countries at earlier stages of development, when the economy itself is largely agricultural. Agriculture merits support and stimulus—yet it has to provide them itself, being the only real source of income, savings, and growth. At the same time, countries have other competing priorities, including industrial and urban development. Against this background, two sets of policy issues assume particular importance. The first is domestic: what incentives should be given to farmers and how should they change over time? The second set is international: how can governments in the developed countries assist agricultural progress in the developing countries?

Relative prices and other incentives are often biased against the farmer in developing countries. Overvalued exchange rates, taxation of agricultural exports, heavy protection of fledgling industry, and inefficient parastatal processing and marketing agencies—all contribute to this bias. Some of the issues involved in trying to measure the effects of these factors are discussed in Box 5.4.

The relatively low prices received by farmers have seriously hampered growth in many developing countries. Where prices have not been kept artificially low, and where other conditions for growth have been favorable, farmers have responded by increasing output. The responsiveness of farmers to incentives—in contrast to the outmoded and mistaken view that peasants are

Box 5.2 Oil and agriculture: The Nigerian experience

Oil exports—about 2 million barrels a day in 1980—have become Nigeria's major foreign exchange earner. But oil has been a decidedly mixed blessing for agriculture.

In the early 1960s, agriculture was thriving. Small farmers, who made up more than 70 percent of the Nigerian work force, expanded their production of food and cash crops. Agricultural exports were booming and small farmers produced about 90 percent of them. Nigeria was the world's leading exporter of groundnuts, groundnut oil, palm kernels, and palm oil, and the second largest cocoa exporter (after Ghana). Income generated in the farming sector supported the development of many local manufacturing and service industries and provided most of the foreign exchange needed to build roads and other infrastructure.

Progress in agriculture was cut short by the oil boom in the mid-1960s and was further disrupted by the three-year civil war, which began in 1967. As a result, farming has yet to recover. Agricultural growth has been close to zero over the twenty years from 1960 to 1980, despite economy-wide growth of 4.8 percent a year. In the 1970s, the volume of agricultural imports quadrupled while agricultural exports were halved. By the late 1970s, Nigeria was a net importer of agricultural produce.

Oil income has depressed agriculture in the following ways:

- A substantial reevaluation of the *naira* and high local inflation made exporting increasingly unprofitable, while food imports became increasingly competitive

with local production. Higher incomes led urban Nigerians to change their eating habits in favor of imported foods.

- An immense urban boom attracted large numbers of young Nigerians into the towns. Because of rapid overall labor force growth, the number of farm workers may not have fallen absolutely, but the rate of increase was very slow and the proportion of older workers increased sharply.

- The considerable effort made to sustain agriculture through public investment and new development schemes was greatly hampered by the dearth of trained and experienced manpower, which was largely drawn into other, more buoyant sectors.

Oil clearly offers a major opportunity to accelerate the process of structural transformation. But the Nigerian experience suggests lessons for other countries in whose economies oil has a major potential role. Oil revenues must be used to support an efficient transformation process. This means that close attention must be paid to manpower constraints, that public sector financial discipline must be tight, and that the impact of oil on the exchange rate must be carefully monitored. Public investment needs to focus on expanding the economy's absorptive capacity—concentrating on removing bottlenecks in transport, power, and other infrastructure sectors. Expenditures on education and training need to expand to meet the human resource requirements of a more advanced and diversified post-oil economy.

set in traditional ways—has been observed in societies with diverse social systems and levels of development (see Box 5.3).

Pricing alone is neither a complete explanation of agricultural performance nor the sole key to progress, however. Other areas of government policy are important:

- *Comparative advantage.* Many countries have traditionally encouraged specialization in agriculture to exploit the comparative advantage given to them by nature. In recent years, countries such as the Ivory Coast, Malaysia, and the Philippines have achieved rapid agricultural growth by encouraging export crops while also expanding food output.

The importance of trade for the agricultural growth of developing countries is evident from the share of agricultural output which is exported. Based on the FAO's pro-

duction data (see Table 5.1), in 1979, out of ninety developing countries, exports accounted for 50 percent or more of total agricultural output in ten countries; more than 20 percent in thirty; and more than 10 percent in fifty. Among countries exporting more than half their total output, Jordan, Malaysia, Mauritius, and the Central American and Caribbean countries figure prominently. Among those exporting between a half and one-third of total output, nearly half are in sub-Saharan Africa. For developing countries in these two categories, the export market is a major factor determining agricultural growth. Since these are often countries where agriculture is a dominant sector, agricultural exports are an important factor in their overall economic growth as well.

Exporting is a rewarding but

also a risky business. Between 1961 and 1978, African cocoa producers lost market share to Latin Americans; South Asian dominance in tea was eroded by competition with African and Chinese exporters and fell from 80 percent of world exports to under 50 percent; Latin American coffee producers supplied only 51 percent of the market in 1978, compared with 62 percent in 1961; and the small, sugar-producing islands of the Caribbean have been unable to expand into new sugar markets and have lost ground to East Asian and Latin American producers.

Specialization involves heavy investment and a commitment to research. Brazil's exports of soybeans are a notable recent example of exploiting the comparative advantage of a crop that was already being grown in the country (see Box 5.5). But greater difficulties are posed for very small

Box 5.3 Improving incentives in Chinese agriculture

As part of a general shift toward greater flexibility, agricultural policies in China started changing in 1977. The system of rigid production planning in collectivized agriculture was relaxed, and household and other private agricultural activities were encouraged. The approach still sets local sales targets for the main crops, but allows production teams more latitude in their decisions on crops, land, and input use. Deregulation of local markets helps promote the private sale and exchange of produce.

Incentives to promote the production of priority commodities have been increased. Between 1977 and 1979 state purchasing prices for all the important commodities were raised by 20 to 30 percent. In addition, farmers are being encouraged to sell crops and livestock products to state agencies via entitlements to special allocations of grain or fertilizer (at relatively favorable prices) along with normal sales proceeds. Extra production is particularly favored: grain sales above quota attract a premium of

50 percent over base prices.

Within the production cooperatives, incentives have also been sharpened. The changes involve improvements to "work point" systems so that less is apportioned to workers as basic rations and more as a return for the quality and quantity of individual work. Various types of contractual arrangements are being encouraged under which small groups of workers manage collective land and other assets under contract to the production team, with bonuses for above norm performance.

Although it is too early to assess the long-term impact of these changes, they have already resulted in a dramatic upsurge in agricultural output:

- Between 1977 and 1980, the growth of output averaged close to 7 percent a year.

- Food-grain output increased by some 37 million tons, with growth averaging close to 5 percent a year, though in both 1977 and particularly 1980 bad weather was responsible for poor wheat crops.

- More remarkable was the upsurge among some of the other major field crops. Cotton output increased 23 percent in 1979-80, and oilseeds by 92 percent from 1977 to 1980; in both cases there was a sizable expansion of cultivated area as well as yield increases. Large increases are also reported for sugar, silkworm cultivation, and jute. There is evidence that these increases reflect substantial shifts in cropping patterns based on area specialization and local comparative advantage.

- Meat production (almost entirely pork) increased over 50 percent during the past three years—a response both to improved producer prices and to policies that give livestock producers greater freedom to use grain for animal feed.

China's planners did not anticipate so big a response. Nor did they adjust consumer sales prices for the leading items; therefore subsidies, already quite a large item in the budget, have shot up to around \$5 billion a year.

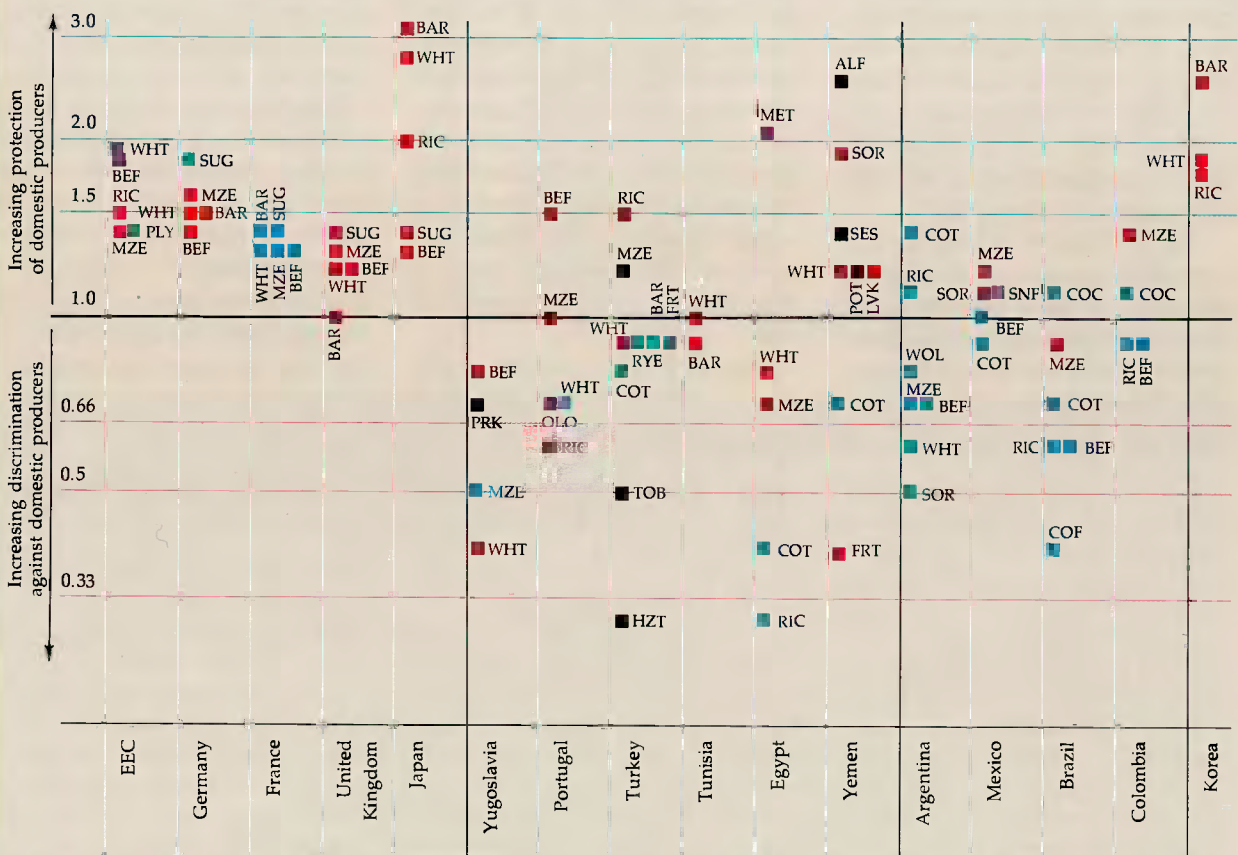
Box 5.4 Nominal protection and foreign exchange valuation

Determining the incentives or disincentives farmers face in different countries is a rough science. The protection measures shown in the figure compare the domestic prices that farmers are paid with prices they could expect to face if the country in question were freely trading on the world market. Too much significance should not be attached to individ-

ual crop and country data since year-to-year changes can be large. But the data confirm the high level of protection in many developed countries, where many producer prices are 50 to 100 percent above world market levels, in contrast to the situation of most developing countries, where prices are often well below the world market.

Nominal protection coefficients (NPCs) take into account tariffs, quotas, and nontariff barriers that protect farmers as well as the impact of export taxes or restrictions that penalize farmers. Protection is also a function of the country's exchange rate as it is influenced by policy. Protecting domestic industries, for example, reduces industrial imports below

Adjusted nominal agricultural protection coefficients, by country, late 1970s



Note: ALF is alfalfa; BAR, barley; BEF, beef; BEN, beans; COC, cocoa; COF, coffee; COP, copra; COT, cotton; FRT, fruits; GRT, groundnuts; GUA, gum arabic; HZT, hazelnuts; LVK, livestock; MET, meat; MLT, millet; MZE, maize; OLO, olive oil; OLS, oilseeds; PLY, poultry; POT, potatoes; PPR, palm products; PRK, pork; RIC, rice; RUB, rubber; RYE, rye; SES, sesame; SNF, sunflower; SOR, sorghum; SUC, sugarcane; SUG, sugar; TOB, tobacco; WHT, wheat; WOL, wool.

poor countries—for example, Burundi, Gambia, Guinea, and Uganda—that lack a research capability and are almost totally dependent (for 75 to 95 percent of their foreign exchange) on one or a few tropical export crops. Exceptional efforts will be required to achieve greater stability and di-

versity in the largely agricultural economies, including support from the international community to assist them in this difficult task.

- *Technological progress.* In the past, agricultural research relevant to developing countries' needs was confined largely to

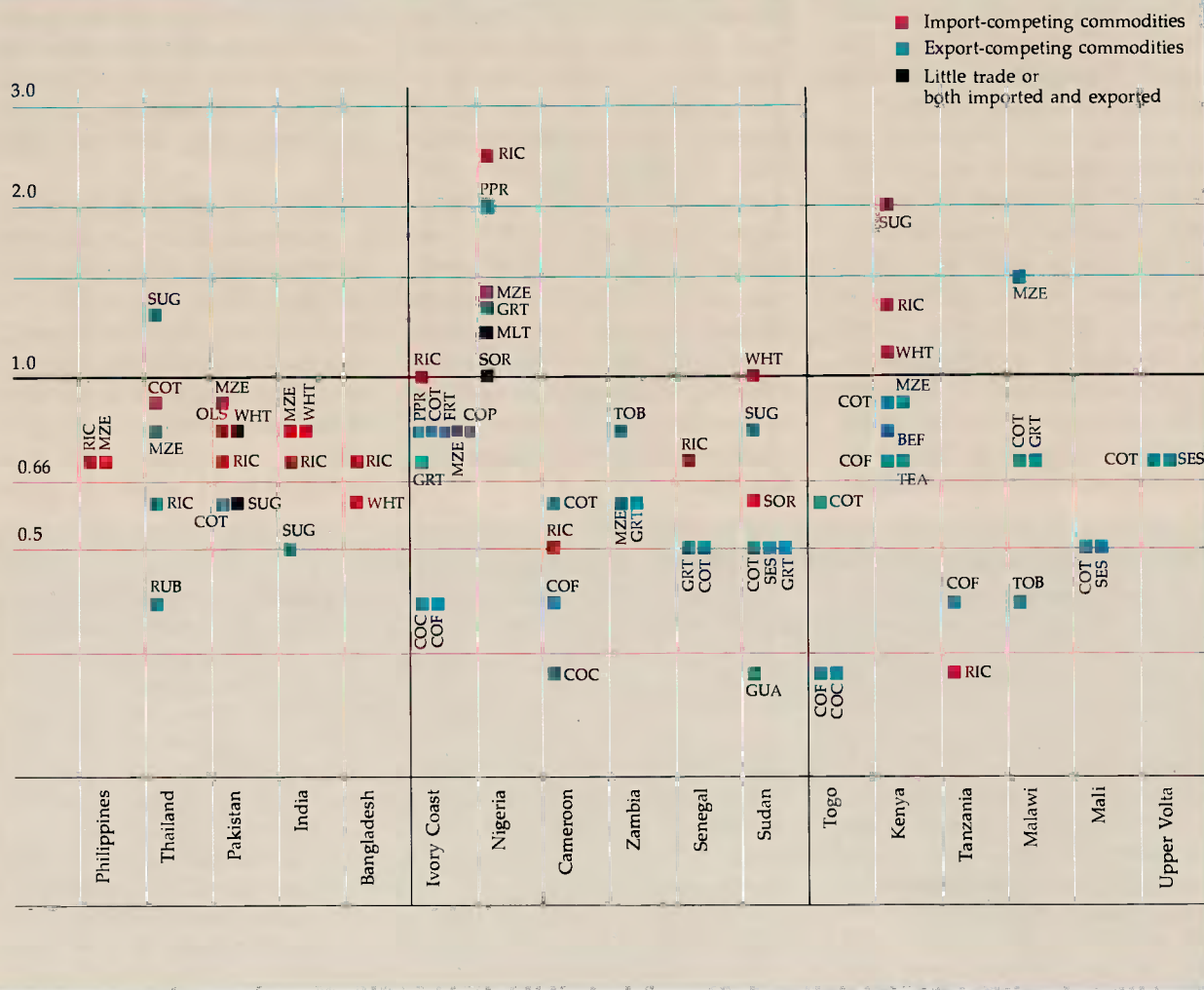
tropical export crops. Some, such as cane sugar, have been through several Green Revolutions over the past century. In general, though, research has become critical only in modern times; it has been applied to considerable effect in countries such as China, India, Indonesia, and the Philippines.

their probable level in an unprotected market. This tends to overvalue a country's exchange rate. Agricultural exporters then have a harder time competing in the world market, since their costs are increased in local currency while their dollar export receipts exchange for less local currency than otherwise. The NPCs shown in the figure are adjusted to ac-

count for over- or undervaluation of the exchange rate.

The NPCs are not adjusted for one other important factor—the protection given to tradable inputs used in production, chiefly fertilizer and machinery. Such effective protection coefficients (EPCs) are more difficult to compute because data on input uses in agriculture are more

elusive. Research at the World Bank and elsewhere suggests, however, that the levels of traded inputs in agricultural outputs are relatively low in developing countries, so that the qualitative results of EPCs and NPCs are similar.



Much remains to be done for crops grown in semi-arid areas and for rain-fed annual crops generally (see Chapter 6). Although research is one of the cheaper investments that governments can make, it requires highly skilled people to direct it. Foreign assistance has played a major role

in this area, especially through the establishment of international agricultural research centers and through the financing and initial staffing of national research efforts in poorer countries.

- *Mobilization of rural resources.* Motivating and organizing farm communities to help in collective

works and infrastructure is widely recommended, though less often systematically practiced. China is the outstanding example of what can be done to improve roads, land, and irrigation through community efforts that use little public money. There and in some other countries, land reform has

provided an early stimulus for common action. This is not surprising, since collective action and individual benefit become more closely and more directly aligned as holdings of land and other assets become more nearly equal. Labor is the most plentiful and cheapest resource available in low-income countries, while capital is scarce and expensive. Using the rural work force for infrastructure improvement is an important means of converting labor into capital. Management is often the key constraint (see Chapter 7).

• *Public sector investment and support.* Agriculture attracts a surprisingly small share of government spending—between 5 and 10 percent of most developing countries' central government budgets. Nevertheless, public sector outlays on critical bottlenecks have helped to stimulate and sustain growth by the development of large-scale irrigation, research, and rural infrastructure.

This approach has been particularly useful in areas where the potential for rapid growth already exists, and special programs often combine several elements into a development package. In some countries—Indonesia and the Republic of Korea, for example—fertilizer subsidies have been used to encourage growth. The effectiveness of such techniques should not disguise the fact that they can become very costly; removing them once they have achieved their objective can be difficult.

In some cases, however, the intervention of the public sector has been counterproductive. Instances of ineffective parastatal organizations involved in the marketing of agricultural products and the supply of inputs abound. Some governments have taken bold steps to improve the efficiency of distribution systems by opening up the sector to cooperatives and private traders (see Box 5.6).

• *Foreign capital.* Much early agricultural development in, for example, Argentina, Brazil, Malaysia, and East and West Africa was largely based on private investment, often involving foreign management and control. Private foreign investment and loans are still important in some middle-income economies. In the low-income economies, little external private investment or lending has recently gone into agriculture. Instead, foreign aid has become the main external source of foreign exchange and technical support, particularly after 1973 (see Table 5.3).

In the mid-1960s, while nearly a quarter of all official development assistance (ODA) was food aid (\$1.4 billion out of \$5.9 billion), project and technical assistance for agricultural programs was small. The food crisis of the early 1970s, coupled with a growing realization that poverty and malnutrition were persistent prob-

Box 5.5 Brazilian soybeans: Creating a comparative advantage

Brazil's expansion of soybean production is a dramatic agricultural success story. Before 1960 production was insignificant, but by the end of the 1970s soybeans surpassed coffee as the principal Brazilian crop in value, covered some 17 percent of the cropped area, and constituted 14 percent of world soybean output. Over this period, Brazilian soybean production grew at 27 percent a year: in the 1960s entirely through expansion of the area planted, and in the 1970s boosted by yield improvements of more than 2 percent a year. Brazilian exports of soy and soy products (oil, meal, and cake) rose from \$53 million in 1969 to \$2.3 billion in 1980, a remarkable 42 percent a year rate of growth. Soybeans make up more than 10 percent of Brazil's annual exports. As soy oil was substituted for imported vegetable oils, domestic consumption grew almost 28 percent a year over the 1970s, and there was also growing demand for soy meal, mainly for chicken feed.

A number of factors helped to stimulate this impressive growth:

• Rapid expansion of world demand for protein for human and animal consumption; stagnation in the output of alternative protein sources (such as the Peruvian anchovy); the fact that Brazil's soybean crop comes to market during the US winter, when world supplies are seasonably low; and the US embargo on its soya exports in 1973 (which stimulated Japanese importers to find alternative sources).

• Farmers typically double-crop soybeans in the summer and wheat in the winter. New wheat varieties that mature earlier enabled soybean-wheat double-cropping to expand to other areas. Cultural practices for the two crops are similar, and soybeans benefited from support aimed at promoting wheat production (for example, the fivefold real expansion of subsidized agricultural credit in the 1970s, about 20 percent of which was for soybeans).

• Research was a critical factor. More than sixty soybean cultivars brought to Brazil from the United States during the 1960s contributed to the development of domestic cultivars by the National Center for Soybean Research. Of the forty-eight cultivars distributed to farmers at the end of the 1970s, twenty-six had been developed in Brazil. It has been estimated by the Brazilian Agricultural Research Enterprise (EMBRAPA) that two-thirds of yield increases have come from genetic improvements. The other third has come from improving soil management practices—proper application of fertilizers, correctives, nitrogen-fixing bacteria, and herbicides—also derived from intensive and continuous research. That national yields grow apace with increases achieved at the research centers attests to the successful diffusion of the research results and their adoption by farmers.

Box 5.6 Private complements public: The Bangladesh experiment

In the mid-1970s, Bangladesh planners estimated that fertilizer use had to expand by 15 percent a year to attain the targeted 4 percent yearly agricultural growth rate. At that time, the Bangladesh Agricultural Development Corporation (BADC), a public corporation under the Ministry of Agriculture, handled all marketing of farm supplies as well as all procurement of fertilizer. It had done well, but the strains had begun to tell.

In 1978 BADC established the New Marketing System (NMS) to reduce restrictions on private traders and thus move toward a more open system for distributing fertilizer. BADC would gradually withdraw from retailing and, except in remote areas, sell mainly to wholesalers at "primary distribution points." Private dealers and cooperatives would be permitted to buy from all BADC warehouses. Private movement of fertilizer would be unrestricted except in the border zones.

With bilateral assistance from the United States, BADC began the NMS in

the Chittagong Division, which covers one-fourth of the area of the country and accounts for a third of total fertilizer consumption. It increased official dealers' margins, permitted farmers to buy from any trader, and made it easier to become a trader. It developed a private dealer credit system from commercial banks. BADC set up a monitoring system for the NMS and took steps to cut down its internal transport and storage problems.

The NMS enjoyed reasonable success. Fertilizer sales increased, and forty-five government warehouses were put out of business, leaving the government active mainly in remote areas which did not attract wholesalers. Retail prices dropped below official prices around the primary distribution points. The new fertilizer wholesalers showed they could move fertilizer cheaply and effectively from surplus to deficit areas, selling to both farmers and retailers.

On the basis of this pilot experience, the NMS was adopted nationwide. As of

mid-1980, major accomplishments of the NMS included:

- BADC's fertilizer points of sale were reduced by 55 to 60 percent; about one-third of the original 130 warehouses were closed.
- Farmer access to fertilizer points of sale greatly increased in the Chittagong Division.
- Farmers paid less for fertilizer under the NMS.
- A new class of entrepreneurs had emerged.

The net results of the program have been almost entirely positive. The private distribution system is more flexible and can supply farmers at lower costs, and much of BADC's managerial and labor force can be released for other tasks. The costs of constructing and maintaining the marketing and storage infrastructure have been substantially reduced. The government is now collaborating more actively with the private sector in other areas.

Table 5.3 Official assistance (commitments) to agriculture, 1973–80
(millions of dollars, constant 1979 prices)

Item	1973	1974	1975	1976	1977	1978	1979	1980
Official development assistance (ODA)								
DAC ^a	1,594	2,819	2,359	2,246	3,279	3,633	4,304	3,773
Multilateral agencies	1,533	1,833	1,530	1,814	2,139	2,761	2,503	2,969
OPEC (bilateral and multilateral)	69	218	640	378	461	307	243	179
Total ODA	3,196	4,870	4,529	4,438	5,879	6,701	7,050	6,921
Percentage change	..	+82	-6	-2	+32	+14	+5	-2
Other official flows (OOF)								
DAC ^a	351	275	137	395	159	403	329	222
Multilateral agencies	902	1,610	2,944	2,150	2,816	3,275	2,319	2,621
OPEC (bilateral and multilateral)	63	90	333	221	80	49	99	48
Total OOF	1,316	1,975	3,414	2,766	3,055	3,727	2,747	2,891
Percentage change	..	+50	+60	-19	+10	+22	-26	+5
Grand total (all donors)	4,512	6,845	7,943	7,204	8,934	10,428	9,797	9,812
Percentage change	..	+62	+16	-9	+24	+17	-6	(.)

Source: OECD.
a. Includes EEC.

lems in large parts of the world, produced a major shift toward agriculture. Flows of ODA and other official assistance for agriculture more than doubled in real terms between 1973 and 1980. The share of agriculture and rural development in the lending of the mul-

tilateral institutions rose to nearly 30 percent.

The share of aid in agricultural investment varies widely from country to country. In China, by far the largest country, virtually no external assistance was received during the past twenty-five

years. Similarly, in India, though large amounts of aid have been received, it represents only 3 to 5 percent of total spending on agriculture. Its use is concentrated on selected areas such as irrigation, and its effectiveness is largely determined by overall agricul-

tural investment. Elsewhere, especially in the poorer African countries, aid accounts for 20 percent of public investment in agriculture. There too, the effectiveness of aid still depends on the government's interest in, and commitment to, agriculture.

The need for policy and investment changes is not uniform among developing countries. Many have been quite successful in managing their agriculture and adapting to structural changes. They need little advice, although they may need continued financial support to sustain well-designed policies and programs. Others need to make major changes. They are not alone. The developed countries have found it extremely difficult to manage the last stages of structural change in agriculture; their capacity to deal more effectively with these challenges will be an important factor in developing countries' success or failure.

The international environment

The international environment can support or restrict agricultural development in developing countries in two main ways. First, through the mechanisms described in Part I of this Report, the international economy powerfully conditions the overall growth prospects of developing countries. In turn, more buoyant overall growth simultaneously provides both strong support for agricultural growth and the resources to permit an expansion of productive capacity.

Second, trading opportunities for agricultural products permit agricultural growth beyond the limits set by the expansion of domestic demand alone. Agricultural exports remain a major source of foreign exchange for many developing countries, and

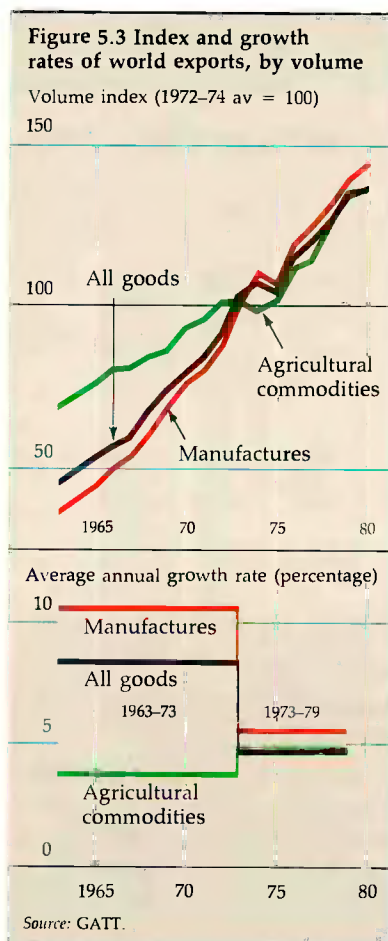
therefore an important determinant of overall economic growth. Patterns of agricultural trade have varied markedly over the past three decades, reflecting in part the growth of the world economy and in part the differential agricultural growth performance described earlier in this chapter.

During the period of fastest growth in the world economy—roughly, from 1955 to 1973—the expansion of international trade was dominated by manufactured goods, fuel, and minerals. World trade grew at 8 percent a year, trade in agricultural goods by less than half that. By 1973, developing countries' agricultural exports had fallen from 60 percent of the value of their total exports in 1955 to only 30 percent. Nevertheless, agricultural goods re-

mained the single most important category of exports for more than two-thirds of the low- and middle-income economies.

The early 1970s proved a turning point in the agricultural trade of developing countries. Since 1973, the growth of world trade has declined to 4.7 percent a year, in line with the slowdown of the world economy. But the growth of agricultural trade has accelerated to 4.8 percent a year, largely because the demand for food has increased rapidly (see Figure 5.3). The extra purchasing power of the oil-exporting countries boosted their share of world food imports from less than 6 percent in 1973 to 10 percent in 1978. Over the same period, strong demand for meat and poultry in eastern Europe, coupled with a poor supply response from domestic agriculture, boosted the region's maize and wheat imports from 3 to 14 percent of its total food imports. Eastern Europe now accounts for about one-third of world imports of maize and wheat. China has also become a major grain importer. In total, the world grain trade has expanded from about 30 million tons in the mid-1950s to average 130 million tons a year in the 1976–80 period—nearly one-half because of rising imports by developing countries (including China) and one third because of import growth by the USSR and eastern Europe.

The extra demand has been met mainly by developed countries. The biggest relative increases in exports have come from the EEC, which produced trade surpluses in a number of commodities as a result of continued agricultural growth and stagnant demand in the home market. By contrast, the large rise in North American grain exports only slightly increased their importance in world food trade. Overall, the net food deficit



of the industrial market economies narrowed from 16 percent of world food trade in 1965 to less than 5 percent in 1978.

The oil-importing developing countries gave greater emphasis to agricultural exports during the 1970s. By 1978, their trade surplus on food amounted to \$21 billion, sharply up from \$6 billion in 1973. Performance has varied widely by region and country. Some countries have been able to penetrate expanding markets; examples include Brazil's successful soybean exports and Thailand's new trade in cassava chips for livestock feed. A number of low-income countries sharply increased their food exports to Middle Eastern markets after 1973 (see Figure 5.4). These markets now account for more than 20 percent of low-income countries' food exports, compared with 4 percent in 1973.

These were the successes. In other cases, however, especially where exports were based on traditional tropical crops, inelastic demand limited increases in foreign exchange earnings. Although volume expanded in the 1970s, the terms of trade deteriorated considerably. Had agricultural prices been moving in line with prices of manufactured goods, this higher volume of exports would have given low-income oil importers an additional \$1.2 billion of foreign exchange in 1978 and middle-income ones an extra \$5.7 billion—enough to finance 15 percent and 27 percent of their respective current account deficits (see Table 5.4).

Slowing demand in protected developed-country markets has altered the shape of developing countries' agricultural trade. When trade was limited to a few commodities consumed almost exclusively in the developed world, export volume and prices were

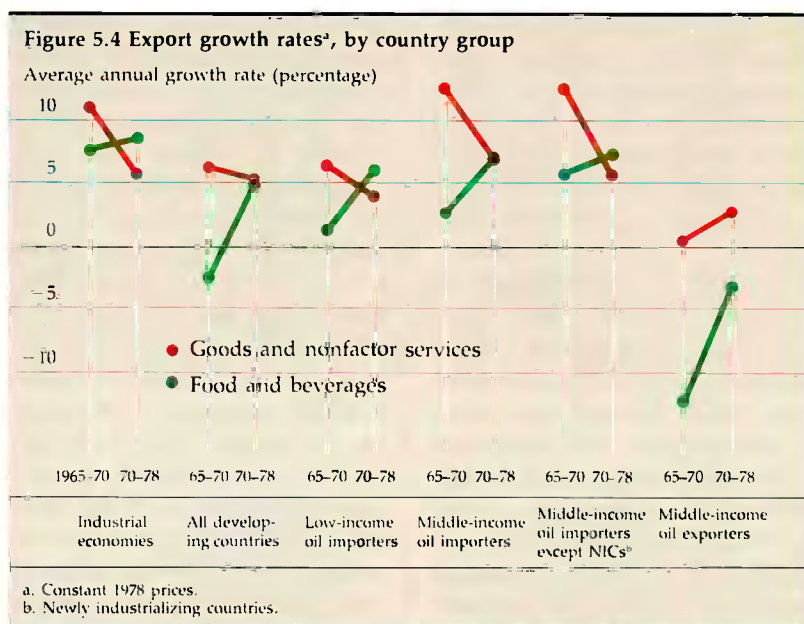


Table 5.4 Oil-importing developing countries' food and beverage trade, 1970 and 1978

(billions of 1978 dollars)

Item	Low-income oil importers			Middle-income oil importers		
	Exports	Imports	Net	Exports	Imports	Net
1978 value	5.98	3.04	2.94	38.79	20.90	17.89
1970 value	5.03	2.91	2.12	30.38	16.65	13.73
Difference	0.95	0.13	0.82	8.41	4.25	4.16
Value change due to:						
Volume growth	2.22	0.24	1.98	16.19	6.36	9.83
Price decline	-1.27	-0.11	-1.16	-7.78	-2.11	-5.67

determined by fluctuations in industrial countries' growth and by production changes in the developing countries. Today, developed countries remain the major markets for food exports, taking about 70 percent of middle-income countries' exports and 50 percent of low-income countries' exports. But developing countries' food exports to these markets grew much more slowly between 1965 and 1978 (1.1 percent a year) than their exports to oil-exporting developing countries (6.3 percent a year), to high-income oil exporters (8.9 percent a year), and to centrally planned economies (4.9 percent a year). These three groups now represent the most dynamic and open

markets for the agricultural exports of developing countries, weakening the historical link between commodity trade and the growth of industrial countries.

The trade and agricultural policies of developed countries influence the options open to the developing countries in important ways. In contrast to the situation in most developing countries, agriculture in the developed world is heavily protected and supported. The aim has been to support farm incomes in the face of rapid growth of earnings elsewhere in the economy. In some instances, governments have also sought to retain a farm economy capable of supplying most of their countries' food. Countries in the

EEC have protection levels between 30 and 80 percent above the commodity prices in world trade (see Box 5.4). The United States has less explicit protection, but its budgetary expenditures as a percentage of agricultural value added (38 percent) are similar to those of the EEC (39 percent). Japan has the most heavily protected farmers, largely because of import restrictions (the domestic price of rice, for example, is twice its import price, and wheat and barley are protected even more). Developed countries also subsidize their agriculture through programs of research, technical assistance, credit, and income-maintenance schemes. By 1980, public spending on agriculture by the EEC countries, Japan, and the United States was about \$80 billion; the EEC accounts for close to half the total.

These protectionist policies have had mixed consequences for the developing countries. An important positive feature is that these policies have stimulated research and technical development in agriculture, which benefit developing countries through the international transfer of technology. More controversial are the lower international prices for some commodities associated with developed-country disposal of agricultural surplus, notably grains and milk products. While clearly benefiting importing developing countries in the short run, in the longer term the lower prices may depress farm incentives for local food production and stimulate permanent changes in preferences for foods which cannot be locally produced. The benefits tend to accrue largely to a relatively affluent urban minority of consumers, while adverse effects are felt by the poor rural majority.

For developing-country exporters, the impact of agricultural

protection is clearly negative in several respects (see Box 5.7). Developing-country exporters have been hard hit by this legislated inability to expand into traditional industrial-country markets. For example, the share of developing-country sugar exports going to the developed world has fallen from 88 percent in 1970 to 64 percent in 1978. Although they have been able to expand their share in other developing-country sugar import markets, this has not been sufficient to maintain the value of sugar exports in real dollar terms, relative to 1970. Moreover, strong competition from the industrial countries' surplus has captured increasingly large shares of the growing market in those developing countries that import sugar; 46 percent in 1978 compared with 24 percent in 1970.

By comparison with trade in manufactures, little progress was made in reducing agricultural protection in the most recent (1975-78) Tokyo Round of multilateral trade negotiations. That lack

of progress is compounded by the fact that nontariff measures are often used to exclude developing countries' agricultural exports.

Governments in industrial countries are sensitive to the protectionist demands of their own farmers, and this factor exacerbates the uncertainties and risks of agricultural trade. For example, the EEC is considering ways to reduce the budgetary costs of the common agricultural policy—not by reducing protection, but by extending tariff barriers to imported vegetable oils. Such measures, particularly if they lead to higher domestic production, as they have done with sugar, are bound to harm efficient producers in the developing world and to force consumers in developed countries to pay even higher prices for food.

Protection also creates substantial volatility in world prices. By insulating domestic producers and consumers from external market realities, governments are placing the burden of balancing global

Box 5.7 Measuring the impact of agricultural protection

The International Food Policy Research Institute (IFPRI) has completed the most recent study of the impact of protection on agricultural trade. Based on data of the mid-1970s, their study concluded that a 50 percent reduction in OECD developed-country trade barriers (affecting some 99 agricultural commodities) would increase agricultural exports from some fifty-six developing countries by about 11 percent, equivalent to \$3 billion of extra sales at 1977 prices. Long-term benefits might considerably exceed these estimates, if a more liberal trade environment (that exporters had confidence would be sustained) encouraged new investment and expanded specialized production over a longer period.

The distribution of benefits from trade liberalization reflects the uneven pattern of protection, the patterns of compara-

tive advantage of the various developing-country producers, and their export policies. Roughly a third of extra export revenues would accrue to sugar producers; beverages, tobacco, and meat products account for another third. Close to 60 percent of the additional revenues would accrue to Latin American producers, over 20 percent to countries in Asia, and 10 percent each to sub-Saharan Africa and the North Africa and Middle East region. Benefits would also be considerable for smaller exporting countries not included in the sample of fifty-six (which were selected on the basis of a population of 4 million or more in mid-1975), for example, Cuba, Jamaica, and Mauritius (as sugar producers), Cyprus (wine), Zimbabwe (tobacco), and Costa Rica (meat, coffee).

supply and demand on a relatively small part of the market. Since it is disproportionately the developing countries who participate in the open world market, they have to bear the bulk of this burden. Fluctuating commodity prices make planning more difficult and wrong investment decisions more likely. One legacy of record sugar prices in 1974 was a proliferation of costly import-substituting schemes for growing sugar. They continue to act as a drain on budgets and, as heavy debt-service payments fall due, on foreign exchange.

A considerable degree of instability of agricultural commodity prices is, however, inherent in their underlying demand and supply relationships. Neither demand nor supply are very sensitive to short-run price changes; on the other hand, the demand for agricultural raw materials in particular varies significantly with fluctuations in industrial country growth, and the supply of these products is often quite variable too. It can be affected by weather conditions, disease, and pests in major producing areas, and by the long gestation period which separates plantings of new tree crops from the period of maximum yield. Commodity prices therefore often rise and fall dramatically and impart a high degree of instability to the economies of countries heavily dependent on these commodities for their export earnings.

In addition to various protection measures taken by the consuming countries to insulate themselves from price fluctuations, efforts to deal with unstable commodity prices have taken the form of long-term bilateral trade agreements and multilateral commodity agreements. The latter have met with limited success for a variety of reasons—

Box 5.8 The "food crisis" and its food security aftermath

Between 1972 and 1974 the world price of wheat and rice roughly trebled from \$60 to \$200 a ton and from \$130 to \$500 a ton, respectively; fertilizer prices shot up still faster from \$50–\$75 to \$300 a ton. These unprecedented increases in the prices of the world's most basic foods and of a critical input needed to increase food production were dramatic manifestations of the "world food crisis." They were seen—along with anxieties about land availability and reports of hunger and famine—as harbingers of an impending collapse of the world food system, and of a future beset by dramatically higher and more unstable food prices.

By 1976, however, the prices of wheat, rice, maize, and fertilizer had fallen as dramatically as they had risen. Wheat prices in particular were below their pre-1972 level. It was clear that a fundamental shortage of food was not in the offing. Prices of cereals and most agricultural commodities are now not expected to be much above present levels until well into the 1990s.

In retrospect, the factors causing the food crisis were avoidable. Over the period from 1955 to 1972, large publicly held grain stocks in the developed countries and heavy food aid shipments had created an environment in which some developing countries had little incentive to produce food and fertilizer. At the same time, developed-country domestic policies led to the atrophy of efficient grain-marketing mechanisms. The sharp rise in grain stocks in 1968 led to an abrupt reduction of wheat production by the grain-exporting countries between 1969 and 1971. In 1972, world grain production declined; simultaneously, large grain purchases were made by the USSR.

Domestic markets in a number of importers, notably those in western Europe and the planned economies, were insulated by governments from the effect of world prices. Consequently, the burden of adjustment fell most heavily on those who were not protected, including many developing economies and the grain-exporting countries (where high grain prices dramatically reduced the feeding of grain to livestock). Grain stocks were not sufficient to contain prices, which rose rap-

idly. Fearing a shortage, many countries bought more grain than they needed, driving prices still higher.

The food crisis taught some painful but important lessons. A repeat of the 1972–74 situation seems unlikely owing to the following responses to it:

- Much greater emphasis has been given to increasing food production, the essential long-term source of food security.

- More widely held and carefully monitored stocks have been established.

- Grain markets are now functioning more effectively than in the past. The feeding of grain to livestock and decisions to buy, to sell, to store, and to trade grain are more responsive to price changes.

- Countries have imposed limits on the amounts of grain they will export before reviewing the grain market.

- Countries are giving more thought to the broader impact on food security of production and acreage adjustments previously considered to be of purely domestic concern.

Governments have also reached a number of international agreements that improve world food security:

- An *International Emergency Food Reserve* of 500,000 tons was established in 1976, and contributions of 588,000 tons were made to it in 1981.

- A new *Food Aid Convention* was negotiated in 1980 which raised the minimum annual contribution of food aid from 4.2 to 7.6 million tons.

- The *IMF Food Facility* was established in 1981 as an extension of the *IMF Compensatory Fund Facility* to provide financial assistance to offset fluctuations in countries' food import bills either because of shortfalls in domestic production or higher world food prices.

Whether these changes, together with increases in world stocks, provide "adequate world food security" is still being argued; further mechanisms to promote stability and security may emerge. But the food crisis had the additional effect of increasing awareness among planners and policymakers that a properly functioning international world food market also contributes substantially to improved world food security.

incomplete participation by all producing and consuming countries, lack of agreement on target prices, limited financial support for buffer stocks, or lack of commitment by participants to the actions required in the face of price changes. These problems are further complicated by the tendency of most commodity prices to rise and fall together. Efforts to diversify production within tropical products as a means of achieving greater stability have therefore not been very successful. And only limited overall stability can be gained from a single commodity agreement. While more effective commodity agreements may be achieved, including a common fund to support such agreements, the long-term solutions are diversification into other exports, such as manufactures, and into agricultural products (including foods) for a more stable domestic market. In the short term, domestic

economic management policies to reduce the internal impact of fluctuating external prices can contribute to longer-term diversification.

Volatile prices make governments more receptive to the idea of agricultural self-sufficiency and more prone to intervene in production and trade. The issue of food security provides another important example. To the extent that the 1972–74 world food crisis made governments more aware of the instability caused by insulated agricultural markets, its wider impact may have been favorable (see Box 5.8). Generally, though, governments tend to react to instability by further protecting their own markets or by creating or revamping international regulatory mechanisms. These do indeed mitigate some of the adverse effects of price cycles, but at substantial real costs, both economic and political. They do not

tackle the roots of the problem, which lie in the distorted structure of trade.

To sum up, the challenge for policymakers in developing and developed countries alike is to break out of the web of restrictive measures that impede agriculture in some countries and overstimulate it in others; to create a trading system in which comparative advantage plays a more important role in production and trade decisions; and to encourage market mechanisms that reduce the risks of participating in the system. The restructuring of incentive policies at home and the creation of such a trading system would promote the effective long-run deployment of the world's agricultural resources and help meet the developing economies' pressing short-term needs for improved access to overseas markets for their agricultural exports.

6 Sources of agricultural growth

Farming has come a long way since man learned to cultivate plants 10,000 years ago. The constraints of soil and climate have gradually been eased. Virgin land has been settled, its productivity raised. Hands have been helped by hoes, then by plows and animals, and finally by sophisticated machines. The search for new and better farming methods continues, assisted by the full weight of scientific research.

Until the 1950s, agricultural progress in most developing countries was slow and uneven, barely keeping pace with population growth. Although the expansion of agricultural trade had boosted tropical exports, farming for food was largely neglected during the colonial period. In the past twenty years, however, great strides have been made. Hundreds of millions of people, from peasants farming a few acres in Kenya to commune members in China, have transformed the ways in which they farm the land. They have been assisted by science, and spurred on by the prospect of higher incomes and security for their families. Their considerable achievements cannot obscure the size of the challenge that still lies ahead, however. Many developing countries' populations are growing faster than their agricultural production, and many millions of farmers have not yet shared in the progress of the past twenty years.

The reasons for this patchy progress are the main focus of this chapter. It examines the sources of agricultural growth, paying special attention to the role of science and technology in discovering new farming methods. The task of adapting those discoveries to the circumstances of particular countries and people; of disseminating the results and encouraging farmers to adopt them; of providing the numerous back-up services that are then needed to turn good intentions into concrete results—these are the themes that will recur repeatedly. Throughout, the discussion shows how agricultural success flows from a unique combination of private and public endeavor. Government can supply some of the support and incentives from which all farmers can benefit but which none could organize independently. It is then for farmers to take the inevitable risks associated with large rewards.

As noted in Chapter 5, agricultural progress has been remarkably successful in many ways during recent years, and the prime source of growth has been food production in the developing countries. Differences in soil and climate have produced an almost infinite variety of cropping systems in these countries. Five main crop zones can be identified, however, on the basis of the staple food crop that predominates in each (see Figures 6.1 and 6.2).

- Rice, which first grew on the water-retentive soils in the humid tropics of Asia, has been adapted to fit a wide range of environments. Farmers now grow rice in the river valleys and coastal plains of South China, South and Southeast Asia, the Indonesian and the Philippine islands, Japan, and Korea, as well as small areas of Latin America and East and West Africa. In many nearby high-rainfall areas with more permeable soils, upland rice is grown with other crops.

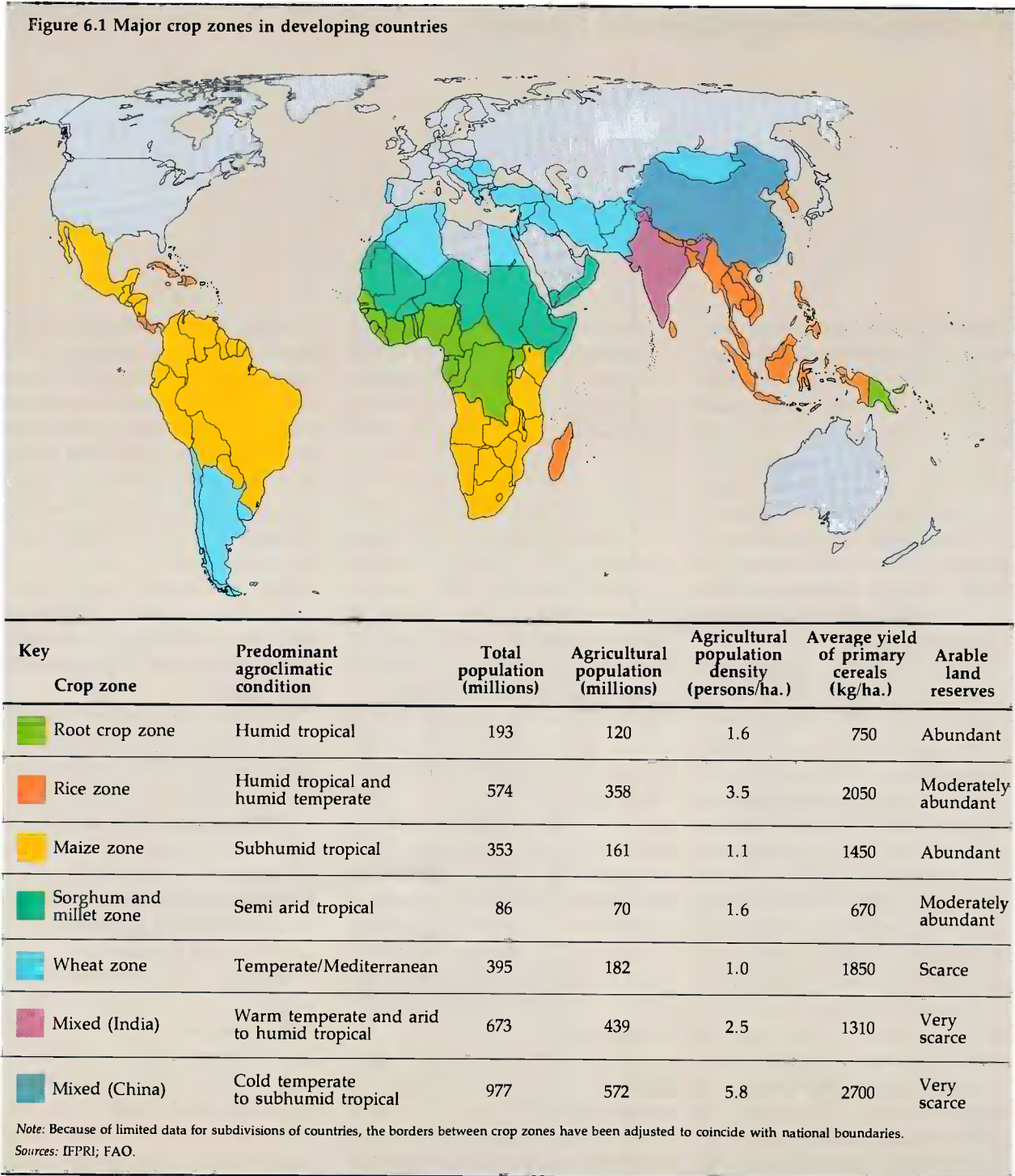
- Starchy root crops (cassava, yams) are grown in areas of the humid tropics where soils are less fertile and not well suited for cereal cultivation, such as western and central Africa and parts of Oceania and Latin America. Cassava has also spread to northern Thailand where it has emerged as an important export crop.

- Maize is the most important staple in the subhumid tropics of Latin America and Africa. The most common crops farmed with maize are cotton, groundnuts, soybeans, and sorghum in the drier areas; coffee, cocoa, and starchy root crops in the wetter areas.

- Sorghum is the main food grain in the wetter parts of the semi-arid tropics and millet in the drier regions. Groundnuts, cotton, cowpeas, and pigeon peas are the most common associated crops.

- Wheat is the most important

Figure 6.1 Major crop zones in developing countries



grain in much of the temperate zone but is grown over an increasing area of the cooler tropics as a winter crop in association with monsoon-grown grains or cotton.

The first section of this chapter deals with land, noting in partic-

ular the increasingly limited role which settlement of new land will play in agricultural expansion. The second section examines the alternative to settlement—intensive agricultural development—as a source of growth and discusses

the important contributions made by irrigation, intensified farming in rain-fed areas, and livestock development. Two sections follow on the prime forces behind intensive development: technology (machinery, pesticides, her-

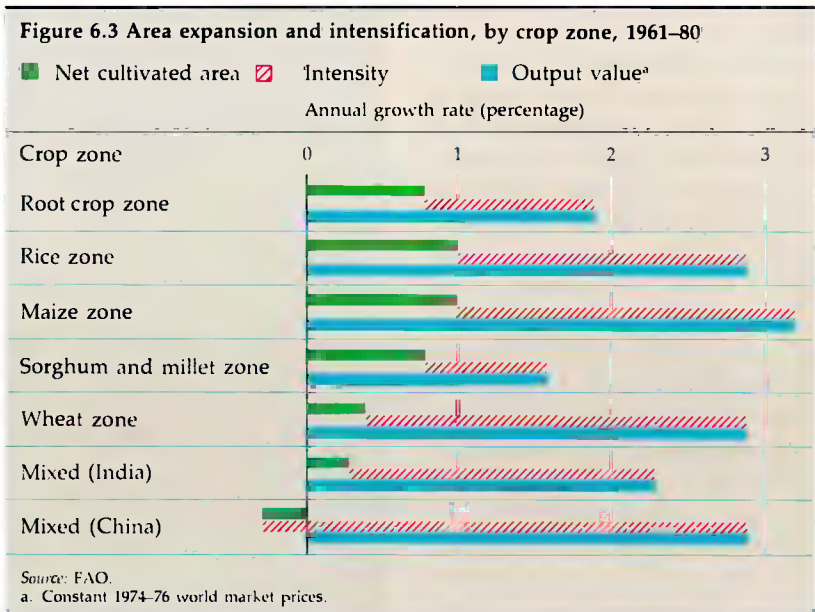
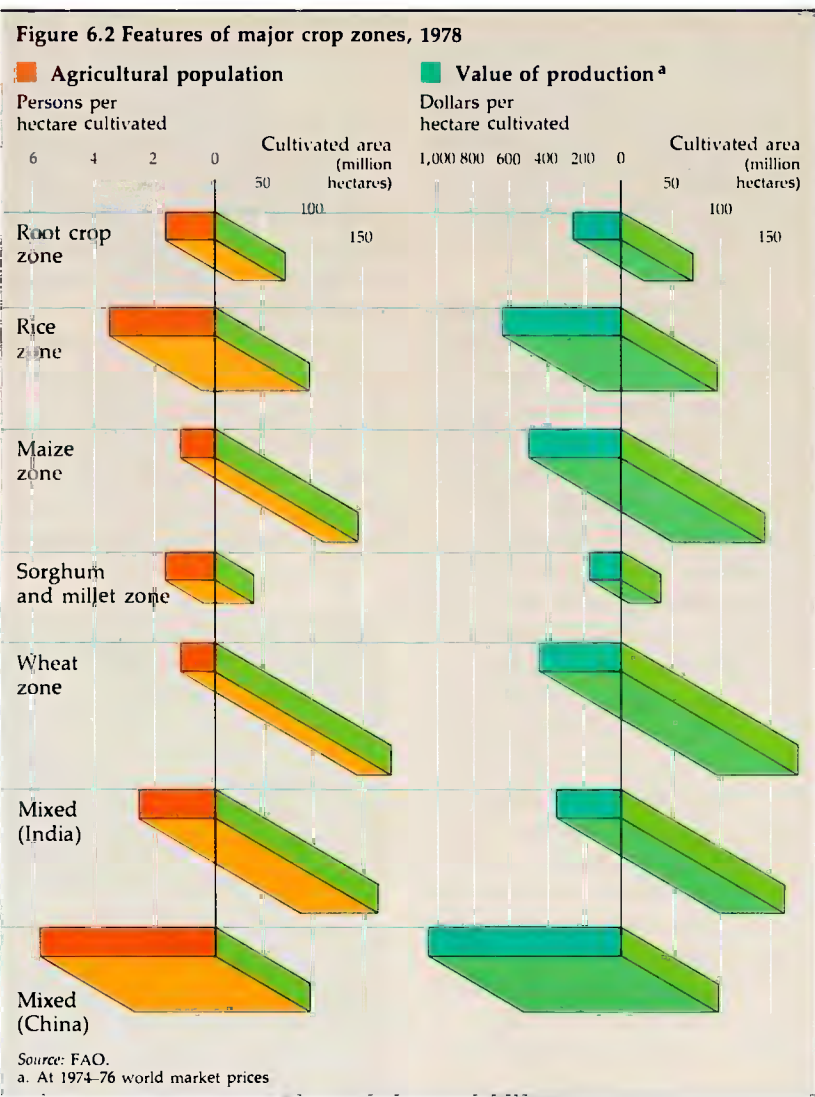
bicides, and fertilizers) and research, together with their results (the Green Revolution in cereals and progress in other tropical crops). The chapter concludes with a discussion of some of the key elements of ongoing support for agriculture: infrastructure, extension, marketing, and credit.

Land

For centuries, farmers increased their output mainly by increasing the amount of land they farmed. This is no longer the case: in the past two decades, increased acreage has accounted for less than one-fifth of the growth in agricultural production in developing countries (see Figure 6.3), and for an even smaller fraction in developed countries. Nonetheless, there is still a great deal of unused arable land—estimates for developing countries range from 500 million to 1.4 billion hectares, compared with about 820 million hectares currently under cultivation.

These estimates can mislead, however. The unused land is not where the people who need it most, and FAO reckons that only 10 to 15 percent of unused arable land in 1980 might be cultivated by 2000. There is ample cultivable land in the humid and subhumid parts of Latin America and sub-Saharan Africa, but reserves in the Mediterranean area and most of Asia (except Indonesia) are extremely limited. China has reached the limits of its arable land, and a number of other countries are fast approaching this point.

The imbalance between people and land reserves is only one factor limiting the development of more acreage. Disease has discouraged permanent settlement in large parts of the tropics and subtropics. The eradication of



malaria in the 1950s opened extensive new areas for cultivation, especially in Asia. Today, the main diseases constraining settlement and cultivation are river blindness (onchocerciasis) and sleeping sickness (trypanosomiasis), which occur primarily in sub-Saharan Africa.

To avoid river blindness, large areas have been left unfarmed in the fertile valleys of the Volta, Niger, Congo, Gambia, and Upper Nile rivers. Efforts to eradicate this disease are supported by West African governments, WHO, FAO, the World Bank, and bilateral donors, but progress is slow. Trypanosomiasis, carried by the tsetse fly, is an even greater obstacle. Its presence prevents livestock-based farming on some 1 billion hectares of high rainfall land in Africa. Insecticides have been tried in several countries, including Nigeria, Cameroon, and Botswana, but their cost and the tsetse fly's resistance underline the need for more research to find effective solutions.

Most expansion of farmland takes place spontaneously, as farmers move into forests and grazing areas. Farmers are also gradually switching to permanent cultivation, especially in Africa, and are reducing fallow periods. In the rare instances of extensive virgin areas with good soil—northwestern Brazil for example—migration is taking place on a large scale. It has significantly boosted output in Brazil, Thailand, and the Philippines. Even in recent times, migration has been the major, often the only source of agricultural growth in sub-Saharan Africa.

The advantage of spontaneous settlement is that it is cheap and the costs are born by the settlers themselves. People do not always have the assets or the incentive to move, however, even in coun-

tries where land is available. Some governments have sponsored settlement schemes: for example in Malaysia and in the outer islands of Indonesia. Generally, though, such schemes are expensive. They typically cost \$1,000 to \$2,000 per hectare for clearing land and providing roads, markets, schools, and health facilities.

In the early stages of migration, farmers move to the most attractive land. Later, as population pressures force them into more marginal areas, their arrival causes erosion and declining soil fertility. Deforestation is a particular

problem. Between 1900 and 1965 about half the forest area in developing countries was cleared for agriculture. Although forests still cover half the land in the humid and subhumid tropics, forest cover has been reduced to 10 to 15 percent in the semi-arid tropics and the temperate zone.

Massive deforestation has highlighted the virtues of forests. They regulate the pace at which rainfall runs off, prevent soil erosion, replenish nutrients in the soil, and influence the local climate. These qualities can be retained as long as cultivation is

Box 6.1 Forests and fuelwood: The Sahel's ecological dilemma

Forests play a vital role in the ecological balance as habitats for flora and fauna, anchors for soils, and tamers of climates. In the Sahel, however, forests are endangered by a rapidly growing population's need for forest products for fuelwood and building material.

As a result of progressive deforestation, rural household members have to walk farther and farther to collect fuelwood; in some areas, almost half a rural family's working time can be spent gathering supplies. Meanwhile the average urban household, which uses between 3 and 5 cubic meters of wood a year, spends an increasing part of its budget on fuelwood. In some Sahelian towns, it often "costs more to heat a pot than to fill it."

If they are to maintain a bare minimum of forest cover, most Sahelian countries will have to halve their fuelwood consumption by the turn of the century. Reductions can be achieved by promoting efficient wood-burning stoves and the use of substitutes for fuelwood, such as commercial fuels or crop and animal residues. Massive afforestation is another strategy, but the technical and sociopolitical constraints are awesome. Few Sahelian countries can count on more than 800 millimeters of rainfall a year, and its incidence is erratic. Trees are hard to establish in the arid zone and grow slowly. Most forests are publicly owned, but the

long-term benefits of conservation conflict with short-term private needs. Government policy, trying to balance individual and community interests, is ambivalent. Few people are interested in conservation or afforestation, and the few forestry programs attempted have generally been disappointing.

Following the last drought in the area, the World Bank and other donor agencies have begun to help Sahelian countries finance forestry projects. Most of these pilot and technical assistance projects were initiated in the late 1970s and are based on the use of conventional techniques of forest management and afforestation. They do not initially focus on the rapid expansion of forestry. Instead, they are directed toward improving the training, planning, managerial, and operational capabilities of the institutions that manage forests. Several programs include components to train forestry extension staff and to test alternative ways of winning the support of local populations for forest conservation and new planting. Increasing emphasis is being given to planting multipurpose trees that can provide a combination of fuelwood, building poles, and timber. Leguminous tree species, which fix nitrogen and improve soil fertility, are favored in areas where ecological conditions are suitable for their growth.

shifting, rather than permanent, and if the commercial extraction of lumber is carefully controlled. In countries such as Brazil and the Philippines, serious damage has been caused by the failure to enforce limits on felling trees and clearing forests. The worst damage occurs, however, in cases where forests are treated as unlimited sources of fuelwood. Some four-fifths of all wood cut down in developing countries is used for fuel. The problem is most severe in densely populated hill areas (such as the Andes and the Himalayas) and in semi-arid and arid areas, where the desert creeps up as the forest retreats.

If the consequences of deforestation are serious, so are its causes. Millions of people depend on wood for their fuel: in sub-Saharan Africa it provides three-quarters of all the energy used. The solutions lie partly in developing new supplies of energy and partly in more effective conservation of forests. Since farmers see no immediate advantage in such conservation, public bodies have the dominant role to play (see Box 6.1).

Intensive agricultural development

New land has been a significant source of past growth, but its future role is plainly limited to a few countries. The alternative is to use existing land more efficiently. Efforts to do so have been highly successful; the average productivity of cultivated land has been growing at about 2.2 percent a year for the past twenty years (see Figure 6.3). Except in the semi-arid sorghum and millet zone, higher yields account for more than half the growth of output. In the mixed cropping zones of China, agricultural acreage has actually declined while yields have in-

Box 6.2 Downstream effects of irrigation

The direct benefits of investment in agriculture, particularly for irrigation projects, are not hard to identify and measure. Construction jobs are created, agricultural output increases, consumers may benefit from lower food prices, and farm income is likely to rise. In addition, however, such projects can have much more widely dispersed but less easily measured benefits.

Careful monitoring of an irrigation project in the Muda region of Malaysia gave the World Bank a chance to look into the indirect, downstream effects of this \$240 million program for increasing paddy production, which was approved in 1972. Using a battery of sophisticated analytical tools, the Bank asked:

- Who, besides producers, benefits from the program?
- What is the overall impact on the economy?
- What additional investments may be induced?

The answers to these questions were impressive. For every dollar of increased paddy output, about \$0.75 of income was also generated in the downstream effects. In other words, farmers' increased

income from paddy generated demand for goods and services equivalent to 43 percent of total benefits of the scheme. This demand was mainly in such sectors as housing and other construction, commerce, road transport, and hotel and restaurant services—all of which are quite labor-intensive activities in rural Malaysia. Higher earnings in these sectors in turn multiplied jobs and incomes for workers in still other parts of the economy.

There is more to the story, however. Rice needs to be milled, and mills have to invest in plant and equipment. The Muda project induced an estimated net \$56 million of private investment, which in turn had further multiplier effects.

Who received the benefits? Research provides some answers. Participating paddy farmers' incomes rose about 70 percent, but landless farm workers' more modest earnings rose still more (73 percent). Even the incomes of nonfarmers and nonparticipating farmers in the region rose (by 14 percent and 10 percent, respectively) by comparison with what they would have been without the project.

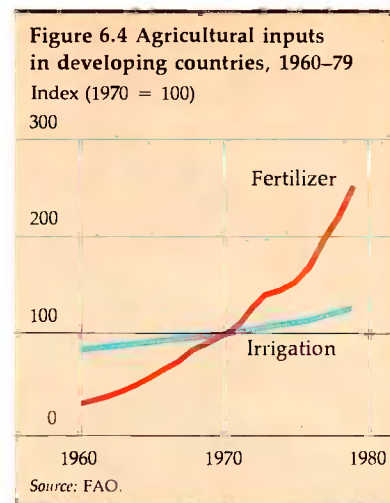
creased by nearly 3 percent a year.

These productivity gains have been achieved largely by improving the availability and reliability of irrigation and increasing the use of new seeds and fertilizer (see Figure 6.4); significant progress has also been made in regions with dependable rainfall.

Irrigation

Irrigation has made the largest contribution to increased agricultural production in much of Asia, North Africa, and the Middle East. In many areas it can double or treble yields during the main growing season, and can sharply reduce the risk of crop failure. Such programs can also have multiple effects throughout the economy (see Box

6.2). These advantages need to be set against two drawbacks: ground and surface water for irrigation is not available in large parts of the world, and the infrastructure is expensive.



Investment for irrigation has risen dramatically in developing countries, to around \$15 billion in 1980. The irrigated area has grown by 2.2 percent a year since 1960. Some 160 million hectares, one-fifth of the harvested land in developing countries, is now irrigated. This land area uses about 60 percent of all fertilizer and produces over 40 percent of all annual crops in the developing world. Between 50 and 60 percent of the increase in agricultural output in the past twenty years has come from new or rehabilitated irrigated areas. China (with 49 million irrigated hectares) and India (with 39 million) account for more than half the developing

world's irrigated area (see Figure 6.5).

Irrigation absorbs a large part of public sector investment, especially in low-income countries. Frequently, low water charges and inadequate taxes on agricultural incomes have made the burden on the government's budget heavier than it needs to be. A relatively modest (50,000-hectare) scheme can cost between \$100 million and \$200 million. To ensure a reasonable return on that investment, the system has to be carefully designed and organized, and then fully used. Efficiency has become increasingly critical, partly because of actual or threatened water shortages. More important, modern, high-yielding seeds require reliable supplies of water at specified times if they are to fulfill their promise. A timely and reliable water supply also enhances the farmers' willingness to pay water charges.

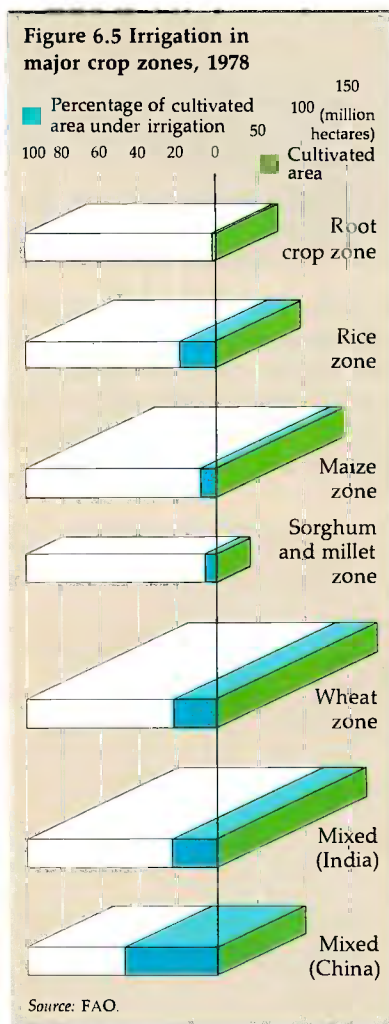
In India and Sudan, both of which have extensive irrigation experience, large canal schemes with storage reservoirs require an investment of about \$2,000 a hectare. Similar schemes in East and West Africa often cost more than \$10,000 a hectare, the result of an inexperienced domestic construction industry and dependence on imported materials and equipment. Such costs can be justified in only a few countries—for example, those in the Mediterranean basin—where advanced methods of water management ensure the efficient use of the system and market demand for the high-value crops produced is strong.

Increasing the efficiency of existing irrigation schemes offers considerable scope for faster growth, since yields are well below their potential in many areas and water is wasted. Poor design and construction of the tertiary

channels that bring water to farmers' fields help explain the inefficiency of irrigation systems. Recent studies have demonstrated, however, that in most projects inadequate design and neglect of the main canal system are the major causes of inequitable and wasteful use of water in the fields. Many existing irrigation systems suffer from waterlogging and salinity because of lack of drainage, particularly in northern China, Egypt, northern India, and Pakistan. More than half of the Indus Basin Canal system in Pakistan, some 8 million hectares, is waterlogged and 40 percent is saline.

Shortages of trained staff—partly the result of their being lured away by new engineering ventures—have sometimes prevented improvements. Once built, irrigation schemes are often managed by design and construction engineers who have little training in water management or agriculture. In some countries with strong civil service demarcations, engineers are the only people entitled to work in the irrigation service. Their expertise needs to be joined with that of others, and farmers themselves should be involved in irrigation programs from their inception.

In addition to large public sector irrigation schemes, there has been a rapid expansion of private irrigation. The development of cheap pumps and the introduction of modern seed and fertilizer have brought irrigation within the means of millions of small farmers. In South Asia since 1960, farmers have invested about \$15 billion in open wells and tube-wells irrigating 30 million hectares. These private schemes, supported by the public sector's provision of long-term credit and rural electrification, comprise as large an area as all public and private irrigation in North Africa, the



Middle East, and Latin America.

Elsewhere, tubewell and pump irrigation has grown slowly, particularly in sub-Saharan Africa. Irrigation is not economic in much of sub-Saharan Africa, though it is also constrained by inadequate water surveys and the lack of a supporting infrastructure. In parts of the savannah belt of northern Nigeria, for example, studies indicate that tubewell and pumping schemes would be economically justified. Though more expensive to operate and maintain than canal systems, pumps and tubewells often prove more effective, because they can be managed more easily and the initial investment is much smaller.

Rain-fed areas

While irrigation has many advantages, the fact remains that rain-fed areas constitute 80 percent of the developing world's cultivated land and support nearly two-thirds of its farmers. Yield increases still depend on the subtle interaction between soil, water, seeds, and sunlight, but the process is not as well understood under rain-fed conditions as it is with irrigated land. Local conditions vary so much that finding solutions is often costly, and they can seldom be replicated elsewhere. Even with the current state of knowledge, however, there is scope for growth. New methods of tilling, new crop rotations, increasing use of fertilizers and pesticides, soil conservation and drainage—all have a part to play. Tackling the problems of rain-fed agriculture is an increasingly important challenge in many countries, including some such as Mexico (see Box 6.3) where irrigation has already been extended as far as possible.

Soil erosion and declining fertility are the main threats to rain-fed agriculture in the humid and

Box 6.3 Rain-fed agriculture: The Mexican experience

In the 1950s and early 1960s, Mexican agriculture had one of the highest growth rates in the world, averaging 4 to 7 percent every year. Performance was largely based on technology improvements closely linked to expanding irrigation. Between 1940 and 1965, about 90 percent of all public investment in agriculture was for irrigation.

Growth slowed markedly in the 1970s. New irrigation became increasingly expensive (and old systems harder to maintain); meanwhile poverty remained endemic among the 87 percent of Mexico's farmers who lacked irrigation. The combination led the Mexican authorities to look for answers in rain-fed farming. Fortunately, Mexico's rain-fed areas have high potential for agricultural production. The Plan Puebla, the first rain-fed development project of its kind, started in 1967, had shown that farmers could triple or quadruple maize yields with new plant varieties and farming methods, and at a lower cost than through investments in irrigation. Production could be diversified into higher-value crops. Moreover, much potentially arable land with adequate rainfall was being used only for extensive livestock grazing and could be put to more intensive use.

The new policy tilt has involved some major changes. First, it was necessary to upgrade the efficiency of extension services and credit provision to farmers in rain-fed areas, and to make access to land easier by improving rural roads. Second, land tenure laws had to be changed and wetland drainage installed to encourage farmers to cultivate little-used land more

intensively. And third, guaranteed producer prices and subsidized inputs needed to be offered for crops such as maize and beans typically grown on rain-fed farms.

These new approaches were embodied in a series of programs which received substantial World Bank assistance. In the PIDER program (started in 1973) the objective has been to bring an integrated package of services—extension, research, credit, roads, irrigation, potable water supply, and education—to small, well-defined areas of generally low-income rural communities. As the coordination of services through the federal government became a bottleneck, control of the programs was decentralized from the federal to the state level. In 1979, the government established 118 Rain-fed Districts (*Distritos de Temporal*) throughout the country, on the pattern of the existing Irrigation Districts. This made it possible to have an integrated approach to rain-fed land development while at the same time taking into account local physical conditions, which vary widely.

These efforts have laid a solid base for future structural change and increased and diversified production in Mexico's rain-fed agriculture. Concrete results are apparent in the response to improved production incentives announced two years ago. After a decade of slow growth (2 to 3 percent a year), agricultural production increased by 5.5 percent in 1980 and by 8 percent in 1981, most of it from rain-fed cultivation.

subhumid tropics. Tackling them requires protecting the soil by continuous crop coverage and minimum tillage, as well as drilling seeds and controlling weeds. This kind of systematic approach is being developed at IITA in Nigeria. (See Glossary and Box 6.4 for names and functions of international agricultural research centers.) In the case of some Latin American countries, highly acidic, infertile soils present a rather dif-

ferent challenge. There, research focuses on reclamation, new crop rotations, and more effective means of fertilizing the soil. In areas with relatively dependable rainfall and moisture-retentive soil, ICRISAT is developing new cultivation methods. These are based on semi-permanent broadbeds and furrows that provide drainage in heavy rains and improve the soil's capacity to retain moisture. Together with pre-

Box 6.4 New frontiers in agricultural science

Modern plant breeding dates from the mid-nineteenth century, when Mendel identified the laws of genetic inheritance. The application of Mendelian techniques, together with the knowledge of plant nutrition discovered by Liebig, have permitted dramatic increases in the productivity of major cereal crops around the world. These have culminated in what has come to be known as the Green Revolution. The next quantum leap has taken place only recently with the discovery of deoxyribonucleic acid (DNA), a complex chemical that is the carrier of the transmitted characteristics of all living things. This has opened up vast new opportunities to manipulate nature. Entirely new organisms can be created by transposing character-transmitting particles of matter, or genes, from one species to another.

The potential of genetic engineering is not yet fully known. New knowledge is being acquired at an unprecedented rate as a result of research around the world by academic and commercial organizations, but this work is still in its infancy; it may be decades before wholly new species of commercial value become available. The genetics of even single-celled organisms such as bacteria are not yet fully understood. Meanwhile, however, immediate gains can be made by exploiting other elements of the fund of new knowledge about biological systems.

Tissue culture—the multiplication of plants through in-vitro micropropagation—holds special promise. Starting in some cases with simple vegetative material, a piece of leaf or an excised root tip, manipulation and hormonal treatment produce a proliferation of callus, an undifferentiated mass of cells. Further treatment makes the callus reorganize and form embryo-like structures which go on to develop into completely new plants. These are genetically identical in every respect with the parent plant. Tissue cul-

turing became commercially viable about twenty years ago, initially for ornamental plants and later for vegetables and fruits such as asparagus and strawberries.

By the late 1970s, tissue culturing had been achieved with many woody species, including temperate fruit crops such as apples and pears, several of the developing world's important perennial crops (such as coffee, rubber, and oil palms), and a number of tropical forest tree species. It is now generally believed that all plant cells are potentially "totipotent," that is, they have the ability, under suitable conditions, to grow into complete plants. Tissue culture permits very much faster multiplication rates than those attainable by seeding or conventional propagation techniques such as budding and grafting. Moreover, the genetically identical material derived from these cultures gives uniformity of yield, quality, and rate of ripening. Tissue culturing can also be used to develop disease resistance and adaptability to specific habitats.

Not all species that can be cultured in the laboratory can yet be propagated on a commercial scale. Tissue cultures could, however, provide a basis for yield improvements in tropical perennial crops comparable with the impact of the Green Revolution on the cultivation of cereals. Clonal oil palms are already being field-tested on plantations in Malaysia. One commercial company expects by the mid-1980s to be marketing clones with a proven capacity for high yields, and there is a possibility of producing several million plants a year by the end of the decade. Productivity is expected to be enhanced by at least 30 percent over that of the best seedling progenies available today. Even more exciting prospects for yield improvement are offered by the possibility of clonal propagation of coconuts. The creation of clones from elite dwarf and tall hybrid populations could

well double the highest yields now realized.

A different area of research, and one of less immediate practical application, attempts to help plants meet their nitrogen requirements from the atmosphere through *nitrogen fixation*. At present only leguminous plants of the pea and bean family can do this. The fixation mechanism involves a mutually beneficial, or symbiotic, relationship between the host plant and certain species of bacteria which live in nodules that develop on the plant's roots. The bacteria, deriving shelter and other vital support from the plant, are able to take up or "fix" atmospheric nitrogen. Some of this nitrogen is used by the host plant; some goes to enrich the soil.

Increasing the efficiency of this process in legumes, or finding ways of inducing the same symbiotic relationship between bacteria and nonleguminous plants, could revolutionize plant nutrition. Nitrogen, the most costly of the major plant nutrients when supplied in the form of chemical fertilizers, would become freely available from the atmosphere.

Work on nitrogen fixation is going on at many centers around the world. The International Network of Legume Inoculation Trials seeks new rhizobial bacteria that are superior nitrogen fixers, and aims to propagate and disseminate them worldwide. Farmers who are today remote from supplies and cannot afford to buy nitrogenous fertilizers may in time be able to realize yield increases that are currently beyond their reach.

Most of the scientists who are currently pushing back the frontiers of agricultural research are working in the developed countries. Some of the most exciting applications of the new technology, however, are expected to be in the realms of tropical agriculture.

monsoon sowing, changed crop rotations, high-yielding varieties, and fertilizer, this approach has tripled output in farm experiments.

Though promising, these new efforts will require extensive testing on farms before they can be widely applied. Increases in yields from rain-fed land will therefore

be relatively slow and concentrated in regions with better rainfall and soil. But the gains could be considerable. If rain-fed land could increase its yield by 500 kil-

ograms per hectare, the total increase in production would exceed what could be achieved by a rise of two tons per hectare in the yield of all irrigated land.

Some formidable obstacles stand in the way of such achievements. Not least among them is flooding: in many parts of the developing world, "normal" rains cause widespread floods. Standing water often more than 30 centimeters deep makes many paddy fields of Asia unsuitable for high-yielding

because the benefits will be shared by more than one country.

Livestock

Though of relatively small economic importance today in many low-income countries, livestock farming could well expand rapidly in the future. It is already doing so in middle-income countries (see Table 6.1). Since animal products are a more expensive source of calories and protein than vegetable products, poor people

• In developed countries, strong demand for milk and meat, combined with well-organized marketing and processing industries, has commercialized farming to a high degree. Farmers usually specialize in one type of production, whether it be beef feed-lots, cattle ranches, or "factory farming" of milk, pork, beef, and eggs. Animals are bred specially to fit into these farming methods.

• In developing countries, a high proportion of farms combine

Table 6.1 Changes in the structure of agricultural output by subsector and region, 1961–65 and 1976–80 (percent)

Region and country group	Cereals		Other staples		Livestock		Other foods		Nonfoods		Agricultural trade as percentage of production			
											Exports		Imports	
	1961–65	1976–80	1961–65	1976–80	1961–65	1976–81	1961–65	1976–80	1961–65	1976–81	1961–65	1975–79	1961–65	1975–79
Developing regions	31	31	11	10	21	22	27	29	11	9	13	12	6	8
Africa	17	17	26	27	16	18	25	25	16	14	21	15	5	7
Middle East and North Africa	30	26	5	4	22	25	46	40	7	5	16	10	19	34
Latin America	16	17	16	8	31	33	20	31	17	11	20	20	5	7
Southeast Asia	46	44	10	10	15	12	22	26	9	8	14	17	7	9
South Asia	43	45	10	9	14	13	26	27	7	7	4	3	4	4
China ^a	..	(49)	..	(15)	..	(18)	..	(13)	..	(5)	..	(2)	..	(3)
Southern Europe	28	27	7	5	27	31	35	33	4	4	6	8	7	8
Developed regions	23	25	9	6	46	47	19	20	3	2	10	15	15	17
Market economies	23	25	5	3	49	48	21	22	3	2	14	21	18	22
Nonmarket economies	23	26	17	12	41	44	16	15	3	3	5	4	7	8
High-income oil exporters	25	11	1	2	20	36	53	51	1	(.)	1	1	69	158
Total	26	27	10	8	36	36	22	24	6	5	11	14	11	14

Source: FAO.

a. Estimated; excluded from totals.

dwarf varieties of rice. Small-scale flood protection and effective drainage would enable modern rice technology to expand into parts of Bangladesh, Burma, eastern India, and Thailand where it currently cannot be used.

Large-scale drainage and flood control programs are so expensive that it is often difficult to justify them on economic grounds alone. Individual countries can seldom afford them; in a few cases, the solution lies in joint efforts,

eat very little of them. As incomes rise, the consumption of meat, milk, eggs, and poultry rises sharply. In Latin America livestock farming accounts for 33 percent of agricultural output; in the Middle East and North Africa, 25 percent; in southern Europe, 31 percent. In the oil-exporting developing countries, it has jumped from 20 to 36 percent of output over the past two decades.

Livestock farming varies widely around the world:

livestock with crops. Animals perform a variety of roles: they provide draft power and manure for fertilizer; live off scraps and crop residues; and produce milk, wool, meat, and hides for sale or subsistence. They are bred for their durability and adaptability to difficult conditions, rather than for rapid growth.

This situation is now starting to change. In many developing countries, poultry farming and, to a lesser extent, pig production

have expanded rapidly over the past fifteen years and become increasingly intensive. The technology involved is readily transferable, but it requires relatively large quantities of feed grain and oilseed meals, which often have to be imported.

These new enterprises are often in competition with traditional livestock farming, which may suffer in consequence. Since productivity is much higher in intensive livestock farming, prices and costs have fallen sharply. Poultry has gone from being the most expensive to the cheapest meat, a major result of the 5 to 10 percent annual growth of poultry production in most developing countries.

Livestock farming in the arid natural grasslands of the devel-

oping world continues to face some intractable obstacles to growth. Animals there need a great deal of land; in these areas it is often of poor quality and ownership may be ill defined. In much of the African Sahel, for instance, rangelands are common property. Improving their quality would be in the interest of all; actually investing to do so makes no sense for individual farmers. As a result, improvements are seldom made and farmers often overgraze. Resolving this problem is likely to require such measures as direct public control of herd movements and sizes or legal and institutional changes in the pattern of landownership.

Technology

The drive to improve the quality and productivity of farmland has been greatly assisted by the achievements and products of industry. Among the most important contributions have been the following.

Machinery

The speed at which farming becomes mechanized depends on the relative scarcities of land and labor, unless governments subsidize mechanization. In most of Asia and other areas with abundant labor, machines are used first for operations where concentrated power or speed are superior to human labor or animal-drawn implements: examples include stationary threshers, mills, and water pumps. Tractors are used for clearing heavy land and also for transport (Figure 6.6). In recent years, power tillers have been used for mechanized puddling of rice fields in, for example, Thailand and the Philippines.

The shift to mechanical power in response to labor shortages and

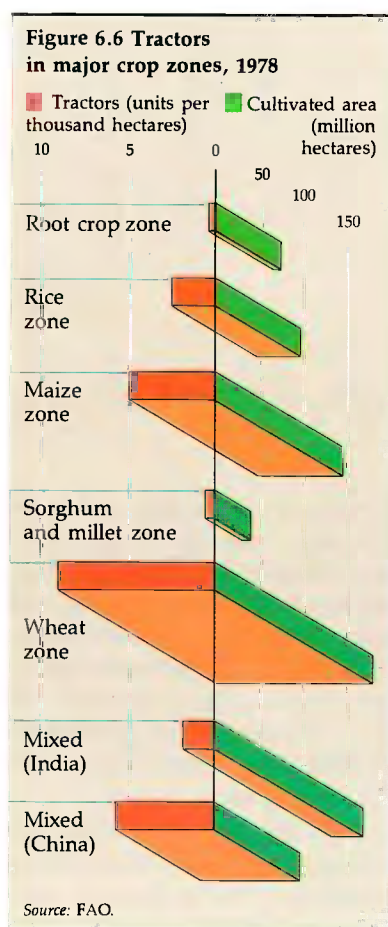
rising real wages is very selective. Irrigation pumps, for example, are used widely in Bangladesh, but tractors are virtually nonexistent; mechanical rice threshers are used in central Thailand, where threshing of the first crop overlaps with the planting of the second, but the more labor-intensive method of buffalo-treading remains common in single-cropped areas.

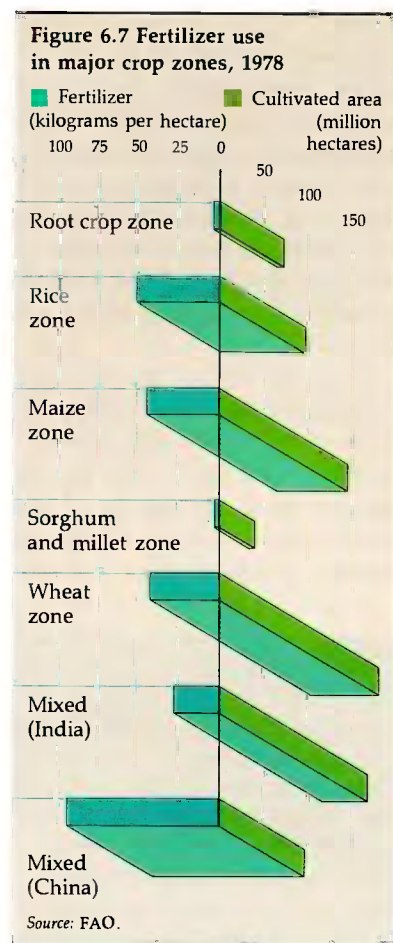
Pesticides and herbicides

Estimates of crop losses because of insects, pests, disease, and weeds vary widely—from as low as 5 to 10 percent to as high as 30 to 40 percent. There is no doubt, though, that the rapidly spreading use of chemicals against insects and insect-borne diseases in recent years has greatly boosted crop production. Pesticides are often crucial for preventing losses of high-yielding crops. At the same time, their undesirable side effects are causes of genuine concern. Pesticides can change insects' immunities, destroy natural enemies, cause outbreaks of secondary pests, and deposit potentially harmful residues.

The alternatives to pesticides also have their drawbacks. One promising possibility is the promotion of wider genetic resistance to disease. This can be combined with crop rotations, efforts to introduce natural enemies that will attack predators and the sources of disease, and more discriminating use of chemicals. This kind of integrated pest management is complicated to administer, however. It requires teams of skilled scientists and a comprehensive organization for protecting crops. These requirements are far beyond the administrative capacity of most countries; nonetheless, selected elements of this approach can be highly effective.

Herbicides, which kill weeds,





have a primarily labor-saving function. They are particularly valuable where land is abundant and labor for tilling and weeding is scarce enough to limit the area that can be planted. Again, experience is showing how herbicides can be used more sparingly and to greater effect: one example is the zero-tillage system for the subhumid tropics being developed by IITA in Nigeria. The introduction of herbicides needs to be carefully monitored for its effect on both health and employment.

Fertilizer

Until the early 1960s, the use of fertilizer in developing countries was limited to a few valuable export crops. With the spread of irrigation and the advent of high-

yielding seeds, fertilizer use rose eightfold, reaching 38 million tons in 1979. Half the increase in grain yields since 1950 is a result of greater fertilizer use in combination with irrigation and modern seeds. Most regional differences in the use of fertilizer can be explained by the amount of control farmers can exercise over their water supplies (Figure 6.7). In low-rainfall areas, only 3 kilograms per hectare of fertilizer (measured in terms of plant nutrients) are applied, while high-rainfall areas average 20 kilograms per hectare; with reliable irrigation, about 110 kilograms per hectare are used. Farmers use little fertilizer in drier areas because plants that lack water do not respond, and the risk of crop failure makes farmers reluctant to use it. To some extent this is also the case with some irrigation systems that do not ensure an adequate water supply.

Rising energy costs and increasing concern about the ecological impact of chemical fertilizers have encouraged a renewed search for alternatives to fertilizer use:

- Animal manure and organic wastes are important sources of plant nutrients; they also improve the structure of soil and its ability to retain water. There are economic and practical limits to expanding their use, however. Replacing the chemical fertilizer now in use with animal manure would require a threefold increase in the world's animal population.

- Biological nitrogen fixation through microorganisms has traditionally been achieved by introducing legumes into crop rotations. Chinese and Vietnamese farmers have long grown the water fern *Azolla* in rice fields; it provides a habitat for blue-green algae that help supply the rice with nitrogen. Research into these and other nitrogen-fixing microorga-

nisms is being undertaken (see Box 6.4), but in the short and medium term it is unlikely that they will significantly reduce the use of fertilizer.

- Mycorrhizas are fungi that live in contact with plant roots and transmit nutrients to them. Promising results have been achieved in laboratories, but large-scale applications are still some way off.

Chemical fertilizer will therefore remain a major and expanding source of productivity growth in developing countries. There is considerable scope for more efficient usage, in part through the development of new varieties of high-yielding crops that respond even more favorably to fertilizer than do present varieties; the development of rain-fed crops that respond better to fertilizer is also a possibility. The fertilizer industry has responded rapidly to increased demand; despite higher energy costs, ample raw materials exist for the industry's future growth. The most likely constraints on increased fertilizer use in the developing world are shortages of seed and irrigation, and inappropriate government distribution and pricing policies.

Research

The emergence of genetic science in the mid-nineteenth century and the establishment of publicly financed agricultural research centers have fostered the scientific breeding and selection of agricultural products. Plant selection and improvement takes place today in hundreds of national and international centers forming a worldwide network that shares data, planting materials, and results and scours the earth for wild plants that might possess useful characteristics. At the frontier of genetic research, microbiologists are applying still more advanced

technology to develop new or dramatically modified plants (Box 6.4).

Until recently, tropical agricultural research was concentrated on export crops such as sugar, bananas, rubber, cotton, tea, coffee, and oil palms. Major progress in cereals was confined to temperate areas until the early 1960s, when major breakthroughs were made in tropical wheat and rice technology. International research centers played a key role in developing and disseminating this new technology (Box 6.5)

Tropical research on sorghum, millet, and maize started later and

advanced more slowly. Outside the tropics, these cereals had been used primarily as animal feed and their taste was inferior; there was little incentive to improve them in tropical areas. Similarly, very little research had been done on pulses (such as chickpeas and cowpeas) and root crops such as cassava, because these were not grown in temperate areas. Whether modern scientific techniques and a high international and national research priority can make up this lost ground remains to be seen.

If the answer is positive, advances in those crops could have

a major impact on reducing poverty (see Chapter 7). In sub-Saharan Africa, pulses, roots, and tubers account for 27 percent of agricultural output; by comparison, cereals represent only 17 percent of production. In South and Southeast Asia and China, in contrast, the figures are 9 to 10 percent and 40 to 50 percent, respectively.

Plant breeding in the tropics is complicated by wide local variations within seemingly homogeneous natural conditions, and by the way local varieties have been bred to survive under those conditions rather than to achieve

Box 6.5 The international agricultural research centers

The worldwide system of internationally funded research centers grew out of a crop investment program jointly sponsored by Mexico's Department of Agriculture and the Rockefeller Foundation. In 1943, a team of Mexican and US scientists began a systematic effort to develop improved varieties of maize and wheat. Encouraged by the success of this venture, the Rockefeller and Ford Foundations joined forces in the first truly international agricultural research center, the International Rice Research Institute (IRRI), established in the Philippines in 1960. The Mexican crop programs were reconstituted in 1966 on the IRRI model as the Centro Internacional de Mejoramiento de Maiz y Trigo (CIMMYT).

The Consultative Group on International Research (CGIAR) was established in 1971 as an informal association of countries, multilateral organizations, and private foundations. Its main purpose is to support and expand research which will help solve agricultural problems common to many developing countries and improve food production in the developing world. In addition to the chairman and secretariat, provided by the World Bank, CGIAR has an advisory panel, the Technical Advisory Committee (TAC), whose secretariat is financed jointly by UNDP, the World Bank, and FAO. TAC is made up of thirteen distin-

guished agricultural and social scientists, drawn about equally from developed and developing countries.

CGIAR supports mainly research and training programs to enhance the production and yield stability of food crops cultivated throughout the developing world. The group also sponsors research on livestock production systems and diseases, the conservation and utilization of plant genetic resources, and food policy. Finally, CGIAR helps countries strengthen their national agricultural research systems.

Thirteen international centers and programs are currently funded through CGIAR. Among the newer centers, the International Institute of Tropical Agriculture (IITA), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and the International Center for Agricultural Research in the Dry Areas (ICARDA) are involved in crop research, while the International Livestock Center for Africa (ILCA) and the International Laboratory for Research on Animal Diseases (ILRAD) concentrate on livestock issues. All these centers devote most of their resources to work on such important crops as sorghum, millet, cassava, and legumes, and on improvements in the farming systems, including livestock farming, in which they are produced. Their intent is to develop better

varieties and farming systems for resource-poor farmers in the rain-fed areas—a group hitherto unable to benefit from modern rice and wheat technologies. Improving production in the rain-fed tropics is a slow and difficult process, and it is hard to predict the timing of significant increases in yields. National agricultural research programs are also often weak in these areas; the international centers thus currently provide much of the research momentum required to fill the large gaps in technology development.

The impact of the international agricultural research system is not confined to new technology. It has also provided leadership in research philosophy and methodology, which is changing the way research is conducted in developing countries and has demonstrated to policymakers that investment in high-quality agricultural research pays off.

Funding for the international programs increased sixfold between 1972 and 1980. In the last two years donor contributions have grown relatively slowly, however, to a total of US\$150 million. Limited increases in funding, combined with exchange rate changes and high rates of inflation, have caused most centers to cut back their activities at a time when the need and demand for their services are increasing rapidly.

higher yields. To replace existing seeds with higher-yielding ones, new varieties may need to be developed for each small region. To survive, plants also need to build up resistance to local pests and diseases. Varieties of wheat and, to a lesser extent, rice have been developed that can be adapted to many different conditions; other grains are less adaptable. A variety of maize may produce high yields in one valley in the highlands of Mexico, and only a minimal harvest in a neighboring valley, and it may fail completely in central India.

Most traditional cereal strains have been adapted to soils that are short of nutrients. The stem and the leaves, rather than the edible head, use most of the nutrients. When fertilized, growth is largely in the stem and may result in "lodging" (the plant's falling over in wind and rain). Plant breeding in the last three decades has therefore concentrated on developing shorter, sturdier cereal plants whose heads make up a higher percentage of their total weight. The resulting shorter-stemmed plant can support the larger head which nutrients promote. Yields are only one concern of plant breeders: others include growing time, resistance to pests and disease, flavor, and storage qualities.

Despite the proven value of research, developing countries are not yet devoting enough resources to it. A recent study showed that spending on research in fifty-one developing countries had risen significantly over the past decade but was still equivalent to only 0.5 percent of the value of agricultural output in 1980. This is much less than developing countries' spending on agricultural extension services. By contrast, although industrial economies spend about 1 to 2 per-

cent of the value of their agricultural output on research, this represents about four times their expenditure on extension. Given the very high returns to agricultural research, a strong case can be made for investing more in research in developing countries.

The role of international research centers is changing as national systems are built up and take over more of the task of developing new technology. Today, special emphasis is given to training national research workers, and the centers are increasingly functioning as clearinghouses for highly specialized knowledge and genetic material. The centers have also become more involved in developing research methodology, especially for analyzing social and economic obstacles to progress at the individual farm level.

Some small countries and those that lack skilled manpower and cannot afford basic research have special problems. They have to rely more heavily than others on practices and materials developed by the international centers, while devoting most of their own efforts to applied research at experimental stations and on farms. There is considerable scope for broadening regional cooperation in areas such as Central America and sub-Saharan Africa. Unfortunately, most past attempts at regional cooperation have not been very successful.

The Green Revolution

Within little more than a decade, over half the developing world's wheat acreage and one-third of its paddy fields were converted to new high-yielding, semi-dwarf varieties. With good irrigation and the right amount of fertilizers and chemicals, their yields can be two to three times those of traditional varieties (see Box 6.6).

This dramatic change has been labeled the Green Revolution. It began in the mid-1960s with the release of new varieties of wheat from CIMMYT in Mexico, and of rice from IRRI in the Philippines. The new wheat varieties were introduced to Pakistan and India in 1966. Wheat production in India had doubled by 1970-72 to 23.4 million tons. At that point, the plants were affected by a disease known as rust and production stagnated. By the mid-1970s, Indian scientists had developed varieties that not only resisted rust but also matured earlier. Seeds were also being distributed more widely. Production again started to increase, reaching 33 million tons in 1978-80. From being the world's second largest cereal importer in 1966, India had become self-sufficient by the late 1970s.

The new wheat varieties were quickly adopted in many parts of the world. China, Pakistan, and Turkey, among others, achieved significant increases in yields and production. Bangladesh, where wheat was once almost unknown, produced 1.2 million tons by 1980-81.

The first new rice varieties grew best during the dry season under clear skies; they were quickly adopted by the farmers in South and Southeast Asia who could irrigate during the dry season. A couple of years later, the varieties suitable for the monsoon season were released, but they were adopted relatively slowly and selectively because the semi-dwarf plants need reliable supplies of water during the growing season, and cannot be grown in heavily flooded areas. Relatively few paddy farmers in Asia enjoy this degree of control over their water supply. Where favorable conditions exist, however, the short maturity time of the new varieties has permitted double- or even tri-

Box 6.6 The Green Revolution in Punjab, India

The Indian state of Punjab, on the semi-arid, drought-prone Indo-Gangetic Plain, emerged from the colonial era with extensive irrigation infrastructure and good transportation facilities. Its farming community was prosperous and progressive,

but used almost no cash inputs except canal water. Wheat, the most important crop, was grown on 30 percent of the farmland.

In the 1950s and early 1960s, Punjabi farmers began the transformation from traditional to commercial agriculture. They started to apply small amounts of fertilizer to their fields and output rose steadily.

In 1966 the first high-yielding wheat variety, which responded well to fertilizer and irrigation, was released. This innovation unleashed a chain of events that transformed Punjabi agriculture. Farmers quickly realized that it could double their yields. By 1969, they had planted more than two-thirds of their wheat fields with high-yielding varieties: average yields rose to 2.2 tons a hectare compared with 1.4 tons in 1966.

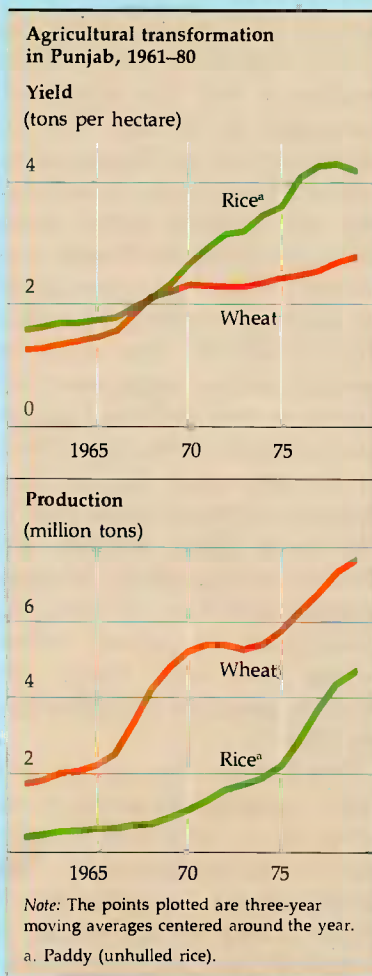
By 1972, just six years after the introduction of the new variety:

- Farm incomes had doubled, and savings had grown still faster.
- Savings were mainly invested in productive assets. The number of private tubewells and tractors increased sixfold and fourfold, respectively.
- The new wheat proved so profitable that some lower-value crops were replaced. With newly available wellwater, land that had previously lain fallow in the dry season could be cultivated. The wheat-growing area increased by 50 percent.
- Fertilizer use increased sixfold.
- Having done so well with wheat, farmers eagerly planted other high-yielding crop varieties and increased their use of inputs in the early 1970s.

Wheat production failed to rise further in the early 1970s, partly because of disease. Growth resumed after the introduction of disease-resistant varieties in the mid-1970s. By then, other crops had taken over wheat's role as growth leaders. Rice, potatoes, and other nontraditional crops expanded rapidly in both area and yield.

Larger farmers were the first to adopt the new technology, but small farmers and tenants soon took it up. Modern farming practices are now used throughout Punjab. As part of the commercialization of agriculture, crop sharing arrangements for tenants are gradually being replaced by fixed cash rents. With the expansion of farm income, small industry and service establishments have flourished. Many landless farm workers have moved into nonfarm jobs. Income per capita has been growing at an average rate of 3 to 3.5 percent a year for two decades.

A number of factors have contributed to the Punjabi success. The extensive existing canal system and the good groundwater resources, both of which could be exploited at a relatively modest cost, were of special importance. Prices were maintained at levels that gave farmers ample incentives to adopt new practices. Government investment in roads, markets, rural electrification, and other supporting infrastructure enabled farmers to take advantage of new opportunities. Finally, local research led to continuing improvements in varieties of wheat, rice, potatoes, cotton, and other crops.



ple-cropping as well as higher yields from each crop.

There have been no such revolutionary gains in maize and sorghum, though some progress has been made. As noted earlier, tropical and subtropical maize varieties have been adapted to the particular circumstances of quite small regions. Many breeding stations have produced dramatically improved hybrids and compos-

ites, but attempts to grow them in other places have not succeeded. Improved maize varieties have been most widely adopted in Argentina, China, Kenya, and Zimbabwe.

Hybrid sorghums for human consumption were first made available in India in 1964, but it took twelve years to produce them in bulk, to develop their resistance to disease, and to overcome

people's reluctance to eat them. Some 4.5 million hectares, one-third of the rain-fed area, are now planted with these hybrids. They also spread in northeastern China in the mid-1960s. In Latin America, hybrid sorghum is chiefly grown for cattle feed on large commercial farms. Improved millets have not been widely adopted by farmers, and few improvements have been made in le-

gumes although active research is under way on these crops.

The results of the development of new grain varieties have been remarkable. In developing countries, cereal yields rose by 2 percent a year between 1961 and 1980: in the case of wheat varieties by 2.7 percent; in sorghum by 2.4 percent; and in maize by 2 percent (see Figure 6.8). Although rice yields increased by only 1.6 percent a year in developing countries as a whole, they rose by more than 3 percent a year in the Philippines and Indonesia, which were best suited to the new varieties.

The Green Revolution has transformed the lives of millions of farmers. It has failed to benefit a much larger number for some or all of the following reasons:

- The technology did not fit their climate and soil.
- National research systems were not available to adapt the international varieties to local conditions.
- Adequate rainfall, irrigation, or flood control was not available.
- Transport and marketing networks were deficient.
- Prices and other incentives were inadequate.

Progress in other tropical crops

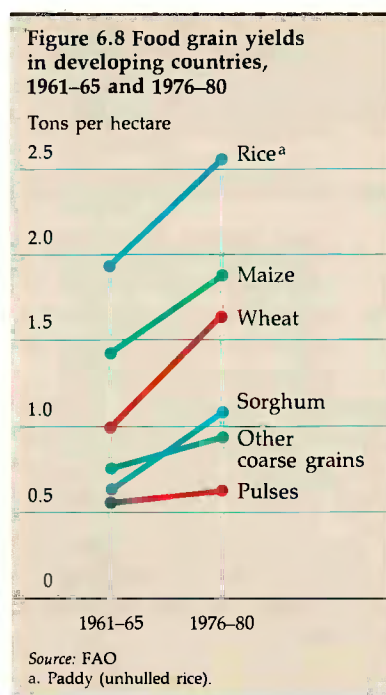
The emphasis given to cereals in the developing countries reflects the critical importance of basic foods. Nonetheless, tree crops and nonfood crops are important exports in many developing countries. Moreover, tree crops are frequently grown on land not suited for the cultivation of annual crops. Fruits, vegetables, and vegetable oils are also becoming more significant as incomes rise. Their elasticity of demand in developing countries ranges from 0.5 to 0.9, which means that at median income levels demand for them grows twice as fast as it does

for cereals, pulses, and root crops.

Developing countries account for 95 to 100 percent of the output and export of bananas, tea, coffee, cocoa, and rubber and between 45 and 60 percent of cotton, tea, tobacco, and sugar. In the case of coconuts, over 80 percent come from Asia. Palm oil is produced exclusively in developing countries, though the distribution of production among them has changed greatly. In 1965, 74 percent of output was in Africa, 23 percent in Asia, and 3 percent in Latin America. By 1980, almost 68 percent was produced in Asia, 28 percent in Africa, and 4 percent in Latin America. Although nonfood crops account for a small fraction of the agricultural output of the developing world as a whole, they represent as much as 20 to 35 percent of production in some countries: examples include Colombia, Costa Rica, Ghana, Guatemala, Liberia, Malaysia, Mali, Nicaragua, and Sri Lanka. Exceptionally—for example, in El Salvador and Ivory Coast—they can rise to 40 to 50 percent.

Unlike research on tropical food crops, research on tree crops and sugar has nearly as long and successful a history as that of temperate crops, largely because of the colonial interest in them as exports to developed countries. In several instances, notably sugar, palm oil, rubber, and coconuts, Green Revolutions as significant as those in wheat and rice have taken place, often more than once. Less spectacular but significant improvements in cultivation, fertilization, and harvesting techniques have also been made.

Production and productivity have improved much more rapidly than the growth of demand. Most tree crops have been exported mainly to the developed countries, where incomes and



consumption are high and further income increases generate only limited extra demand for tree crops. Industrial substitutes also limit market demand for some crops such as rubber, cotton, and jute. Against these demand constraints, sizable productivity gains have helped reduce costs and prices. The general pattern of demand appears to be improving, as oil exporters and many middle-income countries increase their imports as incomes rise. In addition, higher petroleum prices have shifted the competitive balance somewhat from synthetics back to natural fibers.

Despite the drawbacks of tree crops, acreage for them can be expanded quickly and the technology is already well established. This makes them especially attractive in regions where progress on food crops is slow, particularly sub-Saharan Africa. There, the choice between food and nonfood production is not simple: both need to progress. Over the longer term, the need for local research on food crop improvements is

clear. In developing improved technologies for crops, however, choices need to be made on the basis of comparative advantage.

Supports for agricultural growth

Land improvement, new farming methods, and more research are all necessary requirements for agricultural growth, but they are not sufficient conditions for its attainment. Numerous complementary services are also needed if farmers are to translate the potential of science into the reality of bigger and better crops. The final section of this chapter examines what this back-up effort involves.

Infrastructure

The existence and expansion of basic infrastructure has contributed significantly to increased agricultural output in Asia and Latin America. For example, the Philippines has allocated about 5 percent of agricultural development spending to rural electrification programs, which now serve about 70 percent of the population. On a simpler level, basic roads are essential for getting agriculture moving. In many parts of Africa, farmers are more than a day's walk from the nearest road. Measures to raise their production without transport and communications are of little use, because their crops cannot reach a market and they are cut off from new technology, inputs, and ideas.

Improved access usually brings with it an expansion of nonfarm enterprises such as shops, repair services, and grain mills. It also helps change customs, attitudes, and values. For example, a World Bank study of the impact of rural roads in the state of Yucatan in Mexico found that the roads offered an opportunity for enlarg-

ing women's role by introducing new ideas, education, medical care, and economic alternatives to maize cultivation. In particular, women married later, had fewer children, and pursued more non-domestic activities.

Feeder roads are often neglected if left to national road transport authorities, which generally prefer the challenge of building major highways. Feeder roads may receive more attention if the responsibility for their planning, construction, and maintenance is devolved to local government or to area development authorities. This requires central government's willingness to expand the revenue-raising powers of local government.

Externally financed projects have been successful in demonstrating that feeder roads can be built quite cheaply. Good examples are the World Bank's first three rural development projects in the northern savannah areas of Nigeria, where 1,700 kilometers of feeder roads were built or improved between 1975 and 1980; and the much smaller cocoa and coffee development project in Togo, in which 200 kilometers of roads linking villages in mountainous terrain were built at less than half the cost tendered by private contractors. In both cases, local artisans were used to do much of the skilled work such as bridge and culvert construction.

When rural infrastructure is being improved, giving priority to simple tracks and spot improvements of roads for motorized vehicles enlarges the percentage of rural poor offered opportunities for productive activities by both private and public construction agencies (see Chapter 7). To derive full benefits from investment in roads, improvements often need to be complemented by easier access to credit

for the purchase of motorized or nonmotorized vehicles. In addition, transport regulations often hinder the development of rural transportation.

Improving telecommunications has fallen prey to the artificial barrier between the "modern" and "rural" sectors. Telecommunications are not exclusively an urban tool. Agricultural growth can be accelerated if farmers have accurate market information and a fast way of calling for the repair of equipment and delivery of supplies. Rural industry is often an early beneficiary of an effective telephone network.

Extension

The adoption of new technology depends on the knowledge, skill, and motivation of farmers, together with a host of other factors which influence the farmers' capacity to achieve output levels approaching those obtained on research stations (Box 6.7). The main task of agricultural extension is to transmit knowledge of better production methods to farmers, and to help them overcome difficulties in employing them. With some important exceptions, the performance of extension services has been disappointing.

The existence of a profitable technology is a precondition for successful extension work. In sub-Saharan Africa (and indeed in many other rain-fed areas), farmers ignore the advice of extension workers on planting dates and cropping when it does not suit their circumstances or promises little obvious reward. Instead, they continue to intercrop and spread out plantings to reduce risk and stretch their limited resources. In this and many other cases, the fault lies with a lack of applied research that takes account of local social and economic conditions (Box 6.8).

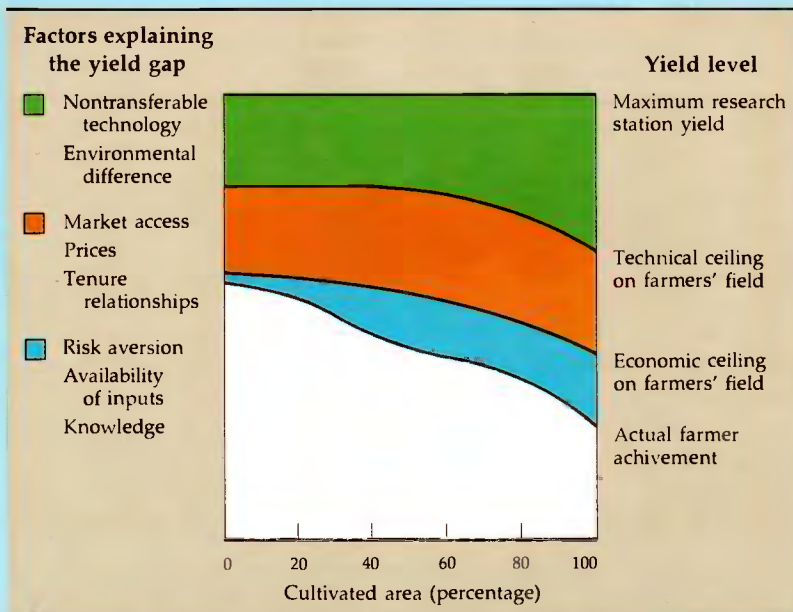
Box 6.7 The yield gap and agricultural extension services

Farmers in developing countries rarely achieve the record yields attained in developed countries or in controlled research. Most of this gap in yields is a result of commonsense decisions by farmers or of circumstances outside their control, rather than lack of skill or initiative on their part. In some cases, it may not pay farmers to buy inputs that might help improve yields. In others, the poor quality of the land or a lack of resources may make it impossible for them to use the cultivation practices that maximize yields. The figure illustrates some of the factors that cause yields at research stations and in farmers' fields to differ.

First, the *technical ceiling* for on-farm yields is lower than that for research stations. The latter use technologies that are not feasible at the farmers' usual scale of production. Research stations are usually located on choice land and can depend on irrigation if it is needed. The farmers' environment is rarely as kindly.

Second, the on-farm *economic ceiling* is often much lower than the on-farm technical ceiling. Farmers' profits are often highest at input levels lower than those necessary for maximum yields, because of diminishing returns on investment in inputs.

Third, farmers' *actual yields* are usually below even economic ceilings. This may be because key inputs such as fertilizer, water, and labor are not available when needed, or because volatile output prices and unreliable rainfall reduce expected returns. These factors may force the farmer into a "safety-first" strategy.



Farmers may also not know about optimal combinations of inputs or the best cultivation practices.

The relative magnitude of each part of the yield gap profoundly affects development strategy. Closing a large gap between the different technical ceilings imposed by on-farm and research environments requires either investment—for example, in flood control, land development, or irrigation—or research to develop crop varieties and farming practices better suited to on-farm conditions. A large gap between on-farm technical and economic ceilings calls for a review of price policies and improved market access for farmers. If actual yields are far below even the economic ceiling,

solutions might include strengthening agricultural extension or advisory services, streamlining input supply and credit systems, or creating a crop insurance scheme.

Thus, extension services can help narrow the yield gap but cannot close it. Worldwide experience indicates that agricultural extension services are most effective when:

- They support a profitable, risk-free or low-risk technology that is unknown to farmers.
- Key inputs such as fertilizer and quality seed are available at the right time.
- Farmers have ready access to markets for their additional produce.

In particular, extension services are often biased toward work with men and neglect the very important role of women as farmers in most parts of the world. In some societies women carry out all but the initial land clearing and heavy plowing. In many still largely traditional farming systems women have exclusive responsibility for the cultivation of food crops. In these situations, no effort to improve productivity can succeed

except by the direct involvement of women in the programs.

Other problems with extension reflect an inability of the farmers to respond because input supplies, marketing systems, and other supporting elements are inadequate. Extension is usually most effective when these necessary complements are present.

The rising burden of the recurrent costs of extension services is another limitation on both the

growth in coverage and the full utilization of the services. Partially in response to problems of cost, and partially to provide a supplementary communication channel (particularly for women), a number of countries have explored the use of radio and other mass media to deliver extension messages. These experiences have demonstrated the potential for carrying agricultural information inexpensively to large audiences.

Box 6.8 Decisionmaking on the African farm

Cotton planting in northern Uganda should ideally start by mid-April and be completed within two months. Test results show a steep decline in yield per hectare the longer planting is delayed. In fact, however, farmers consistently plant three-quarters of their crop in June and July, and spread planting over at least four months. Similarly, groundnut growers in the Gambia ignore advice that early planting saves on weeding later. In Nigeria (and throughout Africa) smallholders still intercrop, despite recommendations to plant crops in pure stands to increase yields.

These may sound like examples of farmer reluctance to accept new methods. Closer investigation suggests that this is not the case.

- Hail storms hit northern Uganda at harvesttime; growers consequently spread out the planting season to reduce the risk of loss. Extending the season enables farmers to plant other crops—including millet, which is the preferred family food and is used as part payment of cottonworkers' wages. After the millet harvest, some plots can be planted late with cotton; time can then be saved on weeding and harvesting. Farmers can thus both

reduce the cost of growing cotton and secure their staple food.

- Gambian groundnut farmers plant late so as not to compete for labor in millet growing. Although a late crop needs more labor for weeding, there are fewer alternative productive uses of labor time at this relatively slack time of year.

- In Nigeria, a crop mixture gave 60 percent higher gross returns per hectare than pure stands. It also improved returns on labor in peak periods by more than 25 percent, despite higher overall labor input.

- African farmers in these three countries, despite their limited resources and output, make production decisions in much the same way as larger operators. They respond rapidly to changing resource availability, constraints, and incentives and balance available resources to meet multiple (often conflicting) objectives. In fact, considerations which might be of only minor significance on large farms often assume great importance on small ones, owing to resource limitations and the close interrelationships between farm and household decisions.

The extent to which radio can induce farmers to adopt sound new technical packages remains, however, to be fully assessed.

In recent years efforts have been made to improve the administrative efficiency and field-level effectiveness of several extension services and to develop better linkages both to the farmers themselves and to research. This is one of the key features of the Training and Visit System, originally supported by the World Bank in India and adapted to conditions in other countries.

The private sector also plays an important role in the diffusion of technology and advice to farmers. Machinery manufacturers, seed companies, and suppliers of fertilizer and pesticides must all re-

fine their assistance and advice if farmers are to buy their products. The long-run interests of manufacturers and dealers are best served by customers who come back year after year. Realizing this fact, companies often undertake applied research and conduct experiments and field demonstrations.

Marketing

Crop marketing activities are often the key to opening up subsistence agriculture. Supplying urban consumers with food, exploiting foreign trade opportunities, specializing according to the comparative advantage of each region, village, and farm—these can take place only if there are intermediaries equipped to fi-

nance, buy, sell, transport, process, and store farmers' products and to distribute purchased inputs at the time they are needed. There is a tendency to take these activities for granted. In most tropical developing countries they take place under difficult physical conditions, especially for crop transport and storage, and often in an adverse policy environment. This makes life harder for farmers who want to enter the market.

Despite these problems, farmers in the developing world have generally responded eagerly to market opportunities. Smallholder farmers rapidly adopted the growing of rubber trees in Malaysia and of cocoa, groundnuts, and cotton in West Africa once marketing channels were established in the late nineteenth century. Cocoa, a difficult plant to nurture, had never before been grown by African farmers. Yet in little more than a half century, or only two generations, West Africa's production of cocoa beans reached over 1 million tons a year; it captured 70 percent of the world market and brought farmers more cash per day's work than any other crop ever grown there. More recently, in the Ivory Coast, cocoa production increased from 80,000 to over 400,000 tons in the two decades since 1960, largely because of fair prices and marketing.

Marketing has many facets, as a brief review of World Bank work reveals. In Mexico, under PIDER III, project finance is being used to organize small farmers into associations linked to a central distribution agency; to build local storage facilities; to build and improve retail stores; to develop rural markets; and to conduct a consumer information program through the home extension service. Under the Piaui project in

Brazil, a ten-component marketing program is aimed at bringing together poor producers and consumers. In Cameroon, the ZAPI project includes support for a rural distribution network for agricultural supplies, an urban market to handle surplus crops from rural areas, and the improvement of processing and marketing facilities for the export of coffee and cocoa. In the Philippines, the land settlement program is concerned with developing markets for new plantation crops. In Greece, over 6,000 small vegetable farmers have been linked by local marketing corporations to supermarket outlets for their produce in western Europe, as part of a Bank-financed project supporting intensive production of winter vegetables (Box 6.9).

Marketing can be handled by the public or private sector or a mixture of the two, depending on the circumstances of individual countries. Because of its political and economic sensitivity, it has often been a public monopoly.

Although the reasons for intervention were sometimes valid at the time public marketing agencies were created, often during or shortly after the colonial period in Africa and Asia, a high price is being paid to keep some of them in place. Serious inefficiencies have characterized the operation of many parastatal marketing agencies. Some arise from problems found in almost all parastatals—overmanning, inadequate nonsalary budgets, and the scarcity of good managers. Sometimes official producer prices and consumer prices for food crops are fixed by governments with little regard to the actual costs of collection and distribution, frequently on a uniform national basis. Then the agencies are left to buy, collect, and deliver in the most distant and costly regions,

and they are not always fully reimbursed for losses incurred in the process.

In food-crop marketing, there are usually parallel marketing channels; the legal and official marketing agency coexists with an often semiclandestine private trading sector. Some governments do not put much trust in the private sector's ability to provide stable supplies of food to urban markets, even when private traders handle the bulk of the trade. In such cases, private intermediaries are tolerated as indispensable partners, but the eco-

nomie environment does not enable them to operate efficiently. The uncertainties associated with the ambiguous position of private trade and traders discourage full-time involvement in food marketing, investment in transport and storage, and a systematic approach to developing an adequate supply network. This is starting to change, as governments recognize the value of involving private traders.

State-owned agencies also frequently monopolize the supply of inputs. They often fail to buy and distribute seed, fertilizer, and

Box 6.9 Productivity and small farms: Intensive vegetable production in southern Greece

As the agricultural labor force moves rapidly into the nonfarm economy, farming in Greece is under pressure to increase labor productivity. Small and fragmented landholdings in southern Greece limit opportunities for mechanization. One promising alternative has been to develop high-value cropping systems to supply European fruit and vegetable markets.

Over 6,000 small vegetable farmers in the region are currently participating in a program which provides them with equipment to promote more intensive cultivation, and helps them sell their output in the profitable markets of western Europe. The program, which is supported by a World Bank loan, is expected eventually to raise the productivity and incomes of 9,000 small-farming families.

The key investment is a small greenhouse covered with a single layer of clear plastic and equipped with irrigation and ventilation. Winter heating is expensive, however. The new program therefore includes research on heat conservation, use of solar energy for heating, screening of cold-resistant vegetable varieties, and manipulation of their planting dates.

The program is also helping to sell Greek vegetables more efficiently in export markets. Traditionally, vegetable exporters handle volumes of produce which are too small to support the cost

of adequate grading and packaging facilities. They also tend to have inadequate market representation and information, and to supply a single product only, often to a single market.

Greek exporters (and the small farmers who supply them) have thus been unable to supply the western European supermarket business, which is highly concentrated and represents almost 75 percent of the fresh fruit and vegetable market. Breaking into this market, which relies on direct contracts incorporating predefined quality standards and fixed delivery schedules, requires improvements in the coordination and planning of exports.

To ensure that investment in more intensive vegetable farming equipment and methods will pay off in export sales, four marketing companies, to be owned mainly by farmers, cooperatives, and private exporters, are being established. The companies will coordinate small farmers' output under production and delivery contracts, operate grading and handling facilities, and provide a reliable and timely supply of quality products to supermarket chains in Europe. In this way, Greek vegetable farmers will benefit from expanding and assured markets and better prices, despite the small average size of their holdings.

pesticides at the time farmers need them because funds are not yet available from the national budget. For some inputs such as pesticides and herbicides more countries could replicate the success of Bangladesh and the Republic of Korea in getting agro-chemical manufacturing companies to participate and invest not only in the importation and wholesale distri-

bution of their products, but also in local adaptive research, field trials, and demonstrations to farmers.

The production and distribution of quality seed is another field with broad possibilities for private sector participation. Seed companies in particular often work closely with government agencies in distribution and marketing.

Hybrid seeds need to be replaced every year, so an active and widespread distribution chain is essential. The Kenya Seed Company, a mixed enterprise, has sold its Kitale maize hybrid through village shops and has successfully distributed seed to farms of every size in the Kenya Highlands. In ecologically similar areas of neighboring countries, the absence of such a marketing system has meant that the diffusion of maize hybrids is minimal. India's seed program also combines the efforts of the National Seed Corporation, state seed companies, and private companies (Box 6.10).

Credit

Credit is essential for modernization, growth, and equity. Larger farmers are generally able to obtain loans under government credit schemes and from agricultural banks, but small farmers find access to these institutions difficult and rely mostly on informal credit sources. Because the costs and risks of unsecured loans to small farmers are high, local moneylenders often charge much higher interest rates than official credit schemes.

In an attempt to remedy this imbalance, many countries have introduced credit schemes for small farmers. Their record is mixed. Credit often still goes to large farmers or is diverted for nonagricultural purposes. To improve the performance of agricultural credit schemes, certain lessons seem clear:

- Early establishment of rules for repayment (with clearly understood waivers in the event of crop failure) will not only safeguard the financial viability of the lending agency but also help spur farmers to greater efficiency.

- Improved access to credit is of more benefit to small farmers than subsidized interest rates,

Box 6.10 The Indian seed industry

Getting quality seeds to 70 million farmers on time is a challenge, but the Indian seed industry is rising to it. Since its infancy two decades ago the industry has grown enormously. It now comprises one national corporation, a dozen state-owned seed corporations, and some 300 private companies. The process of growth has been neither smooth nor easy. India's experience illustrates some problems faced by both the private and public sectors when agriculture undergoes rapid transformation.

Before the Green Revolution, most farmers reserved part of their crop for the next year's seed. Occasionally they obtained new seed, grown and distributed by state agricultural departments. A few private companies produced vegetable and flower seeds.

Following the release of the first hybrid maize varieties in 1961, India's agricultural planners realized that the seed industry needed to be strengthened. The National Seeds Corporation was formed in 1963 and started to grow foundation seed. The creation of private seed companies was encouraged, and a number of them were given the opportunity to buy imported seed-processing equipment on a hire-purchase basis.

By the mid-1960s, hybrid and high-yielding seed varieties had been released for a wide range of crops. Demand for quality seed took off. Because the private seed industry was still embryonic, public sector seed multiplication was stepped up through state and local governments and agricultural departments; state seed corporations were established.

Swept along by fast growth, the public seed production system became over-

extended. Quality declined, and financial losses were incurred. Private companies began to have serious misgivings about their future in the Indian seed industry.

In 1975, the state of Maharashtra authorized a few seed companies to produce their own foundation seed. This decision has done much to ease the supply of high-quality foundation and certified seed, and to ensure a steady flow to farmers. It has also speeded up the development and popularization of new varieties.

Only recently have dealers, distributors, and farmers become accustomed to the idea of seed marketed through seed companies. Initially, the companies tried to promote their products by demonstrations on farms; private retailers and cooperatives were encouraged through consignment arrangements, which left ownership of any unsold seed with the seed companies.

Today, seed is being distributed in India by a network of more than 10,000 seed dealers throughout the country. Farmers have become quality-conscious and have developed preferences for brands of demonstrated quality.

As private seed enterprises have prospered, they have become committed to genetic research and have developed their own improved hybrids of sorghum, millet, cotton, maize, and some vegetables. The search for new varieties has been extended to other crops such as sunflower, safflower, and pigeon peas. The industry is an important example of constructive, competitive interaction between the public and private sectors.

since the latter in effect ration the amount of credit available. If more farmers are to be served, interest rates and other charges should reflect the true costs of lending and credit recovery. There is sometimes scope for accepting assets such as animals as security for loans.

- Formal credit agencies have

overemphasized lending and neglected the provision of other financial services. Rural savings schemes are particularly useful for expanding the financial base of lending and for encouraging repayment. There is considerable evidence that small farmers do save when offered attractive savings rates.

- To promote loans and savings, agricultural banks could make much more use of rural agencies already in the field. They could also develop closer links with cooperative and group-farmer schemes, as has been done in Malawi, for example.

7 Rural poverty

Absolute poverty blights the lives of hundreds of millions in many countries. They have barely adequate (and often uncertain) diets, and incomes so low that they can spend little for clothing, fuel, shelter, and other necessities.

The dimensions and consequences of absolute poverty have been explored in previous Reports, notably in the discussion of poverty and human development two years ago. The 1980 Report suggested that absolute poverty affected a total of about 780 million people, excluding China and other low-income centrally planned economies such as Viet Nam. China's nationwide food security, along with basic health and education services, may blunt the impact of poverty; nevertheless, it is probable that at least 150 million people there enjoy living standards little better than those of the absolutely poor in other countries. The inclusion of China thus suggests a global total of close to 1 billion people living in absolute poverty.

This chapter examines ways in which agricultural policies and programs can help them. The great majority of the absolute poor—over 90 percent—are rural people who work on farms, or do non-farm work that depends in part on agriculture. More than half are small farmers who own or lease their land; another 20 percent are members of farming collectives, mainly in China. The remaining

one-fifth to one-quarter are landless, and their livelihood is particularly precarious. While often no poorer than the poorest farmers, landless laborers are more likely to see their jobs disappear in a crisis and are less able to fall back on reserves, including the final option of mortgaging or selling their land. Most landless laborers live in low-income market economies with high rural population densities—over 80 percent of them are in Bangladesh, India, and Pakistan, and the rest in areas such as Java, Indonesia.

Poverty and growth

Past experience clearly shows that a combination of economy-wide and agricultural growth is essential for the long-term alleviation of poverty. In particular, new, more productive employment opportunities are needed outside agriculture. The process of structural transformation, which was discussed in Chapter 5, helps to create urban industrial jobs and to diversify the rural economy itself. Such developments have led to spectacular changes in some middle-income countries over the past twenty years. Despite the rapid growth of population and the labor force, agriculture's share of total employment and the absolute size of the agricultural labor force have fallen or will soon begin to do so in countries such as Brazil, Colombia, Indonesia,

Republic of Korea, Romania, Turkey, Venezuela, and Yugoslavia. If the momentum of growth is maintained, earnings and productivity in agriculture itself should accelerate. Nevertheless, large pockets of absolute poverty may remain in relatively remote areas or where agricultural production is stagnant.

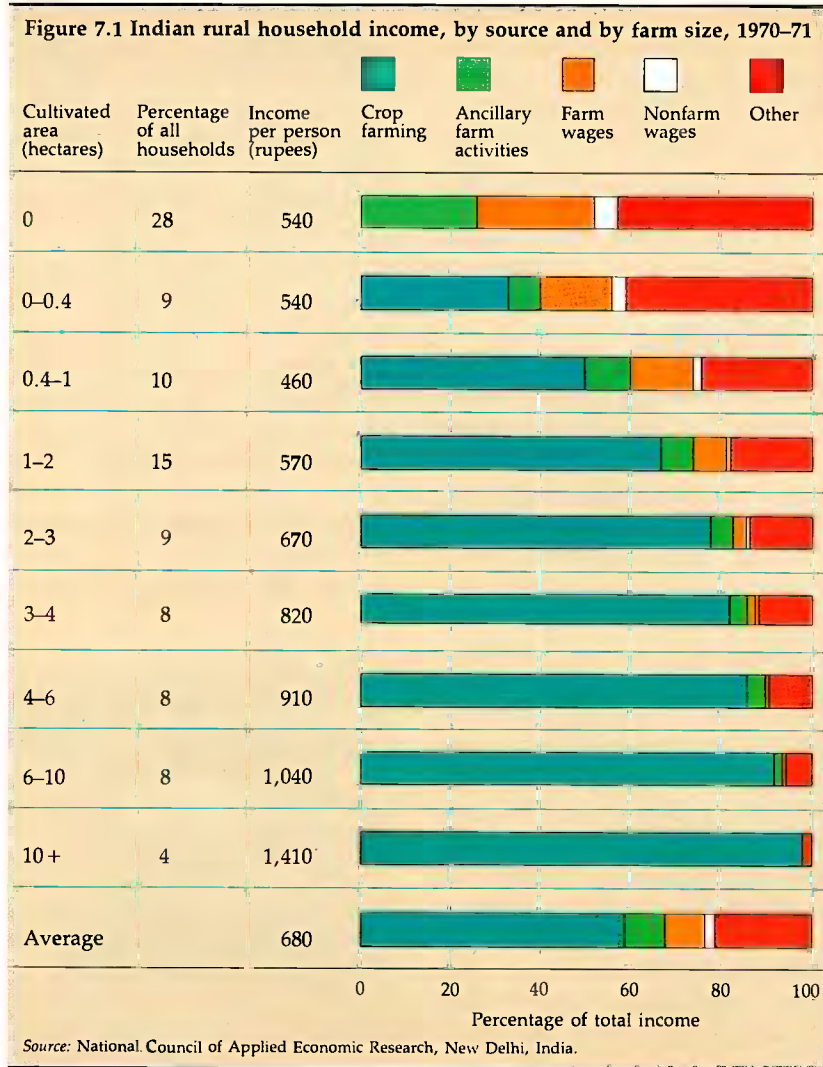
Urban living conditions—notably the squalor of the slums in which most new migrants tend to cluster—often appear to challenge the notion that rural-urban migration reduces poverty. Migrants are indeed usually poor by urban standards, but this reflects the large difference in incomes between the cities and the countryside that encouraged them to migrate in the first place. There is extensive evidence that urban immigrants do improve their incomes, health, and education prospects. Moreover, the wages they remit to those who remain behind are an important source of income for many rural areas. Studies in India, Kenya, Malawi, and Thailand suggest that remittances can often exceed 10 percent of the total incomes of villages where families of migrants live. International remittances from high-wage to low-wage economies can have similar—and sometimes even more dramatic—effects. Many migrants to other countries send back or save over 50 percent of their incomes; in the Yemen Arab Republic, remitt-

ances have formed the basis for community-financed village development programs for building roads, schools, and health and water supply facilities.

The expansion of nonfarm rural income and employment is directly linked to agricultural growth. Estimates suggest that up to of 25 percent of the labor force in rural areas may be primarily engaged in nonagricultural pursuits—which include a range of service and repair work, food processing, handicrafts, leather, textiles, and metalworking, together with construction, commerce, and marketing. Almost all these activities satisfy local demand. Because they generally use simple, labor-intensive techniques and need little in the way of capital or skills, they can expand rapidly in areas of dynamic agricultural growth (although much of the expansion occurs in the market towns that serve the countryside rather than in areas strictly defined as rural). In Thailand, for example, agricultural output grew at over 7 percent a year during a six-year period in the 1970s; the nonfarm income of rural households is estimated to have grown nearly twice as fast, by over 12 percent a year.

Nonfarm income is particularly important for the very poor. In countries as different as India, Republic of Korea, and Sierra Leone, landless or nearly landless households earn about half their income from nonfarm sources—a proportion that falls to 10 to 20 percent for households with larger land holdings. (The data for India in Figure 7.1 show a typical pattern.) Nonfarm employment is also an important source of secondary earnings for small farmers and the landless in the agricultural slack season.

Over the long run, economic growth reduces the total number



of those living in absolute poverty and makes it easier to deal with those who remain. The impact of growth is uneven, however, and the prospect of eventual benefits is of little comfort to those who suffer in the interim. Moreover, growth itself may increase hardship for those who do not share in it. For example, cost-reducing innovations will win new markets and raise production—quite possibly at the expense of those living in areas where natural conditions rule out similar innovations. These other areas are often the poorest to begin with. Commodities facing inelastic world demand are particularly prone to

difficulties of this kind: tea or cocoa producers in one country can lose heavily because of technical change occurring half a world away.

Mechanization is another factor often identified as a threat to the livelihood of the poor, particularly the landless. Mechanization generally raises both output and labor productivity, but the mix varies. Under certain conditions, some machines add little or nothing to output while replacing a lot of labor; others may add a lot to output and displace little labor. The machines most likely to reduce farm employment are harvesters, threshers, tractors, and

milling machines. Labor-displacing mechanization is usually triggered by rising farm wages—which in turn normally reflect improved conditions and expanding job markets. For example, with the growth of nonfarm employment during the Green Revolution, the labor used on land double-cropped with wheat and rice in the Indian Punjab fell by 16 percent. Over three-quarters of the fall (13 percentage points) was accounted for by the use of tractors.

In stagnating, low-income regions, however, labor-displacing mechanization is rare. Rural wage rates are so low that it is not profitable to replace human tillers and harvesters with expensive machines unless the agricultural economy is expanding rapidly. Nevertheless, the pace and profile of mechanization can be radically altered by policies that seem, on the face of it, extraneous. Policies on exchange rates, foreign exchange licensing, subsidized credit, and import duties have encouraged the spread of tractors in Brazil, Egypt, Pakistan, Zaire, and other countries. Where neither agriculture nor other parts of the economy are growing rapidly, the effects of premature mechanization can be disastrous for those who lose their jobs.

Initiatives to counter rural poverty

Economic growth has been most rapid in middle-income countries in recent years, notably among those with per capita incomes of \$1,000 or more. Absolute poverty is consequently increasingly concentrated among the low-income countries (and among middle-income countries that have experienced slow growth). Roughly 40 percent of the poor are in India, Bangladesh, and other South Asian economies. Another 20

percent are Chinese. Low- and middle-income sub-Saharan Africa accounts for about 15 percent, as does East Asia (principally Indonesia and Indochina). Latin America, North Africa, and the Middle East account for only about 3 to 4 percent each.

Policies and programs to accelerate overall growth are clearly crucial for the long-term reduction of poverty. The special role of agriculture in strategies for economy-wide growth was discussed in Chapters 5 and 6. Many of the policy changes advocated—for example, improved producer incentives and higher priority for agricultural research

programs—can also help improve the prospects of the rural poor. But programs dealing directly with the problems of the poor are also essential. Although direct measures are of special relevance for the low-income economies, many middle-income countries (including some whose growth performance is otherwise satisfactory) could also achieve still better results if they addressed poverty objectives more directly.

This section discusses four sets of measures to improve the productivity of the poor—human resource development, small-farm programs, agrarian reform, and rural works. Such programs can

Box 7.1 Farmer education, farm efficiency, and nutrition in Nepal

Nepal's Terai region, in the lowlands along the Indian border, suffers many of the interrelated manifestations of rural poverty—low agricultural productivity and income, low rates of literacy and school enrollment, a high prevalence of malnutrition, and high rates of disease, mortality, and population growth. The 1980 *World Development Report* concluded that this "seamless web" of factors that entrap families in poverty can perhaps best be broken by providing primary education: men and women with even a little education seem consistently better able to improve agricultural efficiency, to take advantage of health and nutrition information, and to seek methods of family planning. To provide further empirical evidence of these linkages, the World Bank gathered data from 800 farm households in the Terai to assess the extent to which education helped alleviate rural poverty.

A recently introduced and particularly profitable crop in the Terai is wheat, and the study found a strong link between farmer education and efficiency in wheat production, even after controlling for other factors such as the ability, size of holding, or family background of the farmer. There was definite evidence of a

threshold (at about six years of education), below which education's impact was insignificant. Among farmers with more than six years of schooling, wheat yields were over 25 percent higher than those with less or none. Competence in arithmetic affected the propensity of a farmer to grow wheat at all. The magnitude of this effect was sufficient to suggest very high economic returns to education as a factor in agricultural production.

The same research project also suggested the potentially self-reinforcing character of investments that address any of several important facets of rural poverty—illiteracy, malnutrition, and low agricultural productivity. Data on children indicated that malnutrition was an important cause of impaired learning and nonattendance in school; in the next generation the resulting illiteracy could be expected to impair agricultural productivity, which would in turn exacerbate malnutrition, thereby completing a vicious circle. Nepal's policy of vigorous expansion of primary education would seem, then, to offer promise of raising agricultural productivity and alleviating several dimensions of rural poverty.

bring important benefits under widely differing circumstances, but their impact tends to be felt only in the long term. Moreover, some aspects of poverty—for example, difficulties associated with large, fatherless families—are hard to tackle through improved production opportunities alone. The final section in the chapter therefore deals with government efforts to maintain food security and to subsidize food for those in greatest need.

Human resources

The 1980 *World Development Report* marshaled a considerable body of evidence to show how programs of education, health care, and nutrition can help increase earnings and income among the poor. Evidence continues to accumulate supporting these conclusions. Education is especially important in enhancing mobility and making farmers more receptive to new practices and market opportunities. A recently completed World Bank research project in Nepal (Box 7.1) found strong evidence that education improves a farmer's efficiency, and an earlier Bank study had calculated the rate of return to primary education (solely in terms of its contribution to farmer efficiency) to be between 7 and 11 percent in the Republic of Korea, between 14 and 25 percent in Thailand, and between 25 and 40 percent in Malaysia. These findings from Asia complement findings from elsewhere that consistently show education to increase farmer efficiency whenever modernization and change in the environment require innovative, adaptive responses.

Labor mobility—from one country to another, from rural to urban areas, and from agricultural to nonagricultural activities in rural areas—is often a potent means of escaping from poverty.

Mobility, whether geographical or occupational, is generally a result of individuals' decisions, which are based on informal networks of information and experience. Governments can promote mobility—and help limit its potentially adverse side effects—in several ways. Education and training enable poor people to acquire new skills and thereby expand their earnings opportunities. They are particularly valuable in areas where permanent emigration needs to be encouraged because, for example, population growth is running ahead of productive capacity.

Similarly, nonfarm rural enterprise can sometimes be promoted by worker and management training, as well as by improving small businesses' access to credit to help finance expansion, and by investment in infrastructure (such as rural electrification, transport, and communications). Such programs can help small towns become potential growth poles in rural areas. Encouraging people to better themselves where they live can help slow the pace of urbanization and cut the cost of expanding and upgrading urban infrastructure and services.

Women are often the least mobile and therefore can benefit most from programs which foster rural development and employment opportunities close to home. While in some societies young unmarried women are quick to move to new jobs in urban centers, married women, those with children, and the old of both sexes are usually closely tied to the household and farm. Attention should therefore be given to fostering productive on-farm and local employment opportunities for women and to meeting their needs for education and training in programs that support migration from depressed farm areas.

Small-farmer programs

Small farmers are by far the largest proportion of the rural poor and, because of their ties to the land, the least mobile. There are enormous variations in the amount of land they farm, in their status (as sharecroppers, tenants, and owners), and in the kinds of farming they undertake. They have several common characteristics, however; they do most of their own work, have few assets, and usually consume most of what they produce. Absolutely poor farmers are concentrated in Asia, where rural population densities are especially high, and in Africa, where little has been done to raise land productivity. Figure 7.2 shows the size structure of farms in different parts of the world.

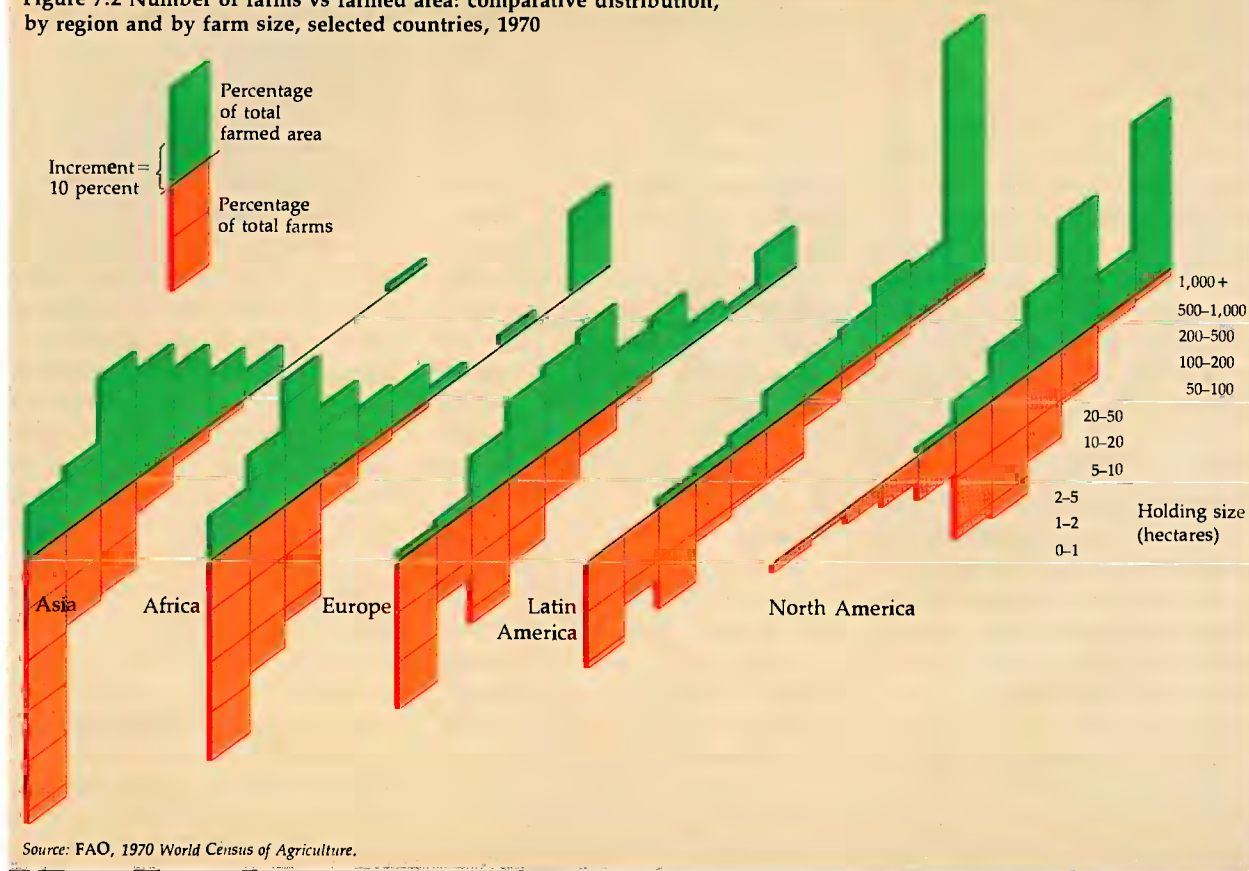
On the face of it, small family farms may seem inefficient compared with large farms and plantations which use hired labor or machinery. The evidence disproves this. Where small and large farms coexist, as in South Asia or Latin America, research shows that small farms usually produce more output per unit of land farmed than do large ones, even when allowance is made for the quality of land. Even in the developed countries, though farm size has grown with mechanization and rural emigration, farms are still typically family-based and hire very little labor.

The resilience and productivity of small family farms throughout the world is striking—especially in the light of characteristics which might be expected to make them less competitive than large farms, such as:

- Small farmers are unable to exploit economies of scale. Their transaction costs are high because their marketed output, purchases of inputs, and use of credit are on a small scale.

- Lack of assets limits their

Figure 7.2 Number of farms vs farmed area: comparative distribution, by region and by farm size, selected countries, 1970



ability to borrow money; land is often rented and cannot be used as collateral.

- Small farmers cannot afford to spend as much as large farmers to explore and adopt new techniques. Productivity gains from new techniques usually increase profits most among those who use them first.

- Small farmers tend to be the first to suffer during shortages of fertilizer, seed, and water. They lack the influence of their larger neighbors, whose goodwill is more important to local suppliers.

Offsetting factors are that small farmers benefit from lower labor costs and self-management. The use of hired labor on large farms imposes a transaction cost on both workers and employers. The uncertainties of obtaining work or workers on any given day make

it necessary for workers to seek, and employers to be willing to provide, more in compensation than is needed on family farms. The quality of farming is even more important than its cost. Farming is a complicated business that requires not only hard work but also care and attention. The small farmer's motivation is usually strong, especially if he is growing food to feed the family.

Small farmers exploit their advantages (and offset some of their disadvantages) by putting more hours of work into each hectare than large farmers do. Although their capital-to-land ratio is often higher than that of large farmers, small farmers usually have lower ratios of nonland capital to labor. Table 7.1 illustrates some of these tendencies in the case of Brazil. The same pattern can be found in

many countries, but it is usually more muted.

During the past ten years in particular, governments, supported by international development agencies, have sought to capitalize on the virtues of small farms and to help them overcome their disadvantages. Some of this work is complex and requires more or less simultaneous action on several fronts. In other cases, growth may be held back by a single bottleneck, and a less complex solution is then possible. For example, the lack of roads in remote areas may limit or wholly prevent reliable, cheap delivery of commercial supplies, profitable penetration of markets, specialized production, and effective deployment of farmer services and research. Throughout the world road building has been the found-

dation of rural development schemes. Small-farm irrigation programs, primarily to improve water availability and control, are also of special importance.

Other programs include efforts to direct part of the flow of farm credit to small farmers (sometimes cooperative group guarantees are used as collateral—an approach pioneered in Malawi's Lilongwe land development program). Programs to assist small-holder production of plantation crops have involved supervised credit, technical services, and assured market access. Efforts of this kind have been particularly successful in Kenya (tea and coffee growers) and in Asia (rubber and oil palm schemes in Indonesia and Malaysia).

More complex programs are often designed for an intensive development effort in low-income areas or regions. The PIDER program in Mexico is an example: started in 1973, it channels some \$450 million annually to about 120 carefully chosen low-income areas estimated to include about half of Mexico's 12 million rural poor. The money finances a wide variety of agricultural investments plus social and economic infrastructure. A national scheme of a different type, centered on the production of one commodity, is India's dairy development program which uses producer cooperatives (see Box 7.2).

In their early days, some multipurpose programs tended to be too complicated to implement successfully, especially in countries with limited administrative and management skills. In some cases, the necessary managerial and financial support could be provided only with international assistance; replication in other, equally deserving areas proved not to be possible. Inadequate preparation—a weakness not confined

Table 7.1 Farm structure in Northeast Brazil, 1974

Farm size (ha)	Average holding (ha/farm)	Average land value (cr/ha)	Labor input (yrs/ha)	Capital input (cr/ha)	Capital/labor ratio (cr/worker)	Gross output (cr/ha)
0-9.9	4	1,266	0.247	1,203	4,870	769
10-49.9	27	1,054	0.075	529	7,057	362
50-99.9	72	1,064	0.041	405	9,872	291
100-199.9	141	1,318	0.028	318	11,341	288
200-499.9	299	785	0.019	243	12,792	192
Over 500	1,180	625	0.012	140	11,625	121

Source: Kutcher and Scandizzo (1982).

Box 7.2 The milk revolution in India

Every day at dawn and dusk, 2 million Indian farmers pick up their milk cans and cycle or walk to the nearest collection center. They are part of the dairy cooperative movement that has swept India since the early 1970s, enabling owners of a few dairy cows to profit from buoyant demand for their perishable product in distant cities.

The movement began on a small scale thirty years ago, when a dairy producers' cooperative was established in the small town of Anand in western India. The Anand cooperative formed the model for a grass-roots movement in most Indian states. Assisted by the World Food Program, the EEC, FAO, and IDA, this movement has grown into an industry comprising more than 10,000 village cooperatives that process 2.5 million liters of milk every day. They sell fresh milk to Bombay, Delhi, and other major cities and supply processed dairy products throughout the country.

The cooperatives are organized in three tiers: village dairy societies, unions of the dairy societies, and a federation of the unions. The whole system is owned by the primary milk producers. Two semi-autonomous government agencies—the National Dairy Development Board and the India Dairy Corporation—provide technical and financial assistance.

The cooperatives form an integrated system for marketing and processing. The local cooperatives buy milk on commission at the collection centers. The milk is immediately brought by truck to the union dairy where it is pasteurized, put into insulated tankers, and shipped to major cities or processed into dried milk,

cheese, butter, and other products.

Every member of a cooperative has access to technical assistance. The package includes emergency and weekly veterinary services, artificial insemination, concentrated feeds, and seeds for high-yielding fodder crops.

Giving producers a reliable and profitable outlet for their milk and the technical wherewithal to increase production has helped raise rural income. The movement has even benefited the landless poor who often own one or two cows or buffaloes. In particular, it has enhanced the status and well-being of women, who are the traditional caretakers of livestock and the recipients of income from milk sales.

This cooperative venture has worked when many others have failed. The features which seem to have helped shape its success include the following:

- Its dedicated leadership and well-trained staff subscribe to a common principle of service to rural communities.
- Its organizational system enforces strict accountability.
- Its streamlined marketing system is suited to the commodity's perishable nature.
- Economies of scale at the processing stage encourage collective action.
- Payments are based on fat content and are received by producers within twelve hours.
- A well-publicized and appropriate package of technical services is offered to all members.
- International aid (including food aid) has been used judiciously to help build the dairy industry.

to this type of program—sometimes meant that the “package” of improvements turned out to be incomplete or inappropriate for small farmers.

By no means all the difficulties which arose were technical in nature. Misunderstandings about the social setting, for example, led to a number of failures in programs for small-farmer credit and cooperative development. Patterns of ownership, tenancy, and land rights can also make it difficult to reach poor farmers; and the benefits of higher production may be diverted to relatively well-off landlords, merchants, and other middlemen.

Other programs help small farmers overcome the hostile physical conditions in which they often have to work. As might be expected, rural poverty tends to be particularly severe in the world’s most difficult natural environments—in tropical uplands, in semi-arid regions, and in areas with poor soil (often recently cleared forest land). In such conditions, small-farmer development programs are often held back because they lack the right technical ingredients. The most common crops—pulses, upland rice, sorghum, millet, roots and tubers—have only recently begun to attract research attention. There are powerful arguments for stepping up this effort, given the high returns on past investment in research (see Chapter 6) and the fact that numerous poor people produce and consume these crops as part of their staple diet.

Despite the difficulties of assisting small farmers, the programs seem on the whole to have been remarkably successful. In many instances, farm incomes have been raised significantly and benefits widely spread; handsome returns have accrued to the economy as a whole. More pro-

grams are now being designed to simplify management and implementation, especially in Africa. This is usually accomplished by concentrating on a lead crop—as in recent cotton programs in West Africa—or on a small number of strongly complementary activities. The Ethiopian “minimum-package” program, as suggested by its title, is confined to seed and fertilizer sales and extension services. Zaire’s Kasai Oriental maize program concentrates heavily on one crop plus a few support services that are central to improving productivity among 120,000 farm families.

Agrarian reform

A critical factor in agricultural development is the willingness and ability of farmers to improve their land by leveling, irrigating, and draining it. Farmers with secure tenure have more reason to make such investments than those with less of a stake in the land. Tenure is not an issue affecting small farmers alone, although it tends to bear heavily on them. Insecurity is caused by a variety of factors, including lack of clear title to land, lack of assurance about tenancy arrangements, instability of land rents, and—among landowners—fear of land reform without proper compensation. These questions will become more critical as countries run out of virgin land and growth comes increasingly to depend on making capital improvements to existing land.

Changing the institutional framework to encourage land improvement is generally difficult. The measures involved vary widely. They include surveying, adjudicating and recognizing land titles, consolidating small and often widely scattered parcels of land, legislating on inheritance to ensure that farms will be main-

tained in viable units, and acquiring and distributing land to new owners through land reform. Most land reform programs seek either to create many farms from a few by taking title or tenancy rights and redistributing them, or to unify ownership of many scattered holdings. Land reform has substantially improved rural income distribution and the base for subsequent agricultural progress in several countries; examples include China, Japan, and the Republic of Korea.

Several problems tend to limit the effectiveness of land reform, however. Where the argument for it is most compelling—in densely settled agricultural areas, where landlessness and rents are high—the holdings are usually already very small, which limits the scope for land redistribution. Moreover, often very large numbers of owners would be dispossessed under these conditions, since land is held in small amounts. Many recent studies suggest that in Asia most owners are active in farm management along with their tenants and sharecroppers. There seem to be few cases where tenants lag behind owner-farmers in adopting new techniques or using modern inputs such as fertilizer. By and large, studies that adjust for farm size usually find the same levels of output on all types of farms.

Land reform has long been recognized as posing a formidable political challenge. The economic challenge of maintaining and improving farm output after land reform is also considerable, typically requiring a more active and diversified range of farm services if the reform is to be successful. In many cases, a pilot program, designed to test different approaches, may be a sensible first step. Brazil’s Northeast, long a paradigm of tenure issues, is im-

plementing a World Bank-supported program of this kind in two of the poorest states, Maranhao and Piaui.

But land reform is more often preached than practiced—which can be highly damaging since it increases insecurity rather than reduces it. Among landlords, a general fear of reform and, in particular, concern that compensation will be inadequate may discourage them from making the most productive use of their land by leasing small parcels to sharecroppers and renters. This reluctance is most common, and most harmful, among large landowners. Discussion of land reform sometimes obscures the broader issue of security of tenure and leads to inaction on all fronts. In some instances, taxing land according to its productive potential, an approach which has received relatively little attention in recent years, may achieve economic and social results similar to those stemming from land redistribution.

Rural public works

Using local resources for building and maintaining rural infrastructure makes a valuable contribution to both development and poverty alleviation. Unskilled labor can be used to construct small irrigation and drainage works and feeder roads, and to level land. Rural public works are important precisely because they can be organized at the community level. On the one hand, they are seldom done well by central government; on the other, they are too large to be done by individual families. Even with full security of tenure and favorable prices, a family farm usually cannot, for example, organize irrigation and drainage canals for a small watershed.

In view of the pressing need for

rural infrastructure and the abundance of local labor in many countries, programs often seem surprisingly modest. This is partly because they require high-caliber management and careful design if they are to work well. Project selection, organization of the labor force, design and engineering standards, and financial control can all present considerable difficulties—especially as most programs are decentralized and widely scattered.

Sometimes, too, they are viewed as “make-work” schemes; the supplies and machinery needed to complement local labor may therefore be inadequately funded.

Other drawbacks include the fact that public works may sometimes benefit some individuals more than others where land is privately owned and that proper maintenance is difficult to arrange once construction is completed.

These and other problems can be overcome, however. The Maharashtra Employment Guarantee Scheme (see Box 7.3) is an example of successful rural public works; so too is Indonesia’s Inpres program. Projects of genuine social and economic value are most likely to be identified, planned, and built if rural people are able to play a decisive role in choosing

Box 7.3 Employment Guarantee Scheme, Maharashtra, India

Maharashtra’s ten-year-old Employment Guarantee Scheme (EGS) gives unemployed or underemployed rural workers jobs in public works projects or pays them living allowances. Blueprints for projects are kept ready for immediate use at times of slack employment. Every rural adult is guaranteed either manual work near home within fifteen days of registering or a cash allowance of Rs1 a day (\$0.12) for time wasted if no job turns up.

During the five years ended March 1979, Maharashtra spent Rs2.12 billion on public works. Of this total, 53 percent was for irrigation, 27 percent for land improvement, 13 percent for roads, and 7 percent for forestry and other works. Unlike many other rural work schemes,

EGS managed to combine employment generation with productive capital formation.

The table shows that over the five years from 1973 to 1978, Maharashtra’s rural unemployment declined by 21 percent, from 1.4 million persons to 1.1 million, despite a 17 percent increase in the population. Its overall unemployment rate fell by 32 percent during this period to 5.2 percent of the work force, compared with a 4 percent overall decrease for the whole country. Because agricultural and industrial growth remained sluggish, much of the improvement in Maharashtra’s employment can be attributed to EGS.

Unemployment in Maharashtra’s rural work force (ages 15–59), 1972–73 and 1977–78

Rural work force	1972–73	1977–78	Percentage change
<i>Unemployment rate</i>			
Males	6.97	5.24	–16.0
Females	8.34	5.20	–37.6
Total	7.65	5.22	–31.8
<i>Unemployment (millions of persons)</i>			
Males	0.64	0.55	–13.6
Females	0.75	0.55	–27.4
Total	1.40	1.10	–21.1

Table 7.2 Selected government food-distribution programs: Coverage, impact, and cost

<i>Program and country</i>	<i>Commodities involved</i>	<i>Coverage and targeting</i>	<i>Effect on income, consumption, and nutrition</i>	<i>Budget costs (percentage of budget) or revenue</i>	<i>Comments</i>
<i>General subsidy, Egypt</i>					
Open subsidy for wheat, flour; distribution through ration shops for other goods	Wheat and wheat products, maize, beans and lentils, rice, dairy products, sugar, tea, oils, meats	Broad coverage, particularly in urban areas; untargeted	Wheat and flour consumption up about 80 percent (1970–80); malnutrition and infant mortality low for Egypt's per capita income level	As high as 15 percent (1975); 9 to 12 percent, with 5 to 7 percent for bread (1976–81)	Implicit tax of about 20 percent on producers has acted as a disincentive; subsidized foods constitute 22 percent of Egypt's import bill
<i>Subsidy and ration, Pakistan</i>					
Ration books; food distributed through ration shops; quotas vary by supply availability and location	Wheat flour (atta), rationing of sugar; subsidized flour considered inferior, resulting in some self-targeting	Narrow coverage; about one-third of the population, most urban, some rural in food-deficit areas; one shop per 2,000 people, but rural shops open infrequently and do not all provide atta; untargeted	69 percent wheat consumption of low-income groups from ration shops; 9 to 14 percent of caloric consumption of below median-income households: from ration system (1976)	6 to 12 percent (late 1970s); 3 to 6 percent (1980s)	Producer prices too low before 1977, limiting production which improved after 23 percent price rise in 1980; some evidence of padded ration rolls
<i>Subsidy and ration, Kerala State, India</i>					
Ration books; food distributed through ration shops	Rice, wheat, cooking oil, sugar	Broad ration shop coverage in both urban and rural areas; largely untargeted	20 percent of caloric consumption from rationed rice for low-income households; 56 percent of total rice consumption from ration shops, 66 percent for low-income population; rationing has been positively linked to child nutritional status	Central government subsidy equivalent to an average 17 percent of state budget (1973–76)	System of procurement favoring local farmers (varying by farm size) has provided price support and improved equity among Kerala producers

them. Experience also suggests that the commitment of some local resources other than manpower fosters the positive involvement of rural communities in project selection, design, and execution. At the same time, the coordination and administration of programs helps develop the effectiveness of local government. Good financial and technical control of the works is also essential.

Food security, distribution, and subsidies

The 1980 *World Development Report* and the FAO's study of future ag-

ricultural growth prospects, *Agriculture: Toward 2000*, were both completed when the world economy was more buoyant than it is now. Nevertheless, both concluded that neither poverty nor undernutrition could be eliminated in this century, even under the most favorable assumptions about agricultural development and overall economic growth. The benefits of a sound growth strategy will flow too slowly to meet the income needs of many of today's rural poor.

Governments and international agencies have consequently sponsored various efforts to ame-

liorate the harshest effects of poverty, including in particular problems associated with malnutrition and food insecurity. These efforts have mainly involved food aid, though they also include general food subsidies and low-cost rations. Vulnerable families and individuals are also being reached, usually through health programs. Some of these efforts are listed in Table 7.2.

Unfortunately, food subsidies and ration schemes are often very expensive, largely because their coverage is very broad. The poor are helped, but so are others who can afford their own food. Po-

<i>Program and country</i>	<i>Commodities involved</i>	<i>Coverage and targeting</i>	<i>Effect on income, consumption, and nutrition</i>	<i>Budget costs (percentage of budget) or revenue</i>	<i>Comments</i>
<i>Subsidy and ration, Sri Lanka, pre-1979</i>					
Ration books; food distributed through cooperatives	Rice, wheat flour, sugar, milk foods for vulnerable families	Broad ration shop coverage in both urban and rural areas; largely untargeted	About 50 percent of total rice consumption from ration shops; 20 percent of caloric consumption and 14 percent of income from rations (1970); very low malnutrition and child mortality for Sri Lanka's per capita income level	15 to 24 percent (1970s)	Need to distribute rice under ration led to effective system of government procurement, with some benefit to farmers
<i>Coupon system, Sri Lanka after 1979</i>					
Coupons issued on basis of family size and age to all with income of less than Rs300	Choice of 9 major food commodities, rice most important; or coupons can be deposited as savings; kerosene stamps can be used for food purchases	Covers roughly lower-income half of population, urban and rural; well targeted; studies estimate about 10 percent of needy group not covered; about 30 percent covered not needy	30 percent of total rice consumption from ration shops; the 1979-81 calorie and income impact similar to that before 1979; after 1981, evidence of some deterioration in nutrition when coupon value was halved because of inflation	11 to 14 percent (1980-81)	Shift to coupon system coincided with move to full-cost producer pricing, which further increased benefits to farmers; efforts made to target other welfare and employment programs to needy as identified by means test
<i>Coupon system, Colombia</i>					
Coupons issued to vulnerable women and children; targeting through health system and geographical area	Nutrition-fortified foods: noodles, biscuits, vegetable mixtures, textured protein foods; inclusion of less expensive staples being considered	Covers half of country geographically; well targeted; 200,000 households reached (1980)	Increased maternal weight in pregnancy and increased birth weight	Less than 1 percent (1980)	Local firms contribute resources for production of nutritious foods

litical support for these programs is correspondingly broad, making reductions in their scale or scope extremely difficult. There are other disadvantages as well. With price regulation favoring consumers, farmers' incentives are depressed. As a result, the growth of domestic food output is slowed, imports mount, and there is waste. Food crops are so important in most low-income countries that these distortions can have massive macroeconomic consequences. Subsidies, which in some countries amount to as much as 20 percent of the national budget, can dwarf agricultural investment

and even undermine the government's ability to maintain public sector investment as a whole.

Food subsidies can be designed to be relatively cheap, however. Many governments operate tightly structured, targeted programs with entitlements based on means tests or administrative procedures such as health screening. The means test and coupon system introduced in Sri Lanka in 1979 has reduced the number of participants by half and more than halved the costs of the government food ration. Coupon systems, such as those in Sri Lanka and Colombia, can define differ-

ent target groups by using several criteria—income level, special needs (such as pregnancy), or family size and age composition. The administrative costs of targeting can be reduced by using automatic, self-targeting mechanisms. In countries where the poor are concentrated geographically, targeting by location can be cost-effective. Subsidized food is distributed only to certain communities or is restricted to certain types of shops that are not patronized by the relatively well-off.

Targeting by commodity, which involves changing relative prices to encourage consumption of nu-

trititious but unpopular foods, is rarely used, but shows some promise. Sorghum was sold at half the price of wheat and rice in ration shops in Bangladesh in 1979. The poor participants, particularly in rural areas, bought more sorghum, increasing the calories in their diet. The better-off participants in the capital city, however, preferred to pay double the sorghum price in order to have rice or wheat.

Better nutrition has been shown to result from food subsidy and

distribution programs in several countries. China operates the largest food storage and distribution system in the world (see Box 7.4); it has eliminated famine, reduced chronic undernutrition, and lowered its child mortality rate to a level comparable to that of some developed countries. In the Indian state of Kerala, and in Sri Lanka, rations are available for both the urban and the rural poor, a feature unusual among food-subsidy programs; these efforts have raised low-income partici-

pants' caloric intakes by 20 percent and their incomes by 15 percent.

Programs for the undernourished can also help deal with periodic fluctuations in local food supplies that might otherwise lead to famine. Small changes in output, earnings, or food distribution and prices can have dramatic effects on individual nutrition and on the local economy as a whole. Towns and cities may be marginally affected by droughts or crop failures; in the countryside, the

Box 7.4 Food security in rural China

China's approach to food security cannot easily be adapted to other settings because some of its features are uniquely Chinese. Most important, food security is built into the collective system, which ensures that production teams, brigades, and other local groups give their members first access to basic necessities. In practice, therefore, although the state ultimately guarantees food security, its direct intervention is minimal.

Within a community, basic necessities are assured mainly through the annual appropriation of collective income. Everybody receives a basic ration, even those who have earned a below-average number of "work points." But there is a communal obligation to work: even the elderly usually find some light work to claim a share of the community income. (In practice, provision for the elderly in rural China also seems to rely heavily on the age-old tradition which holds children responsible for the care and support of their parents.) Households in temporary misfortune—for example, because of illness—go into debt to their collective (or, in some instances, buy necessities from it using income from household activities). All collectives are obliged to maintain grain reserves at the brigade and commune levels. Many communes also hold reserves on behalf of the state food agency or for livestock feed, and the total is usually enough to offset a bad harvest.

These arrangements enable the na-

tional Food Ministry to act as a residual supplier and to deal with deficit communities as units, rather than with individual members and households. The administrative savings are probably sizable. The ministry also has an overall responsibility for state procurement, processing, storage, and distribution of some 50 million tons of grain every year. These responsibilities are carried out through a nationwide network of local facilities (grain management stations) by a total staff—excluding seasonal workers—of over 2 million.

In a normal year, most collectives are required to sell grain to the Food Ministry, or pay taxes on their production. If the harvest is poor, procurement quotas and taxes may be waived or reduced; in 1979–80 the Food Ministry reported tax remittances of 2.4 million tons.

If communities are still short of food, the ministry gets involved directly. Its relief operations are triggered when it appears that, with grain reserves and income from other crop surplus taken into account, the community will not be able to sustain a distribution of at least 150 kilograms per person a year (200 kilograms per person in rice-producing areas) with the grain measured in unprocessed form.

Technically, communities usually borrow to obtain relief grain when they cannot afford to buy it. Some of the poorest areas of China need relief grain most years, however, and their accumulated

debt far exceeds current income. Ultimately, need rather than ability to pay (or to repay) is the determining factor.

In addition to chronic problems in the low-income, food-deficit areas, disasters occasionally plague China. For example, in 1980 the provinces of Hebei and Hubei in eastern China were hit by heavy floods in some areas and persistent drought in others. Crop losses were close to 20 percent at provincial levels, with much higher rates in some areas. These disasters prompted China's first request to the UN Disaster Relief Organization for emergency aid.

No data have yet been released on the total number of people benefiting under the Food Ministry relief programs. But in 1979 about 12 percent of the production teams reportedly distributed less than 150 kilograms of grain per person; a further 10 percent reported distribution of 150 to 180 kilograms per person. Most of the recipients, perhaps 150 million people, would probably qualify for relief by Food Ministry criteria. The Food Ministry reported distribution of about 3 million tons of relief grain in 1979–80. If relief per person averaged 25 kilograms, these data would imply well over 100 million beneficiaries. This large number of beneficiaries, juxtaposed with the spartan supplement (the ration supplies about 1,400 calories a day), serves to underscore the point that China today is still a low-income country with a great deal of rural poverty.

effects can multiply quickly. As rural purchasing power declines, limited food supplies are absorbed by areas with higher purchasing power. Food insecurity is more a function of inadequate and uncertain income than of food availability (see Box 7.5). Wars accentuate the problem by disrupting crop schedules, destroying assets, and creating transport and communications bottlenecks.

Governments and international relief agencies deal with famines by distributing food directly. Their recent efforts have generally been effective and reduced the incidence of famines. When famines do occur, they result as much from failure to acknowledge and respond to the situation quickly as from program inadequacies. Any famine is unacceptable, however, and capacity to deal with it before its effects become catastrophic is of paramount importance. This requires:

- An effective early-warning system, together with early acknowledgment and response.
- Mechanisms for emergency procurement, whether through imports, food aid, or priority purchases of domestic supplies from prosperous areas within the country.
- Effective transport networks and distribution channels in the countryside.

Despite the need, many low-income countries lack both logistical and managerial capacity, and do not have the food supplies necessary for effective emergency relief. International support—from private voluntary agencies and official organizations, such as the World Food Program—has attempted to complement national efforts. Given the difficult conditions under which they must operate, international efforts have generally been quite successful. Their efficiency could be en-

Box 7.5 Famine comes from income insecurity

Who are the victims of famines? Rarely, it would appear from a study done for the International Labour Organisation, does famine result simply from a reduction in food production and affect all people in the area uniformly. In 1943 in Bengal, in 1974 in Bangladesh, in 1973 in Ethiopia those who suffered most from famine were the landless—casual laborers employed in agriculture or providing unskilled or semi-skilled services—and pastoralists who had to trade their emaciated beasts for expensive food grain. In short, the vulnerable were those whose “exchange entitlements” were removed or massively devalued by the events preceding the famine.

It was not a decline in food availability itself that caused the famines. In Bengal in 1943 the food supply was lower than in many years but higher than in 1942 and well within a normal range of fluctuations. In Bangladesh per capita food availability was, if anything, higher in 1974 than in earlier years. In Ethiopia, on the other hand, a drought sharply decreased food supplies in a localized but by no means inaccessible area.

The mechanisms that caused marginal

groups to suffer varied. In Bengal a wartime inflation debased the real value of their already low wages, which bought much less food than before. In Ethiopia, low yields caused farmers to dismiss farm servants, not hire laborers, and reduce their demand for other services. Food prices did not rise, but the poor, losing their employment, lost their source of earnings (entitlement) to buy food. Similar problems plagued the Sahel region in the early 1970s. Pastoralists saw their herds diminish while animal prices fell, and more had to be marketed in exchange for food grains. In Bangladesh a long period of flooding similarly reduced employment opportunities. Simultaneously, food prices rose and thousands starved.

Famines are therefore compatible with adequate food supplies within a country or within large regions. In Ethiopia the national supply of food did not decrease. But major groups of the poor, especially the landless, were extremely vulnerable to a sudden reduction in their earnings. In such cases, and particularly if prices rise suddenly, these are the people who starve.

hanced by building up a better response capability within developing countries themselves. Donors are beginning to offer aid for more permanent food-security systems, including improvement of ports and storage facilities and technical assistance for more efficient import procurement. Such improvements should help reduce avoidable undernutrition in future emergencies.

Most rural poverty and food security programs are relatively new and reflect the rising concern with poverty in the 1970s. To deal with the problems, existing institutions and their programs have had to be modified; in some instances new ones have had to be created. Although the programs are trying to tackle much the same problem of rural poverty, the solutions

which have been adopted have been very diverse. There is no generally applicable blueprint. But experience shows that the ability to learn from mistakes and to make appropriate adjustments are what distinguish successful programs from the rest.

Learning from mistakes includes, above all, reaching a greater understanding of the problems of the poor. This means that programs should be designed and executed so as to encourage the fullest participation of local people. Local people best know their own needs and how they can be met. Cost-effective, sustainable programs that reach large numbers succeed by giving full rein to the considerable energies and dynamism of the poor.

8 Conclusions

Continuing progress in agriculture is of vital importance to the developing world for several reasons:

- Close to two-thirds of the population draws its livelihood from agriculture as farmers and farm workers. These groups include the vast majority of the world's poorest people.

- Driven by population and income growth, the demand for food in the developing economies is likely to increase by at least a third over the next decade. If more rapid progress is made in raising the incomes of lower-income groups and in low-income economies, the increase could be much sharper.

- Agricultural exports accounted for 30 percent of the developing countries' total merchandise export earnings in the late 1970s. Agricultural exports are still the main category of exports for over two-thirds of these countries. Export earnings finance imports needed for faster growth, and good export performance enhances access to international capital markets.

- Finally, structural interdependence and complementarity between agriculture and other sectors suggest that weak performance in agriculture will be accompanied by weak growth elsewhere in the economy. This is most important in the low-income, predominantly rural

economies, but the evidence reviewed in Chapter 5 suggests the linkages are strong over a wide range of country conditions. Among the more vivid demonstrations is the experience of most sub-Saharan African countries in the 1970s, where poor agricultural performance contributed heavily to economy-wide deterioration.

There has been impressive progress in agriculture in developing countries over the past three decades. It has been supported by major research efforts applied to food crops in the developing world. The results of this research have already moved from laboratories and experimental plots to millions of farms in dozens of countries. New seeds, combined with irrigation water and fertilizer, have boosted yields and production of staple foods. Dubbed the Green Revolution, this progress is already widely known. It has transformed the lives and prospects of millions, and spurred new research.

For all its achievements, the Green Revolution has not yet occurred in many parts of the world. Agricultural growth has varied widely among the main regions of the developing world, among individual countries within each region, and among areas within each country. In some it has been spectacular, in others non-

existent. When the results are added up they leave no room for complacency, particularly when they are set alongside the rise in population: while agricultural output grew at just under 3 percent a year in the 1960s and 1970s, it barely kept ahead of population growth. Output per capita increased at only 0.4 percent a year. That average conceals sharp differences, because growth ranged from 1.4 percent a year in Southeast Asia and 0.6 percent a year in Latin America to little or nothing in the low-income countries. In South Asia as a whole, the growth of agricultural output just kept pace with population; in Africa, output per capita grew at 0.2 percent a year during the 1960s, but actually declined by 1.4 percent a year in the 1970s.

Agriculture and economic growth

In the middle-income countries the structural transformation from an agrarian to an industrial economy is well advanced. Agricultural progress is helping, and being helped by, growth in the rest of the economy. More and more of these countries are about to reach an important milestone—the beginning of decline in their agricultural labor force, which will usher in the prospect of more rapid increase in the productivity

and incomes of their farmers. In the low-income countries, agriculture is an even bigger influence on overall economic growth, because it accounts for a much larger share of GNP. In these countries, a major challenge for the international community and national governments alike is to achieve agricultural growth rates higher than those of the population. This holds out the best hope for both reducing poverty and increasing overall economic growth.

For many years, the causes of agricultural growth were controversial and little understood. That is no longer so. Evidence and experience now support certain key propositions about the role of governments and of farmers themselves in encouraging this growth. Starting with farmers, it can confidently be said that:

- All farmers—small, medium, and large—respond to economic incentives. Far from being “tradition-bound peasants,” farmers have shown that they share a rationality that far outweighs differences in their social and ecological conditions. In largely market-oriented economies such as Brazil and Kenya, as well as in centrally planned economies such as China and Hungary, farmers have responded to economic incentives. In some instances, their response exceeded the expectations of policymakers. Farmers in the irrigated areas of South Asia responded dramatically to the new incentives provided by the Green Revolution. In dryland areas of Nigeria, farmers showed that they were more aware of constraints and opportunities than the project staff who were planning new schemes for them.

- Farmers contribute to agricultural investment. All of them, even those farming only a few acres, save a substantial part of any extra income and invest it on

their farms. They also use their own and their families’ labor to level land, grow trees, dig ditches, and build paddy terraces—activities that create capital to produce more agricultural output in the future. In Pakistan, for example, more water for irrigation comes from privately installed tubewells than from publicly built reservoirs.

- Small farmers can be highly productive. Typically, they produce more from each acre than large farmers do, despite the often considerable disadvantages of their limited access to services, markets, and production inputs such as fertilizer. Programs and policies dealing with these problems thus offer substantial economic benefits, as well as increase employment and incomes among the poor.

Given incentives and the means to take advantage of them, therefore, farmers will expand output. That does not mean that governments and other official agencies should confine themselves solely to fixing those incentives. There are several things that farmers cannot do on their own and that therefore require public action:

- Research and technology need to be developed and adapted to local conditions. The lack of technological improvements suitable for African conditions is a main reason for Africa’s poor performance so far.

- Rural development programs have helped overcome obstacles to increased agricultural output and have also benefited the poor. However, rural projects need to minimize their demands on scarce administrative and managerial skills in developing countries. The most effective projects are likely to be simply designed, and to involve local farmers in their conception and execution.

- Major investments in irriga-

tion, transport, and marketing networks are needed.

- Where little agricultural progress has been made, it is sometimes because of an adverse agrarian structure inherited from the past. Northeast Brazil is only one area where landless laborers and small farmers are underemployed, while extensive tracts of land are underutilized on large farms. In several countries, land reform has played a valuable role in raising agricultural output. In all countries, security of tenure is important—without this farmers are reluctant to improve the land and to husband its long-term fertility.

Government intervention in marketing and input supply may be essential at the early stages of development, but it has frequently been counterproductive when allowed to monopolize these functions. Experience suggests that in mixed economies, the private sector can usually be encouraged to take on a major part of these activities, with government primarily exercising a regulatory role.

Policy priorities

The past therefore provides a clear guide for the future: the constraints on agricultural growth do not lie in the behavior of farmers; they are not unwilling to work hard, to adopt profitable innovations, or to invest for the future. Instead, the constraints are to be found in the environment in which farmers operate: the technology available to them, their access to land, the incentives for production and investment, the availability and price of materials such as fertilizer, the provision of irrigation, and possibilities for marketing their output. This section reviews some of the main policy issues in these areas.

Technology

Government-supported agricultural research in the industrial countries began in the middle of the nineteenth century. By contrast, systematic research on food crops in the developing world began only during the past three decades. Apart from China, whose research work was indigenous, developing countries have relied on a mixture of international and local efforts. That will continue to be the case. An appropriate strategy involves strengthening and expanding the present network of international research centers to cover more crops and more ecological conditions. The smallest and poorest countries—those with least capacity to conduct agricultural research—are most dependent on the international research effort. In all developing countries, national research needs to expand considerably. Its emphasis will be on adapting new varieties to local conditions and increasing their immunity to diseases and insects.

Many countries, especially in Africa, still lack effective research institutes on the scale they need. Remedying this will require assistance from both multilateral and bilateral donors. In addition, it is imperative that donor countries expand their support for the Consultative Group for International Agricultural Research (CGIAR). The CGIAR's progress has recently been slowed down by the unwillingness of donors to increase their contributions.

Incentives to producers

It is primarily the responsibility of governments to ensure that the prices of agricultural products and supplies are not distorted in a way that inhibits the growth of output and incomes. This is not to say that agriculture should not be taxed or that its supplies should

be subsidized—quite the contrary. In low-income countries, especially, agriculture provides the main tax base. Farmers must therefore contribute to help finance many government activities—not least the investments in infrastructure and irrigation from which they themselves benefit. For commodities such as tea, coffee, and cocoa—which are produced mainly for export, and for which demand is more sensitive to quality than to price—it makes sound economic sense for governments to impose export taxes.

Thus the issue is not whether to tax agriculture, but how and how much. There are no fixed and simple answers to this question, although experience and research is starting to provide some guidelines on appropriate levels and forms of agricultural taxation. For example, export taxes on tropical beverages have clearly been set too high in a number of African countries, where production has stagnated or even declined, and market shares have been lost to other exporters.

Frequently, it is macroeconomic policies, rather than those that apply narrowly to agriculture, that give rise to inadequate incentives. A common failing is overvalued exchange rates, which reduce the prices that farmers receive for exported crops and, at the same time, make it cheaper to import agricultural products. The exchange rates thus exert pervasive downward pressure on the prices received by farmers. Bringing exchange rates into line with actual conditions in markets is critical for appropriate agricultural pricing.

Though they can influence or determine domestic prices, governments of developing countries have little or no control over international prices. Too often these are set artificially low because of

the extra output produced by subsidized farmers behind protective barriers in industrial countries. Too often, also, prices fluctuate more than would be expected from supply and demand shifts, because an excessive share of market adjustment is forced on the international market by national policies which insulate domestic markets from it. Removing such distortions would increase the incentives to farmers in developing countries. It would also stimulate more rapid overall economic growth, because so many developing countries still depend heavily on agricultural exports.

As to the prices of agricultural inputs, the bulk of experience cautions against subsidies. Subsidized fertilizer prices may well encourage farmers to adopt fertilizer-using cultivation methods more rapidly than they would otherwise, but that is not a sufficient reason for subsidies. New practices that offer high economic returns are rapidly adopted by farmers, even without subsidies. And once instituted, subsidies are politically difficult to lower or remove. Credit also is often subsidized, in some instances at negative real interest rates. Such a policy may stimulate investment in agriculture, but it is all too often of the wrong kind: subsidized interest rates lower the effective cost of capital goods and lead to labor-displacing investments that are not warranted where labor is plentiful and capital scarce. In any case, subsidized credit seldom reaches small farmers, since it is generally preempted by the larger and more influential ones.

Agricultural investment

Continued agricultural progress depends in part on additional public sector investment in agricultural development programs.

Their economic returns are high, though they could still be increased. For example, there is considerable evidence that water is wasted because irrigation schemes are badly designed and poorly managed. These weaknesses were discussed in Chapter 6; putting them right is largely the responsibility of national governments.

New transport facilities that reach down to the village level open new markets to farmers and give them access to modern inputs at lower costs. Improved transport has a direct effect: it increases the farm-gate prices of crops and reduces those of inputs because transport costs are reduced. It also has an indirect effect: more traders visit accessible villages than remote ones; thus the influence of local monopolies is reduced and farmers' prices are improved.

Transport infrastructure can be constructed and maintained in a variety of ways. Some require large infusions of expensive foreign equipment, others utilize abundant local labor. China is noted for its success in mobilizing local labor for creating rural public works, but lesser-known, efficient examples come from such diverse cultures as Indonesia, India, the Republic of Korea, and Sri Lanka.

While many countries have proclaimed agriculture and rural development to be the cornerstone of national development plans, it is striking that most developing countries have allocated

only about 5 to 10 percent of their government budgets to agriculture in recent years. Even sub-Saharan African countries mostly fall in this range, in spite of the importance of agriculture in their economies. In these countries, however, larger expenditures on education have been necessary to make up for the past and to keep pace with the rapid growth in the number of children.

Little analysis has been done of the aggregate economic returns to government expenditures in agriculture. Project experience indicates, however, that returns to agriculture are, by and large, as high as in other sectors. In some countries, indeed, they are substantially higher. It is hard to avoid the conclusion that the relative priorities of the different sectors need to be reconsidered in low-income countries, if their growth in agricultural output is to be improved.

Industrial countries also have a big contribution to make to agricultural investment in developing countries. In real terms, official assistance to agriculture more than doubled from 1973 to 1978, when it reached about \$10.4 billion (in 1979 prices). Since then, it has declined to slightly below \$10 billion in 1979 and 1980. Donor governments are conscious that their public spending options are limited. Aid to their domestic agriculture, however, is typically eight- to tenfold greater than their agricultural development assistance.

Prospects

The coming increase in demand for food has profound implications that go well beyond agriculture itself. Currently only about 8 percent of the food eaten in developing countries, and 9 percent of all agricultural products available in those countries, is supplied by imports. Few countries could see these ratios increase rapidly without encountering severe balance of payments problems. To meet the growth in demand for food, they will need to supply the bulk of it themselves.

Whether they can meet this challenge is a critical question for the future of hundreds of millions of people. If the past is any guide, policy improvements could achieve dramatic results. The rise in agricultural output over the past two decades has confounded the predictions of widespread famine which were common in the 1950s and 1960s. It has also disproved the Malthusian notion that agricultural growth is subject to iron laws beyond the control of people. If agricultural technologies can be improved, additional resources mobilized, and appropriate policies adopted in industrial and developing countries, then faster agricultural growth will be achieved. Economic development, particularly of the poorer countries, will speed up. And poverty will be reduced.

Bibliographical note

This Report has drawn on a wide range of World Bank work as well as on external research. Selected sources used in each chapter are briefly noted below, and then listed alphabetically by author. The World Bank sources include sector policy papers, ongoing economic analysis and research, and project sector and economic work on individual countries. In addition, a set of background papers is commissioned for each Report; their primary purpose is to synthesize the relevant literature and Bank work. (Thus the sources cited in these papers are not listed separately.) Many of the background papers are issued as World Bank Staff Working Papers, which are available from the Bank's Publications Unit. The views they express are not, however, necessarily those of the World Bank or of this Report.

Selected sources, by chapter

Chapters 2, 3, and 4

These chapters reflect in large part an updating of the extensive discussion of the international economy of last year's *World Development Report*. Thus, many of the references cited there are also relevant for this year's analysis. Chapters 2 and 3 draw heavily on the Bank's data files and on published statistics from other official

agencies including the IMF, OECD, GATT, and United Nations organizations. Work on the transitional state of the world economy by Hardy and Kharas complements the detailed analysis in last year's Report. The international product comparisons by Kravis, Heston, and Summers are used in the analysis of the changing pattern of global economic activity. Work done for the 1980 *World Development Report* is the basis for the discussion of human resource development and long-term growth. Prospects for the 1980s build on component analyses by Swamy (remittances), Frank, Havrylyshyn, and Hughes and Waelbroeck (trade) and on modeling work following Cheetham and others and Waelbroeck and associates.

Chapter 5

The analysis of recent agricultural growth is based on country food and agricultural production data provided by the Food and Agriculture Organization of the UN (FAO)—*FAO Production Yearbooks, Agriculture: Toward 2000*, and background data developed for these studies—and on World Bank data for total and sectoral GDP growth rates. Tables 5.1 and 6.1 are derived from these sources, with country data arranged to conform to World Bank regional groupings.

The close parallelism between sectoral growth rates in agriculture, industry, and total GDP emerges from an analysis of individual country performance during 1960–80 for all developing countries for which adequate data were available. The analysis of the changing role of agriculture in development—the growth of output, the changing pattern of production and consumption, and the relative decline of the sector in employment and income—is based on country experience during those two decades, earlier development experience (Lewis, Rostow, Kuznets, Bairoch, and Hayami and Ruttan), and studies of structural transformation (Chenery, Clark, Kuznets, and Johnson and Kilby). The development of agricultural trade, particularly the emergence of new markets for developing-country agricultural exports in planned economies and the oil-exporting countries, is based on GATT and FAO trade tapes, World Bank data, and Kharas.

The costs of agricultural support and protection were derived from national sources of the countries and country groups cited; for example, the Commission of the European Communities and US Departments of Agriculture and Commerce. The adjusted nominal protection coefficients in Box 5.3 are derived from

World Bank studies of nominal protection coefficients, adjusted by the World Bank's estimated equilibrium exchange rate for each country.

Chapter 6

The World Bank has financed some 800 agricultural and rural development projects in 70 countries. The discussion in Chapter 6 represents a synthesis of the Bank's extensive development experience. Although most of the background material is unpublished, the Bank's Sector Policy Papers dealing with agriculture and rural development and the Proceedings from the Agricultural Sector Symposia give broad overviews of most of the topics dealt with in the chapter.

The delineation of crop zones is based on work initially carried out by IFPRI for a limited number of countries. The coverage was extended to all developing countries primarily with the use of the FAO's Report on the *Agro-Ecological Zones Project*.

The annual reports of CGIAR and the various international research centers, the World Bank's Policy Paper on Agricultural Research, and the working paper

edited by Carruthers give an up-to-date picture of agricultural research in developing countries.

Barker and others review the evolution of irrigation in Asia, and Bottrall evaluates the performance of selected irrigation projects from all parts of the developing world. Benor and Harrison give an overview of the principles of agricultural extension with special emphasis on the Training and Visit System.

Chapter 7

Like Chapter 6, this chapter derives far more from Bank operational experience than from published research. The enumeration of the world's rural poor builds on the work of the 1980 *World Development Report*, incorporating, for the first time, estimates on Asian centrally planned economies, based mainly on the Bank's economic work in China.

Material on small-farmer strategies and on agrarian reform stems preponderantly from Bank operational experience, supplemented by Bank-sponsored research in Northeast Brazil (Kutcher and Scandizzo) and worldwide (Berry and Cline). Rural public works discussions are drawn from Burki

and others, and the discussion on mobility, from Lipton, Lloyd, Perlman, and Mohan. Important contributions on the landless and rural nonfarm employment were made by Singh, Binswanger, Kifle, Anderson and Leiserson, Chuta and Liedholm, and associated Michigan State University studies. The box on the Maharashtra Employment Guarantee Scheme is based on work by Raj Krishna.

Excellent overviews on nutritional problems and the role of food subsidy programs are found in World Food Council Reports, Reutlinger and Selowsky, Davis, Rogers and others, and Berg. Information on specific subsidy programs is drawn also from numerous economic studies, including those of the Bank, and Scobie; Taylor, Horton, and Raff; Kumar; George; Gavan and Chandrasekara; Isenman (Sri Lanka); Levinson; and Karim and Levinson.

Understanding of causes of famine and local food insecurity draws on Sen, Dando, and Franke. Discussion of programs to alleviate these problems draws on Clay and others, Valdez, Currey, and reports of the World Food Program and FAO.

Selected Sources

- Ahmed, Raisuddin. "Foodgrain Supply, Distribution, and Consumption Policies within a Dual Pricing Mechanism: A Case Study of Bangladesh." IFPRI Research Report no. 8. Washington, D.C., May 1979.
- . "Agricultural Price Policies under Complex Socioeconomic and Natural Constraints: The Case of Bangladesh." IFPRI Research Report no. 27. Washington, D.C., October 1981.
- Anderson, Dennis, and Mark Leiserson. "Rural Nonfarm Employment in the Developing Countries." *Economic Development and Cultural Change*, vol. 28, no. 2. (January 1980), pp. 227-48.
- Bairoch, Paul. *The Economic Development of the Third World since 1900*. Berkeley: University of California Press, 1975.
- Barker, Randolph, and Ronnie Coffman. *Research and Technology Development for Problem Environments of Asia*. World Bank Staff Working Paper.* Forthcoming.
- Barker, Randolph, Gilbert Levine, Walter Coward, and L. É. Small. *Irrigation in South and East Asia*. World Bank Staff Working Paper.* Forthcoming.
- Benor, Daniel, and James Q. Harrison. *Agricultural Extension: The Training and Visit System*. Washington, D.C.: World Bank, 1977.
- Berg, Alan. *Malnourished People: A Policy View*. Poverty and Basic Needs Series. Washington, D.C.: World Bank, June 1981.
- Berry, Robert A., and W. R. Cline. *Agrarian Structure and Productivity in Developing Countries*. Baltimore, Md.: Johns Hopkins University Press, 1978.

- Binswanger, Hans P. *The Economics of Tractors in South Asia: An Analytical Review*. New York: Agricultural Development Council; Hyderabad: ICRISAT, 1978.
- . "The Nonfarm Components of Rural Development." World Bank Staff Working Paper.* Forthcoming.
- Bottrall, Anthony. *Comparative Study of the Management and Organization of Irrigation Projects*. World Bank Staff Working Paper no. 458. Washington, D.C., 1981.
- Burki, Shahid Javed, G. D. Davies, R. H. Hook, and J. W. Thomas. *Public Works Programs in Developing Countries: A Comparative Analysis*. World Bank Staff Working Paper no. 224. Washington, D.C., 1976.
- Burniaux, J. M. "First Experiments with a World Agricultural Model in a General Equilibrium Framework." Discussion Paper 8205. CEME, Free University of Brussels, 1982.
- Carruthers, Ian, ed. *New Directions for Agricultural Research in Developing Countries*. World Bank Staff Working Paper.* Forthcoming.
- Carruthers, Ian, and Roy Stoner. *Economic Aspects and Policy Issues in Groundwater Development*. World Bank Staff Working Paper no. 496. Washington, D.C., 1981.
- Cheetham, Russell J., Syamaprasad Gupta, and Antoine Schwartz. *The Global Framework*. World Bank Staff Working Paper no. 355. Washington, D.C., 1979.
- Chenery, Hollis. *Structural Change and Development Policy*. New York: Oxford University Press, 1979.
- . "Restructuring the World Economy: Round II." *Foreign Affairs*, vol. 59, no. 5 (Summer 1981), pp. 1102–20.
- Chenery, Hollis, and Moises Syrquin. *Patterns of Development, 1950–1970*. London: Oxford University Press, 1975.
- Chuta, Enyinna, and Carl Liedholm. *Rural Nonfarm Employment: A Review of the Art*. Rural Development Paper no. 4. East Lansing: Michigan State University, 1979.
- Clay, Edward, and others. *Food Policy Issues in Low-income Countries*. World Bank Staff Working Paper no. 473. Washington, D.C., 1981.
- Commission of the European Communities. *The Agricultural Situation in the Community 1980 Report*. Brussels-Luxembourg, December 1980.
- Currey, Bruce. "Fourteen Fallacies about Famine." *Ceres*, No. 80, vol. 14, no. 2 (March-April 1981).
- Dando, William A. *The Geography of Famine*. New York: Wiley, 1980.
- Davis, Jeffrey M. "The Fiscal Role of Food Subsidy Programs." *IMF Staff Papers*, vol. 24, no. 1 (March 1977), pp. 100–27.
- Day, Richard H., and Inderjit Singh. *Economic Development as an Adaptive Process: The Green Revolution in the Indian Punjab*. New York: Cambridge University Press, 1977.
- Feder, Gershon. *Adoption of Agricultural Innovations in Developing Countries: A Survey*. World Bank Staff Working Paper no. 444. Washington, D.C., 1981.
- Food and Agriculture Organization (FAO). *Agriculture: Toward 2000*. Rome, 1980.
- . *FAO Monthly Bulletin of Statistics*. Rome, 1960–82.
- . *Production Yearbook*. Rome, 1950–81.
- . *Report on the Agro-Ecological Zones Project*. Vols. 1–4. Rome, 1978–80.
- . *The State of Food and Agriculture*. Rome, 1981.
- Frank, Isaiah. "Trade Policy Issues for the Developing Countries in the 1980s." World Bank Staff Working Paper no. 478. Washington, D.C., 1981.
- Gafsi, Salem. *Green Revolution: The Tunisian Experience*. Mexico City: CIMMYT, 1976.
- Gavan, James D., and Indrani Sri Chandrasekera. "The Impact of Public Foodgrain Distribution on Food Consumption and Welfare in Sri Lanka." IFPRI Research Report no. 13. Washington, D.C., December 1979.
- George, P. S. "Public Distribution of Foodgrains in Kerala—Income Distribution Implications and Effectiveness." IFPRI Research Report no. 7. Washington, D.C., March 1979.
- Gerhart, John. *The Diffusion of Hybrid Maize in Western Kenya*. Mexico City: CIMMYT, 1975.
- Hardy, Chandra, and Homi Kharas. *The World Economy in Transition*. World Bank Staff Working Paper.* Forthcoming.
- Havrylyshyn, Oli, and Martin Wolf. *Trade among Developing Countries: Theory, Policy Issues, and Principal Trends*. World Bank Staff Working Paper no. 479. Washington, D.C., 1981.
- Hughes, Helen, and Jean Waelbroeck. *Trade and Protection in the 1970s: Can the Growth of Developing Countries Continue in the 1980s?* World Bank Staff Working Paper. Forthcoming.
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). *Socioeconomic Constraints to Development of Semi-Arid Tropical Agriculture*. Proceedings of the International Workshop, Hyderabad, India, February 19–23, 1979. Patancheru, A.P., India: ICRISAT, 1980.
- International Food Policy Research Institute (IFPRI). *Investment and Input Requirements for Accelerating Food Production in Low-income Countries by 1990*. Washington, D.C., 1979.
- . *Agricultural Protection in OECD Countries: Its Cost to Less Developed Countries*. Washington, D.C., 1980.
- . *Developed-Country Agricultural Policies and Developing-Country Supplies*. Washington, D.C., 1980.
- International Rice Research Institute (IRRI). *Cropping Systems Research and Development for the Asian Rice Farmer*. Proceedings of a Symposium, September 21–24, 1976. Los Banos, Philippines: IRRI, 1977.
- . *Economic Consequences of the New Rice Technology*. Los Banos, Philippines: IRRI, 1978.

- Ilsenman, Paul. "Basic Needs: The Case of Sri Lanka." *World Development*, vol. 8, no. 3 (March 1980).
- Johnston, Bruce F., and Peter Kilby. *Agriculture and Structural Transformation*. New York: Oxford University Press, 1975.
- Karim, R. M., and F. J. Levinson. "The Bangladesh Sorghum Experiment." *Food Policy*, no. 5 (1980).
- Kharas, Homi. *Agricultural Trade*. World Bank Staff Working Paper.* Forthcoming.
- Kifle, Henok. *Investigations of Mechanized Farming and Its Effect on Peasant Agriculture*. CADU Publication no. 74. Assela, Ethiopia: Chilalo Agricultural Development Unit, 1972.
- Kincaid, G. R. "Inflation and the External Debt of Developing Countries." *Finance and Development*, vol. 18, no. 4 (December 1981), pp. 45–48.
- Kravis, Irving B., Alan Heston, and Robert Summers. *World Product and Income: International Comparisons of Real GDP*. International Comparison Project, Phase III. Baltimore, Md.: Johns Hopkins University Press, 1982.
- Kumar, Shubh. "Impact of Subsidized Rice on Food Consumption and Nutrition in Kerala." IFPRI Research Report no. 5. Washington, D.C., January 1979.
- Kutcher, Gary P., and Pasquale L. Scandizzo. *The Agricultural Economy of Northeast Brazil*. Baltimore, Md.: Johns Hopkins University Press, 1982.
- Kuznets, Simon. *Economic Growth of Nations*. Cambridge, Mass.: Harvard University Press, 1971.
- Levinson, F. James. "Toward Success in Combating Malnutrition: An Assessment of What Works." U.N. ACC-SCN 82/20. New York: United Nations, February 1982.
- Lewis, W. Arthur. *Growth and Fluctuations, 1870–1913*. London: Allen and Unwin, 1978.
- Lipton, Michael. "Rural Development and the Retention of the Rural Population in the Countryside of Developing Countries." Paper prepared for the Twelfth IIDC Conference, Ottawa, October 29, 1981.
- . "Migration from Rural Areas of Poor Countries: The Impact on Rural Productivity and Income Distribution." In Richard H. Sabot, ed. *Migration and the Labor Market in Developing Countries*. Boulder, Colo.: Westview, 1982.
- Lloyd, Peter C. *Slums of Hope?: Shantytowns of the Third World*. New York: St. Martin's, 1979.
- McInerney, John P. *The Technology of Rural Development*. World Bank Staff Working Paper no. 295. Washington, D.C., 1978.
- Mitra, Pradeep K. *An Analysis of Adjustment in Developing Countries*. World Bank Staff Working Paper.* Forthcoming.
- Mohan, Rakesh. *The People of Bogota: Who They Are, What They Earn, Where They Live*. World Bank Staff Working Paper no. 390. Washington, D.C., 1980.
- . *The Determinants of Labor Earnings in Developing Metropoli: Estimates from Bogota and Cali, Colombia*. World Bank Staff Working Paper no. 498. Washington, D.C., 1981.
- Perlman, Janice E. *The Myth of Marginality: Urban Poverty and Politics in Rio de Janeiro*. Berkeley: University of California Press, 1976.
- Reutlinger, Shlomo, and Marcelo Selowsky. *Malnutrition and Poverty: Magnitude and Policy Options*. Baltimore, Md.: Johns Hopkins University Press, 1976.
- Rogers, Beatrice, and others. "Consumer Food Price Subsidies." In *Nutrition Intervention in Developing Countries*. Harvard Institute for International Development. Cambridge, Mass.: Oelgeschlager, Gunn, and Hain, 1981.
- Rostow, W. W. *The World Economy*, Austin, Tex.: University of Texas Press, 1978.
- . *Why the Poor Get Richer and the Rich Slow Down*. Austin, Tex.: University of Texas Press, 1980.
- Scandizzo, Pasquale L., and Judith Graves. "The Alleviation of Malnutrition: Impact and Cost Effectiveness of Official Programs." AGREP Division Working Paper no. 19. Washington, D.C.: World Bank, Agriculture and Rural Development Department, 1981.
- Scobie, Grant. "Government Policy and Food Imports: The Case of Egypt." IFPRI Research Report no. 29. Washington, D.C., December 1981.
- Sen, Amartya. "Ingredients of Famine Analysis: Availability and Entitlements." *Quarterly Journal of Economics*, vol. 96, no. 3 (August 1981).
- . *Poverty and Famine: An Essay on Entitlement and Deprivation*. Oxford: Clarendon Press, 1981.
- Singh, Inderjit. *Small Farmers and the Landless in South Asia*. World Bank publication. Forthcoming.
- Swamy, Gurushri. *International Migrant Workers' Remittances: Issues and Prospects*. World Bank Staff Working Paper no. 481. Washington, D.C., 1981.
- Taylor, Lance, Susan Horton, and Daniel Raff. "Food Subsidy Programs: A Survey." Draft report prepared for the Ford Foundation, December 1980.
- US Department of Agriculture. *Agricultural Statistics*. Washington, D.C., 1960–81.
- US Department of Commerce, Bureau of the Census. *Statistical Abstract of the United States*. Washington, D.C., 1960–81.
- USSR, Central Statistical Bureau. *The National Economy of the USSR*. Moscow, 1958–78.
- Valdez, Alberto, ed. *Food Security for Developing Countries*. Boulder, Colo.: Westview, 1981.
- Von Pischke, J. D., Dale W. Adams, and Gordon Donald, eds. "Use and Abuse of Rural Financial Markets in Low-Income Countries." Washington, D.C.: World Bank, 1981.
- Vyas, V. S. *India's High Yielding Varieties Programme in Wheat, 1966–67 to 1971–72*. Mexico City: CIMMYT, 1975.

- Waelbroeck Jean, J. M. Burniaux, G. Carrin, and J. Gunning. *General Equilibrium Modeling of Global Adjustment*. World Bank Staff Working Paper. Forthcoming.
- Walters, Harry E. *Agricultural Development and Economic Growth*. World Bank Staff Working Paper.* Forthcoming.
- Winkelmann, Donald. *The Adoption of New Maize Technology in Plan Puebla, Mexico*. Mexico City: CIMMYT, 1976.
- World Bank. "Proceedings of the Agricultural Sector Symposium." Washington, D.C., January 1980.
- . "Science and Technology in World Bank Operations." Washington, D.C., September 1980.
- . *World Tables*. Baltimore, Md.: Johns Hopkins University Press, 1980.
- . "Promoting Increased Food Production in the 1980s." Proceedings of the Second Annual Agricultural Sector Symposium, Washington, D.C., January 1981.
- . "Approaches to Increasing Productivity in Agriculture." Proceedings of the Third Annual Agricultural Sector Symposium, Washington, D.C., January 1982.
- World Bank, Economic Analysis and Projections Department. *Development in a Changing Environment*. World Bank Staff Working Paper.* Forthcoming.
- World Food Council. "Toward the Eradication of Hunger: Food Subsidy and Direct Distribution Programs." Report by the Executive Director, WFC/1980/3, February 25, 1980.
- . "Assessment of Selected Food Subsidy and Direct Distribution Programmes." Report by the Executive Director, WFC/1980/2/Add.1, February 1980.

*An asterisk after a citation indicates papers prepared as part of the background work for this Report.

**World
Development
Indicators**

Contents

Key	102
Introduction	103
Maps	104
Table 1. Basic indicators	110
Population □ Area □ GNP per capita □ Inflation □ Adult literacy □ Life expectancy □ Food production per capita	
Table 2. Growth of production	112
GDP □ Agriculture □ Industry □ Manufacturing □ Services	
Table 3. Structure of production	114
GDP □ Agriculture □ Industry □ Manufacturing □ Services	
Table 4. Growth of consumption and investment	116
Public consumption □ Private consumption □ Gross domestic investment	
Table 5. Structure of demand	118
Public consumption □ Private consumption □ Gross domestic investment □ Gross domestic saving □ Exports of goods and nonfactor services □ Resource balance	
Table 6. Industrialization	120
Share of value added in food and agriculture □ in textiles and clothing □ in machinery and transport equipment □ in chemicals □ in other manufacturing □ Value added in manufacturing □ Gross manufacturing output per capita	
Table 7. Commercial energy	122
Growth of energy production □ Growth of energy consumption □ Energy consumption per capita □ Energy imports as percentage of merchandise exports	
Table 8. Growth of merchandise trade	124
Export values □ Import values □ Growth of exports □ Growth of imports □ Terms of trade	
Table 9. Structure of merchandise exports	126
Fuels, minerals, and metals □ Other primary commodities □ Textiles and clothing □ Machinery and transport equipment □ Other manufactures	
Table 10. Structure of merchandise imports	128
Food □ Fuels □ Other primary commodities □ Machinery and transport equipment □ Other manufactures	
Table 11. Origin and destination of merchandise exports	130
Industrial market economies □ Nonmarket industrial economies □ High-income oil exporters □ Developing economies	
Table 12. Origin and destination of manufactured exports	132
To industrial market economies □ To nonmarket industrial economies □ To high-income oil exporters □ To developing economies □ Value of manufactured exports	

Table 13. Balance of payments and debt service ratios	134
Current account balance □ Interest payments on external public debt □ Debt service as percentage of GNP □ as percentage of exports of goods and services	
Table 14. Flow of external capital	136
Gross inflow of public and publicly guaranteed medium- and long-term loans □ Repayment of principal □ Net inflow of public and publicly guaranteed medium- and long-term loans □ Net direct private investment	
Table 15. External public debt and international reserves	138
External public debt outstanding and disbursed □ as percentage of GNP □ Gross international reserves □ in months of import coverage	
Table 16. Official development assistance from OECD and OPEC members	140
Amount in dollars □ as percentage of donor GNP □ in national currencies □ Net bilateral flow to low-income countries	
Table 17. Population growth, past and projected, and hypothetical stationary population	142
Past growth of population □ Projected population □ Hypothetical size of stationary population □ Assumed year of reaching net reproduction rate of 1 □ Year of reaching stationary population	
Table 18. Demographic and fertility-related indicators	144
Crude birth rate □ Crude death rate □ Total fertility rate □ Percentage of married women using contraceptives	
Table 19. Labor force	146
Population of working age □ Labor force in agriculture □ in industry □ in services □ Growth of labor force, past and projected	
Table 20. Urbanization	148
Urban population as percentage of total population □ Growth of urban population □ Percentage in largest city □ in cities of over 500,000 persons □ Number of cities of over 500,000 persons	
Table 21. Indicators related to life expectancy	150
Life expectancy □ Infant mortality rate □ Child death rate	
Table 22. Health-related indicators	152
Population per physician □ per nursing person □ Percentage of population with access to safe water □ Daily calorie supply per capita	
Table 23. Education	154
Number enrolled in primary school as percentage of age group □ in secondary school □ in higher education □ Adult literacy	
Table 24. Defense and social expenditure	156
Defense expenditure as percentage of GNP □ as percentage of central government expenditure □ Per capita central government expenditure on defense □ on education □ on health	
Table 25. Income distribution	158
Percentage share of household income, by percentile groups of households	
Technical notes	161
Bibliography of data sources	172

Key

In each table, countries are listed in their group in ascending order of income per capita. The reference numbers indicating that order are shown in the alphabetical list of countries below.

Figures in the colored bands are summary measures for groups of countries. The letter *w* after a summary measure indicates that it is a weighted average; the letter *m*, that it is a median value; the letter *t*, that it is a total.

. . . Not available.

(.) Less than half the unit shown.

All growth rates are in real terms.

Figures in italics are for years or periods other than those specified.

Afghanistan	10	Hong Kong	92	Peru	59
Albania	58	Hungary	122	Philippines	52
Algeria	79	India	19	Poland	120
Angola	42	Indonesia	38	Portugal	85
Argentina	86	Iran	89	Romania	84
Australia	107	Iraq	90	Rwanda	14
Austria	110	Ireland	101	Saudi Arabia	98
Bangladesh	5	Israel	96	Senegal	41
Belgium	114	Italy	103	Sierra Leone	22
Benin	29	Ivory Coast	63	Singapore	95
Bhutan	3	Jamaica	61	Somalia	8
Bolivia	46	Japan	108	South Africa	83
Brazil	80	Jordan	71	Spain	102
Bulgaria	121	Kampuchea, Democratic	1	Sri Lanka	21
Burma	9	Kenya	35	Sudan	32
Burundi	13	Korea, Democratic Republic of	69	Sweden	117
Cameroon	50	Korea, Republic of	75	Switzerland	119
Canada	109	Kuwait	99	Syrian Arab Republic	70
Central African Republic	26	Lao People's Democratic Republic	2	Tanzania	23
Chad	4	Lebanon	72	Thailand	51
Chile	82	Lesotho	36	Togo	33
China	24	Liberia	43	Trinidad and Tobago	93
Colombia	65	Libya	97	Tunisia	68
Congo, People's Republic of	55	Madagascar	31	Turkey	73
Costa Rica	77	Malawi	17	Uganda	28
Cuba	74	Malaysia	76	Union of Soviet Socialist Republics	123
Czechoslovakia	124	Mali	12	United Arab Emirates	100
Denmark	116	Mauritania	40	United Kingdom	105
Dominican Republic	64	Mexico	81	United States	111
Ecuador	66	Mongolia	57	Upper Volta	15
Egypt, Arab Republic of	47	Morocco	56	Uruguay	88
El Salvador	49	Mozambique	18	Venezuela	91
Ethiopia	6	Nepal	7	Viet Nam, Socialist Republic of	11
Finland	106	Netherlands	112	Yemen Arab Republic	39
France	113	New Zealand	104	Yemen, People's Democratic Republic of	37
German Democratic Republic	125	Nicaragua	53	Yugoslavia	87
Germany, Federal Republic of	118	Niger	30	Zaire	16
Ghana	34	Nigeria	60	Zambia	45
Greece	94	Norway	115	Zimbabwe	48
Guatemala	62	Pakistan	27		
Guinea	25	Panama	78		
Haiti	20	Papua New Guinea	54		
Honduras	44	Paraguay	67		

Introduction

The World Development Indicators provide information on the main features of social and economic development. Over time, the World Bank has developed standard data formats for operational use, and its data bank has become increasingly geared to the provision of statistical input for internal information and decision papers. The broad range of internationally comparable statistical information is intended to be suitable for cross-country analysis.

Most of the data collected by the World Bank are on its developing member countries. Because comparable data for developed market economies are readily available, these are also included in the indicators. Data for non-market economies, few of which are members of the World Bank, are included if available in a comparable form.

Every effort has been made to standardize concepts, definitions, coverage, timing, and the evaluation of the basic data to ensure the greatest possible degree of comparability. Since the publication of the first World Development Indicators in 1978, considerable progress has been made, through the use of more uniform definitions and concepts, toward making the data more internationally comparable. Although the number of indicators included in this edition is greater than in the first edition, it is believed that the quality of the data has been substantially improved.

The indicators in Table 1 give a summary profile of economies. The data in other tables fall into the following broad areas: national accounts, industrialization, energy, external trade, aid flows, demography, labor force, urbanization, social indicators, defense and social expenditure, and income distribution. The information used in computing these indicators was drawn from the data files and publications of the World Bank, the International Monetary Fund, and the United Nations and specialized agencies, supplemented by information from national and other sources. This information reflects the most recent data available in the spring of 1982.

For ease of reference, ratios and rates of growth are shown; absolute values are reported only in a few instances. Most growth rates were calculated for two periods: 1960–70 and 1970–80, or 1970–79 if data for 1980 were not available. All growth rates are in real terms and were computed, unless noted otherwise, by using the least-squares method. Because this method takes all observations in a period into account, the resulting growth rates reflect trends that are not unduly influenced by exceptional values. Table entries in italics indicate that they are for years or periods other than those specified. All dollar figures are US dollars.

Some of the differences between figures shown this year and last year reflect not only updating

but also revisions to historical series. They also reflect revisions to the estimates of population on the basis of new information from recent surveys and the 1980 round of censuses.

The economies included in the World Development Indicators are classified by GNP per capita. This classification is useful in distinguishing economies at different stages of development. Many of the economies included are also classified by dominant characteristics—to distinguish oil importers and exporters and to distinguish market and nonmarket industrial economies. The groups used in the tables are 33 low-income developing economies with a per capita income of \$410 or less in 1980; 63 middle-income developing economies with a per capita income of more than \$410; 4 high-income oil exporters; 19 industrial market economies; and 6 nonmarket industrial economies.

The format of this edition generally follows that used in previous years, but some of the economies have been reclassified to reflect changes in their income levels. Within each group, economies are listed in ascending order of income per capita, and that order is used in all tables. Economies for which 1980 GNP data were not available have been placed on the basis of estimates. The alphabetical list on the opposite page shows the reference number of each economy. Coun-

tries with populations of less than a million are not reported in the tables, largely for lack of comprehensive data. The technical notes for Table 1 show some basic indicators for 34 small countries that are members of the United Nations, the World Bank, or both.

Summary measures—totals, median values, or weighted averages—were calculated for the country groups only if data were adequate and meaningful statistics could be obtained. Because China and India heavily influence the summary measures for all low-income economies, summary

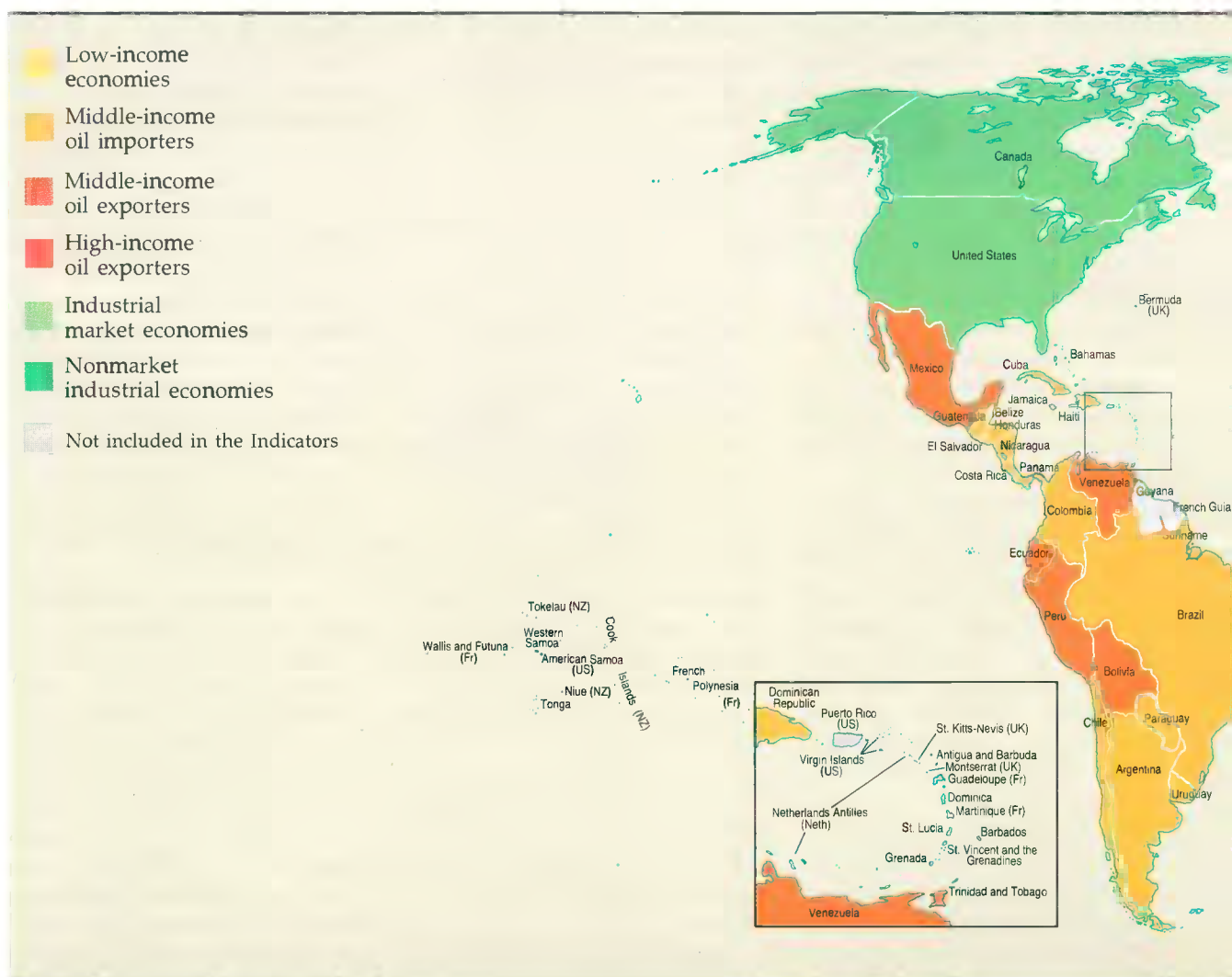
measures are also shown for China and India together and for other low-income economies. And because trade in oil affects the economic characteristics and performance of middle-income economies, summary measures are also shown for oil importers and for oil exporters.

The weights used in computing the summary measures are described in the technical notes. The letter *w* after a summary measure indicates that it is a weighted average; the letter *m*, that it is a median value; the letter *t*, that it is a total. The median is the middle

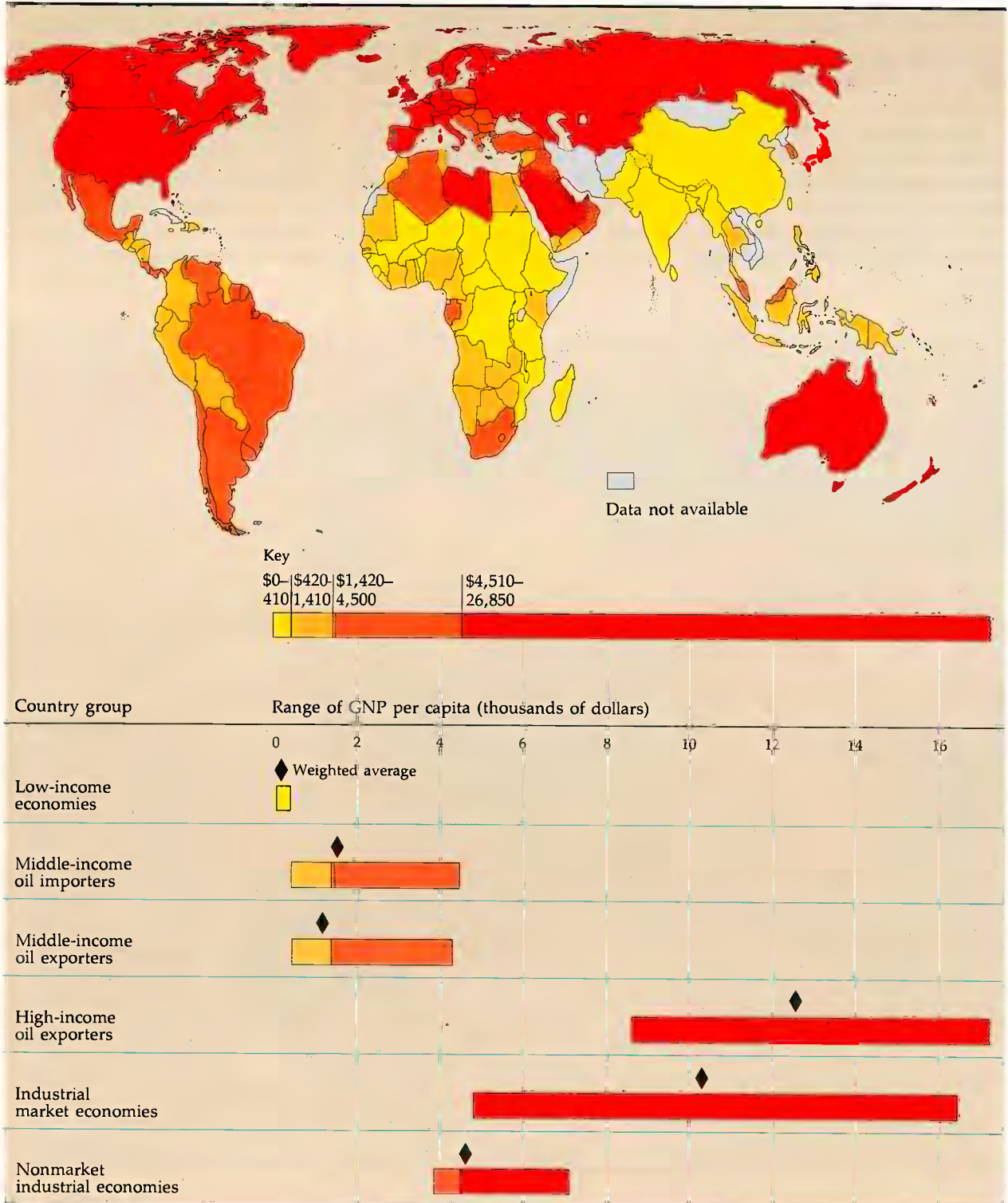
value of a set ranked in order of magnitude. Because the coverage of economies is not uniform for all indicators and because the variation around central tendencies can be large, readers should exercise caution in comparing the summary measures for different indicators, groups, and years or periods.

Readers should also exercise caution in comparing indicators across economies. Although the statistics presented are drawn from sources generally considered the most authoritative and reliable, some of them, particu-

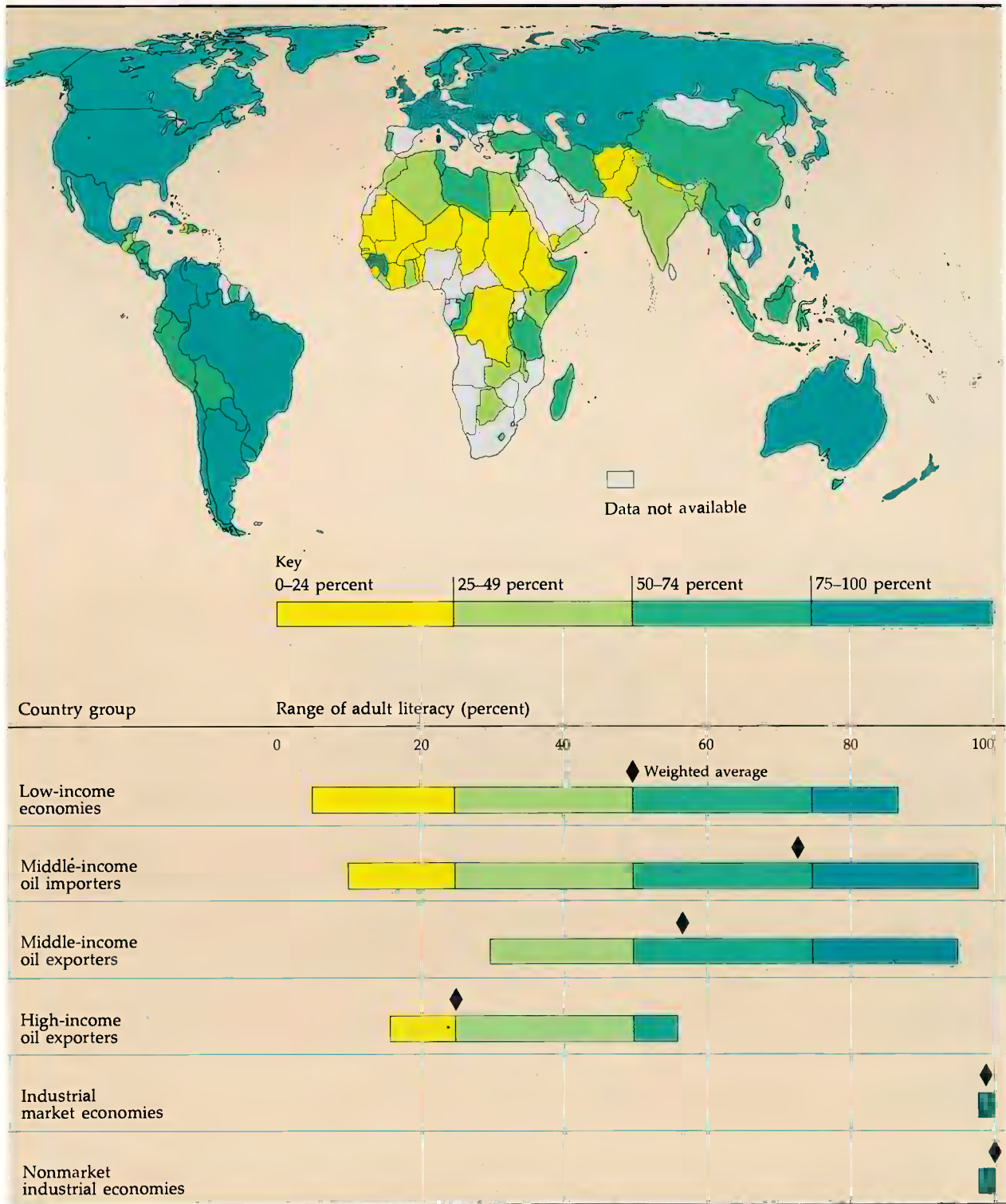
Groups of economies



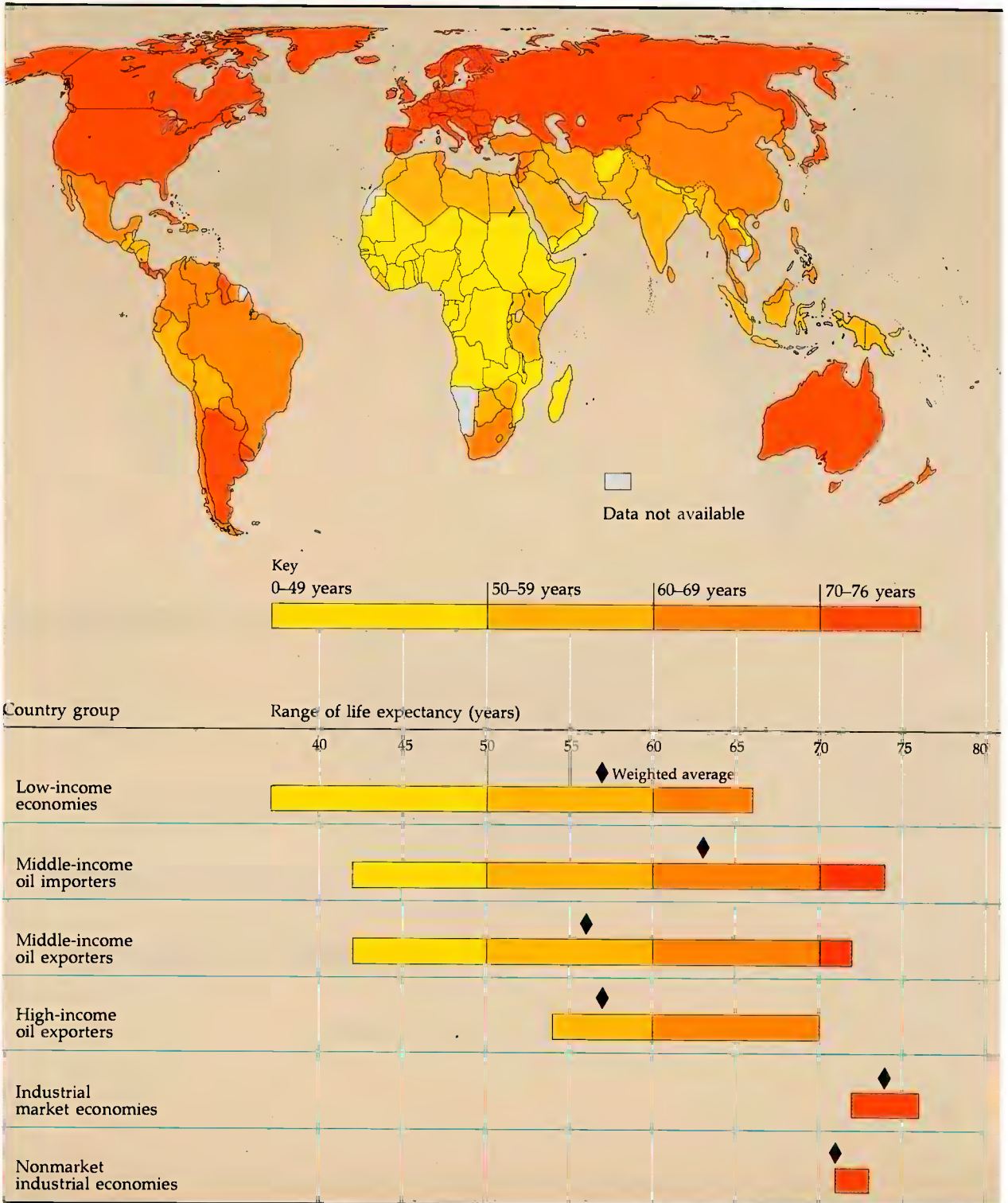
GNP per capita, 1980



Adult literacy, 1977



Life expectancy, 1980



Share of agriculture in GDP, 1980

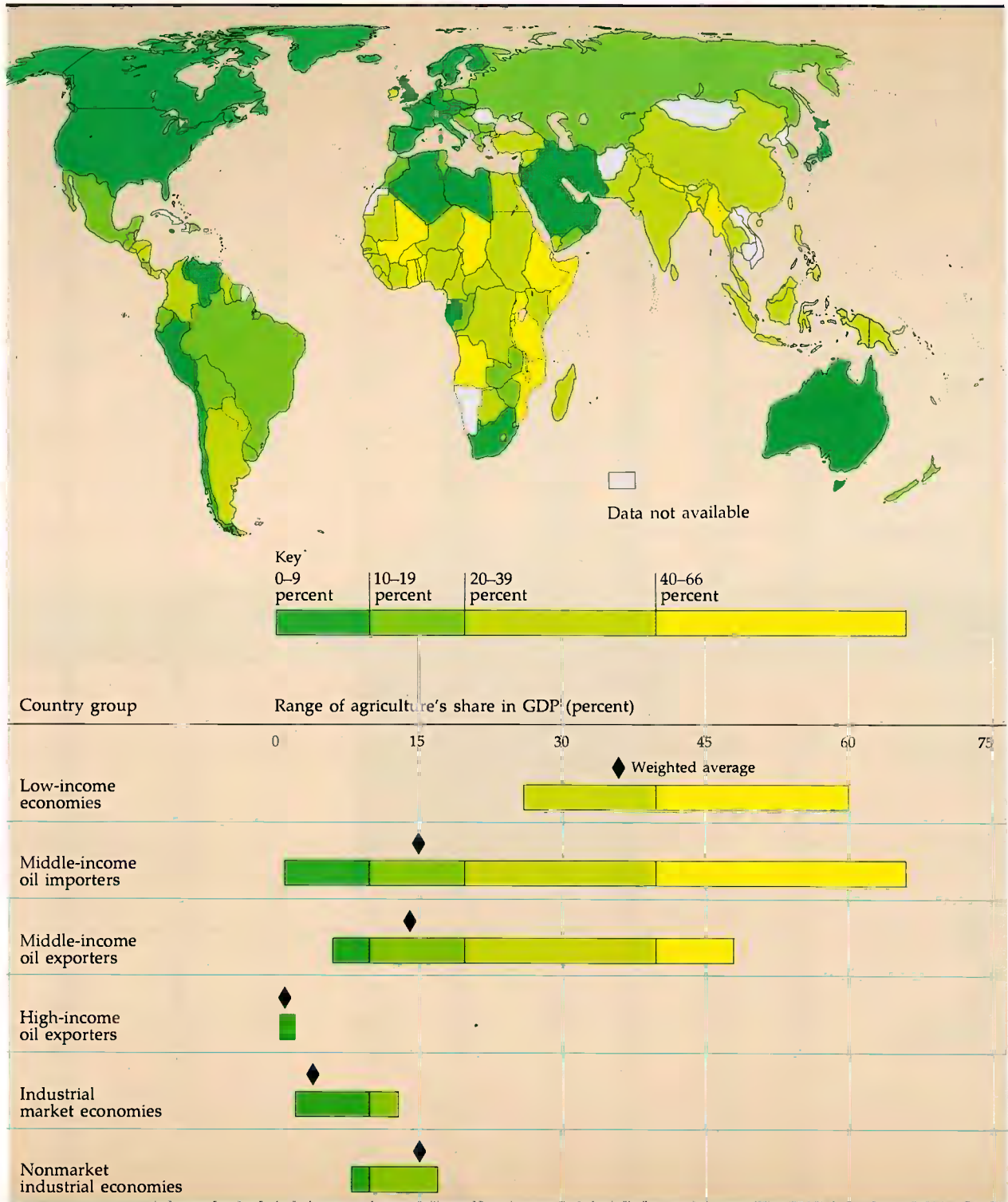


Table 1. Basic indicators

	Population (millions) Mid-1980	Area (thousands of square kilometers)	GNP per capita				Average annual rate of inflation (percent)	Adult literacy (percent) 1977 ^d	Life expectancy at birth (years) 1980	Average index of food production per capita (1969-71 = 100) 1978-80	
			Dollars		Average annual growth (percent)	Average annual rate of inflation (percent)					
			1980	1960-80 ^a	1960-70 ^b	1970-80 ^c					
Low-income economies	2,160.9 <i>t</i>	30,714 <i>t</i>	260 <i>w</i>	1.2 <i>w</i>	3.2 <i>m</i>	11.2 <i>m</i>	50 <i>w</i>	57 <i>w</i>	106 <i>w</i>		
China and India	1,649.9 <i>t</i>	12,819 <i>t</i>	270 <i>w</i>	...	...	...	54 <i>w</i>	59 <i>w</i>	110 <i>w</i>
Other low-income	511.0 <i>t</i>	17,895 <i>t</i>	230 <i>w</i>	1.0 <i>w</i>	3.1 <i>m</i>	11.2 <i>m</i>	34 <i>w</i>	48 <i>w</i>	95 <i>w</i>		
1 Kampuchea, Dem.	6.9	181	...	...	3.8	...	...	...	41
2 Lao PDR	3.4	237	...	...	...	...	41	43	100
3 Bhutan	1.3	47	80	-0.1	...	...	...	44	105
4 Chad	4.5	1,284	120	-1.8	4.6	7.8	15	41	91		
5 Bangladesh	88.5	144	130	(.)	3.7	16.9	26	46	94		
6 Ethiopia	31.1	1,222	140	1.4	2.1	4.2	15	40	83		
7 Nepal	14.6	141	140	0.2	7.7	8.6	19	44	88		
8 Somalia	3.9	638	...	...	4.5	12.4	60	44	84
9 Burma	34.8	677	170	1.2	2.7	11.2	70	54	99		
10 Afghanistan	15.9	648	...	...	11.9	...	12	37	95
11 Viet Nam	54.2	330	...	...	...	...	87	63	107
12 Mali	7.0	1,240	190	1.4	5.0	10.1	9	43	88		
13 Burundi	4.1	28	200	2.5	2.8	11.8	23	42	99		
14 Rwanda	5.2	26	200	1.5	13.1	14.2	50	45	106		
15 Upper Volta	6.1	274	210	0.1	1.3	10.1	5	39	95		
16 Zaire	28.3	2,345	220	0.2	29.9	32.2	58	47	88		
17 Malawi	6.1	118	230	2.9	2.4	9.8	25	44	99		
18 Mozambique	12.1	802	230	-0.1	2.8	11.2	28	47	75		
19 India	673.2	3,288	240	1.4	7.1	8.5	36	52	101		
20 Haiti	5.0	28	270	0.5	4.0	9.4	23	53	92		
21 Sri Lanka	14.7	66	270	2.4	1.8	12.6	85	66	121		
22 Sierra Leone	3.5	72	280	(.)	2.7	11.6	...	47	86		
23 Tanzania	18.7	945	280	1.9	1.8	11.9	66	52	92		
24 China	976.7	9,561	290	...	...	...	66	64	116
25 Guinea	5.4	246	290	0.3	1.5	4.4	20	45	86		
26 Central African Rep.	2.3	623	300	0.9	4.1	9.7	39	44	101		
27 Pakistan	82.2	804	300	2.8	3.3	13.5	24	50	101		
28 Uganda	12.6	236	300	-0.7	3.0	30.4	48	54	89		
29 Benin	3.4	113	310	0.4	1.9	9.1	25	47	99		
30 Niger	5.3	1,267	330	-1.6	2.1	12.2	5	43	93		
31 Madagascar	8.7	587	350	-0.5	3.2	10.3	50	47	95		
32 Sudan	18.7	2,506	410	-0.2	3.7	15.8	20	46	102		
33 Togo	2.5	56	410	3.0	1.3	9.8	18	47	81		
Middle-income economies	1,138.8 <i>t</i>	41,614 <i>t</i>	1,400 <i>w</i>	3.8 <i>w</i>	2.7 <i>m</i>	13.2 <i>m</i>	65 <i>w</i>	60 <i>w</i>	108 <i>w</i>		
Oil exporters	496.8 <i>t</i>	16,135 <i>t</i>	1,160 <i>w</i>	3.3 <i>w</i>	2.6 <i>m</i>	14.4 <i>m</i>	57 <i>w</i>	56 <i>w</i>	101 <i>w</i>		
Oil importers	642.0 <i>t</i>	25,479 <i>t</i>	1,580 <i>w</i>	4.1 <i>w</i>	2.9 <i>m</i>	12.5 <i>m</i>	73 <i>w</i>	63 <i>w</i>	113 <i>w</i>		
34 Ghana	11.7	239	420	-1.0	7.6	34.8	...	49	82		
35 Kenya	15.9	583	420	2.7	1.5	11.0	50	55	86		
36 Lesotho	1.3	30	420	6.1	2.7	11.6	52	51	91		
37 Yemen, PDR	1.9	333	420	12.1	...	...	40	45	103
38 Indonesia	146.6	1,919	430	4.0	...	20.5	62	53	110		
39 Yemen Arab Rep.	7.0	195	430	4.5	...	16.1	21	42	94		
40 Mauritania	1.5	1,031	440	1.6	1.6	9.6	17	43	76		
41 Senegal	5.7	196	450	-0.3	1.7	7.6	10	43	89		
42 Angola	7.1	1,247	470	-2.3	3.3	21.0	...	42	82		
43 Liberia	1.9	111	530	1.5	1.9	9.6	25	54	98		
44 Honduras	3.7	112	560	1.1	2.9	8.9	60	58	82		
45 Zambia	5.8	753	560	0.2	7.6	8.1	44	49	95		
46 Bolivia	5.6	1,099	570	2.1	3.5	22.3	63	50	106		
47 Egypt	39.8	1,001	580	3.4	2.6	11.5	44	57	93		
48 Zimbabwe	7.4	391	630	0.7	1.3	8.8	74	55	97		
49 El Salvador	4.5	21	660	1.6	0.5	11.3	62	63	119		
50 Cameroon	8.4	475	670	2.6	4.2	10.2	...	47	109		
51 Thailand	47.0	514	670	4.7	1.8	9.9	84	63	128		
52 Philippines	49.0	300	690	2.8	5.8	13.2	75	64	114		
53 Nicaragua	2.6	130	740	0.9	1.8	13.1	90	56	95		
54 Papua New Guinea	3.0	462	780	2.8	3.6	8.8	32	51	106		
55 Congo, People's Rep.	1.6	342	900	0.8	5.4	10.9	...	59	79		
56 Morocco	20.2	447	900	2.5	2.0	8.1	28	56	87		
57 Mongolia	1.7	1,565	...	...	...	...	...	64	97
58 Albania	2.7	29	...	...	...	...	...	70	104
59 Peru	17.4	1,285	930	1.1	10.4	30.7	80	58	83		
60 Nigeria	84.7	924	1,010	4.1	2.6	18.2	30	49	87		
61 Jamaica	2.2	11	1,040	0.6	4.0	17.0	90	71	96		
62 Guatemala	7.3	109	1,080	2.8	0.3	10.4	...	59	112		
63 Ivory Coast	8.3	322	1,150	2.5	2.8	13.2	41	47	107		
64 Dominican Rep.	5.4	49	1,160	3.4	2.1	9.0	67	61	94		
65 Colombia	26.7	1,139	1,180	3.0	11.9	22.0	...	63	122		
66 Ecuador	8.0	284	1,270	4.5	...	14.4	81	61	95		

	Popula- tion (millions) Mid-1980	Area (thou- sands of square kilometers)	GNP per capita		Average annual rate of inflation (percent)		Adult literacy (percent) 1977 ^d	Life expectancy at birth (years) 1980	Average index of food production per capita (1969-71 = 100) 1978-80
			Dollars	Average annual growth (percent) 1960-80 ^a	1960-70 ^b	1970-80 ^c			
			1980						
67 Paraguay	3.2	407	1,300	3.2	3.1	12.4	84	65	111
68 Tunisia	6.4	164	1,310	4.8	3.6	7.7	62	60	120
69 Korea, Dem. Rep.	18.3	121	..	..	..	..	..	65	133
70 Syrian Arab Rep.	9.0	185	1,340	3.7	2.6	11.4	58	65	157
71 Jordan	3.2	98	1,420	5.7	..	..	70	61	89
72 Lebanon	2.7	10	..	..	1.4	..	..	66	83
73 Turkey	44.9	781	1,470	3.6	5.6	29.7	60	62	111
74 Cuba	9.7	115	..	..	..	..	96	73	105
75 Korea, Rep. of	38.2	98	1,520	7.0	17.4	19.8	93	65	130
76 Malaysia	13.9	330	1,620	4.3	-0.3	7.5	..	64	116
77 Costa Rica	2.2	51	1,730	3.2	1.9	15.2	90	70	112
78 Panama	1.8	77	1,730	3.3	1.6	7.4	..	70	102
79 Algeria	18.9	2,382	1,870	3.2	2.7	13.3	35	56	80
80 Brazil	118.7	8,512	2,050	5.1	46.1	36.7	76	63	117
81 Mexico	69.8	1,973	2,090	2.6	3.6	19.3	81	65	103
82 Chile	11.1	757	2,150	1.6	33.2	185.6	..	67	93
83 South Africa	29.3	1,221	2,300	2.3	..	12.5	..	61	102
84 Romania	22.2	238	2,340	8.6	-0.2	..	98	71	145
85 Portugal	9.8	92	2,370	5.0	3.0	16.6	..	71	78
86 Argentina	27.7	2,767	2,390	2.2	21.7	130.8	93	70	122
87 Yugoslavia	22.3	256	2,620	5.4	12.6	17.7	85	70	115
88 Uruguay	2.9	176	2,810	1.4	51.1	62.3	94	71	97
89 Iran	38.8	1,648	..	..	-0.5	20.1	50	59	112
90 Iraq	13.1	435	3,020	5.3	1.7	14.1	..	56	90
91 Venezuela	14.9	912	3,630	2.6	1.3	12.1	82	67	102
92 Hong Kong	5.1	1	4,240	6.8	2.4	8.2	90	74	53
93 Trinidad and Tobago	1.2	5	4,370	3.0	3.2	18.5	95	72	85
94 Greece	9.6	132	4,380	5.8	3.2	14.4	..	74	122
95 Singapore	2.4	1	4,430	7.5	1.1	5.1	..	72	147
96 Israel	3.9	21	4,500	3.8	6.2	39.7	..	72	106
High-income oil exporters	14.4 t	4,012 t	12,630 w	6.3 w	..	18.4 m	25 w	57 w	..
97 Libya	3.0	1,760	8,640	5.2	5.2	18.4	..	56	139
98 Saudi Arabia	9.0	2,150	11,260	8.1	..	24.3	16	54	69
99 Kuwait	1.4	18	19,830	-1.1	..	18.4	60	70	..
100 United Arab Emirates	1.0	84	26,850	4.3	..	..	56	63	..
Industrial market economies	714.4 t	30,935 t	10,320 w	3.6 w	4.3 m	9.7 m	99 w	74 w	111 w
101 Ireland	3.3	70	4,880	3.1	5.2	14.5	98	73	124
102 Spain	37.4	505	5,400	4.5	8.2	15.9	..	73	127
103 Italy	56.9	301	6,480	3.6	4.4	15.3	98	73	111
104 New Zealand	3.3	269	7,090	1.8	3.3	12.5	99	73	105
105 United Kingdom	55.9	245	7,920	2.2	4.1	14.4	99	73	118
106 Finland	4.9	337	9,720	4.0	5.6	12.3	100	73	105
107 Australia	14.5	7,687	9,820	2.7	3.1	11.5	100	74	123
108 Japan	116.8	372	9,890	7.1	4.9	7.5	99	76	93
109 Canada	23.9	9,976	10,130	3.3	3.1	9.3	99	74	109
110 Austria	7.5	84	10,230	4.1	3.7	6.3	99	72	110
111 United States	227.7	9,363	11,360	2.3	2.8	7.1	99	74	115
112 Netherlands	14.1	41	11,470	3.2	5.4	8.4	99	75	127
113 France	53.5	547	11,730	3.9	4.2	9.7	99	74	115
114 Belgium	9.8	31	12,180	3.8	3.6	7.6	99	73	107
115 Norway	4.1	324	12,650	3.5	4.3	8.4	99	75	114
116 Denmark	5.1	43	12,950	3.3	5.5	9.7	99	75	110
117 Sweden	8.3	450	13,520	2.3	4.4	10.2	99	75	116
118 Germany, Fed. Rep.	60.9	249	13,590	3.3	3.2	5.1	99	73	110
119 Switzerland	6.5	41	16,440	1.9	4.4	5.0	99	75	115
Nonmarket industrial economies*	353.3 t	23,155 t	4,640 w	4.2 w	..	..	100 w	71 w	109 w
120 Poland	35.8	313	3,900	5.3	..	..	98	72	102
121 Bulgaria	9.0	111	4,150	5.6	..	..	..	73	114
122 Hungary	10.8	93	4,180	4.5	..	..	99	71	130
123 USSR	265.5	22,402	4,550	4.0	..	..	100	71	108
124 Czechoslovakia	15.3	128	5,820	4.0	..	..	..	71	115
125 German Dem. Rep.	16.9	108	7,180	4.7	..	..	..	72	126

a. Because data for the early 1960s are not available, figures in italics are for periods other than that specified. b. Figures in italics are for 1961-70, not 1960-70. c. Figures in italics are for 1970-79, not 1970-80. d. Figures in italics are for years other than that specified. See the technical notes. e. See the technical notes.

Table 2. Growth of production

	Average annual growth rate (percent)									
	GDP		Agriculture		Industry		Manufacturing		Services	
	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b
Low-income economies	4.4 <i>w</i>	4.6 <i>w</i>	2.2 <i>m</i>	2.2 <i>m</i>	7.0 <i>m</i>	3.6 <i>m</i>	6.3 <i>m</i>	3.7 <i>m</i>	4.2 <i>m</i>	4.5 <i>m</i>
China and India	4.5 <i>w</i>	4.9 <i>w</i>	1.8 <i>m</i>	2.6 <i>m</i>	8.3 <i>m</i>	6.6 <i>m</i>	...	...	3.9 <i>m</i>	4.5 <i>m</i>
Other low-income	4.4 <i>w</i>	3.5 <i>w</i>	2.5 <i>m</i>	2.2 <i>m</i>	7.0 <i>m</i>	3.2 <i>m</i>	6.5 <i>m</i>	3.6 <i>m</i>	4.2 <i>m</i>	4.5 <i>m</i>
1 Kampuchea, Dem.	3.1	..	..	..	..	..	..	..	..	..
2 Lao PDR	..	..	..	..	..	..	..	..	..	..
3 Bhutan	..	..	..	..	..	..	..	..	..	..
4 Chad	0.5	-0.2	..	-0.3	..	1.1	..	0.8	..	-0.8
5 Bangladesh	3.7	3.9	2.7	2.2	8.0	9.5	6.6	11.8	4.2	4.9
6 Ethiopia	4.4	2.0	2.2	0.7	7.4	1.4	8.0	2.4	7.8	4.2
7 Nepal	2.5	2.5	..	0.5	..	..	..	..	..	..
8 Somalia	1.0	3.4	-0.6	3.0	3.4	-2.6	4.0	-3.8	4.2	6.9
9 Burma	2.7	4.6	4.1	4.3	3.1	5.2	3.7	4.4	1.5	4.7
10 Afghanistan	2.0	4.5	..	..	..	..	..	..	..	..
11 Viet Nam	..	..	..	..	..	..	..	..	..	..
12 Mali	3.3	4.9	..	4.4	..	3.0	..	..	..	6.0
13 Burundi	4.4	2.8	..	1.8	..	7.8	..	5.3	..	3.0
14 Rwanda	2.7	4.1	..	..	..	..	..	..	..	..
15 Upper Volta	3.0	3.5	..	1.2	..	3.2	..	3.7	..	5.7
16 Zaire	3.4	0.1	..	1.2	..	-1.1	..	-1.5	..	0.7
17 Malawi	4.9	6.3	..	4.1	..	7.0	..	6.7	..	9.1
18 Mozambique	4.6	-2.9	2.1	-1.8	9.5	-5.6	6.6	-5.8	6.4	-3.0
19 India	3.4	3.6	1.9	1.9	5.4	4.5	4.7	5.0	4.6	5.2
20 Haiti	-0.2	4.0	-0.6	2.2	0.1	8.3	-0.1	7.1	0.4	3.7
21 Sri Lanka	4.6	4.1	3.0	2.8	6.6	4.0	6.3	1.9	4.6	4.8
22 Sierra Leone	4.3	1.6	..	2.2	..	-3.8	..	3.8	..	4.2
23 Tanzania	6.0	4.9	..	4.9	..	1.9	..	3.6	..	5.9
24 China	5.2	5.8	1.6	3.2	11.2	8.7	..	..	3.1	3.7
25 Guinea	3.5	3.3	..	..	..	..	..	..	..	..
26 Central African Rep.	1.9	3.0	0.8	2.3	5.4	5.1	..	..	1.8	3.0
27 Pakistan	6.7	4.7	4.9	2.3	10.0	5.2	9.4	4.0	7.0	6.2
28 Uganda	5.6	-1.7	..	-0.9	..	-9.6	..	-9.1	..	-0.8
29 Benin	2.6	3.3	..	..	..	..	..	..	..	..
30 Niger	2.9	2.7	3.3	-3.7	13.9	11.3	..	..	(.)	6.9
31 Madagascar	2.9	0.3	..	0.1	..	1.0	..	..	..	0.1
32 Sudan	1.3	4.4	..	2.6	..	3.1	..	1.3	..	6.4
33 Togo	8.5	3.4	..	0.8	..	6.6	..	..	..	3.9
Middle-income economies	5.9 <i>w</i>	5.6 <i>w</i>	3.5 <i>m</i>	2.9 <i>m</i>	7.4 <i>m</i>	6.6 <i>m</i>	6.8 <i>m</i>	6.4 <i>m</i>	5.4 <i>m</i>	5.9 <i>m</i>
Oil exporters	6.2 <i>w</i>	5.5 <i>w</i>	3.0 <i>m</i>	2.9 <i>m</i>	6.2 <i>m</i>	7.4 <i>m</i>	6.8 <i>m</i>	8.0 <i>m</i>	5.1 <i>m</i>	7.2 <i>m</i>
Oil importers	5.8 <i>w</i>	5.6 <i>w</i>	3.5 <i>m</i>	2.8 <i>m</i>	7.8 <i>m</i>	6.6 <i>m</i>	7.5 <i>m</i>	6.2 <i>m</i>	5.7 <i>m</i>	5.7 <i>m</i>
34 Ghana	2.1	-0.1	..	-1.2	..	-1.2	..	-2.9	..	1.0
35 Kenya	6.0	6.5	..	5.4	..	10.2	..	11.4	..	5.8
36 Lesotho	5.2	7.9	..	2.9	..	8.2	..	9.0	..	10.4
37 Yemen, PDR	..	..	..	..	..	..	..	..	..	..
38 Indonesia	3.9	7.6	2.7	3.8	5.2	11.1	3.3	12.8	4.8	9.2
39 Yemen Arab Rep.	..	9.2	..	3.7	..	14.7	..	12.2	..	12.5
40 Mauritania	..	1.7	..	-1.1	..	(.)	..	0.2	..	6.8
41 Senegal	2.5	2.5	2.9	3.7	4.4	3.7	6.2	3.8	1.7	1.5
42 Angola	4.8	-9.2	4.0	-10.2	11.0	-3.9	7.2	-12.0	4.2	-10.9
43 Liberia	5.1	1.7	..	4.7	..	-0.2	..	8.0	..	1.9
44 Honduras	5.3	3.6	5.7	1.5	5.4	4.9	4.5	5.4	4.8	4.5
45 Zambia	5.0	0.7	..	1.8	..	0.1	..	0.4	..	1.2
46 Bolivia	5.2	4.8	3.0	3.1	6.2	4.3	5.4	6.0	5.4	5.7
47 Egypt	4.3	7.4	2.9	2.7	5.4	6.8	4.8	8.0	4.7	11.0
48 Zimbabwe	4.3	1.6	..	-0.5	..	1.8	..	2.8	..	2.1
49 El Salvador	5.9	4.1	3.0	2.8	8.5	5.0	8.8	4.1	6.5	4.3
50 Cameroon	3.7	5.6	..	3.8	..	8.6	..	5.2	..	5.7
51 Thailand	8.4	7.2	5.6	4.7	11.9	10.0	11.4	10.6	9.1	7.3
52 Philippines	5.1	6.3	4.3	4.9	6.0	8.7	6.7	7.2	5.2	5.4
53 Nicaragua	7.3	0.9	7.8	3.1	10.4	2.2	11.4	2.9	5.8	-0.9
54 Papua New Guinea	6.5	2.3	..	..	..	..	..	..	..	..
55 Congo, People's Rep.	2.7	3.1	1.0	1.7	7.0	4.0	6.8	..	2.1	3.1
56 Morocco	4.4	5.6	4.7	0.8	4.2	6.6	4.2	5.8	4.4	6.6
57 Mongolia	..	..	..	..	..	..	..	..	..	..
58 Albania	..	..	..	..	..	..	..	..	..	..
59 Peru	4.9	3.0	3.7	(.)	5.0	3.7	5.7	3.2	5.3	3.5
60 Nigeria	3.1	6.5	-0.4	0.8	12.0	8.1	9.1	12.0	4.9	9.7
61 Jamaica	4.4	-1.1	1.5	0.7	4.8	-3.5	5.7	-2.2	4.7	0.1
62 Guatemala	5.6	5.7	4.3	4.6	7.8	7.6	8.2	6.2	5.5	5.6
63 Ivory Coast	8.0	6.7	4.2	3.4	11.5	10.5	11.6	7.2	9.7	7.0
64 Dominican Rep.	4.5	6.6	2.1	3.1	6.0	8.3	5.0	6.4	5.0	7.0
65 Colombia	5.1	5.9	3.5	4.9	6.0	4.9	5.7	6.3	5.7	7.0
66 Ecuador	..	8.8	..	2.4	..	12.1	..	9.8	..	9.4

Average annual growth rate (percent)

	GDP		Agriculture		Industry		Manufacturing		Services	
	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b
	67 Paraguay	4.2	8.6	..	6.9	..	10.6	..	7.9	..	8.9
68 Tunisia	4.7	7.5	2.0	4.9	8.2	9.0	7.8	11.2	4.5	7.8
69 Korea, Dem. Rep.	..	..	..	..	..	..	..	..	..	..
70 Syrian Arab Rep.	4.6	10.0	..	8.2	..	9.6	..	7.9	..	10.8
71 Jordan	..	..	..	..	..	..	..	..	..	..
72 Lebanon	4.9	..	6.3	..	4.5	..	5.0	..	4.8	..
73 Turkey	6.0	5.9	2.5	3.4	9.6	6.6	10.9	6.1	6.9	6.8
74 Cuba	..	..	..	..	..	..	..	..	..	..
75 Korea, Rep. of	8.6	9.5	4.4	3.2	17.2	15.4	17.6	16.6	8.9	8.5
76 Malaysia	6.5	7.8	..	5.1	..	9.7	..	11.8	..	8.2
77 Costa Rica	6.5	5.8	5.7	2.5	9.4	8.3	10.6	7.9	5.7	5.9
78 Panama	7.8	4.0	5.7	1.9	10.1	1.9	10.5	0.8	7.6	5.6
79 Algeria	4.3	7.0	0.1	3.1	11.6	7.9	7.8	11.4	-1.0	6.3
80 Brazil	5.4	8.4	..	4.9	..	9.3	..	10.3	..	8.4
81 Mexico	7.2	5.2	3.8	2.3	9.1	6.6	9.0	5.9	6.9	4.9
82 Chile	4.5	2.4	2.6	2.3	4.8	0.2	5.5	-0.5	4.6	4.1
83 South Africa	6.3	3.6	..	..	..	..	..	..	..	..
84 Romania	8.6	8.6	1.7	5.7	12.8	9.7	..	..	..	..
85 Portugal	6.2	4.6	1.3	-0.9	8.8	4.5	8.9	4.5	5.9	6.2
86 Argentina	4.2	2.2	2.2	2.6	5.9	1.8	5.7	1.0	3.4	2.6
87 Yugoslavia	5.8	5.8	3.3	2.8	6.2	7.1	5.7	7.3	6.9	5.5
88 Uruguay	1.2	3.5	1.9	0.2	1.1	5.2	1.5	4.1	1.0	3.6
89 Iran	11.3	2.5	4.4	..	13.4	..	12.0	..	10.0	..
90 Iraq	6.1	12.1	5.7	..	4.7	..	5.9	..	8.3	..
91 Venezuela	6.0	5.0	5.8	3.8	4.6	3.0	6.4	5.7	7.3	6.5
92 Hong Kong	10.0	9.3	..	-4.6	..	..	..	9.3	..	..
93 Trinidad and Tobago	4.0	5.1	..	..	..	..	..	..	..	..
94 Greece	6.9	4.9	3.5	1.7	9.4	5.3	10.2	6.4	7.1	5.7
95 Singapore	8.8	8.5	5.0	1.8	12.5	8.8	13.0	9.6	7.7	8.5
96 Israel	8.1	4.1	..	..	..	..	..	..	..	..
High-income oil exporters	..	5.3 <i>w</i>	..	7.4 <i>m</i>	..	-1.8 <i>m</i>	..	9.2 <i>m</i>	..	12.2 <i>m</i>
97 Libya	24.4	2.2	..	11.1	..	-2.3	..	18.9	..	17.2
98 Saudi Arabia	..	10.6	..	5.3	..	10.2	..	6.5	..	12.2
99 Kuwait	5.7	2.5	..	7.4	..	-1.8	..	9.2	..	10.0
100 United Arab Emirates	..	..	..	..	..	..	..	..	..	..
Industrial market economies	5.2 <i>w</i>	3.2 <i>w</i>	1.4 <i>m</i>	1.4 <i>m</i>	5.9 <i>m</i>	3.1 <i>m</i>	5.9 <i>m</i>	3.2 <i>m</i>	4.8 <i>m</i>	3.5 <i>m</i>
101 Ireland	4.2	3.5	0.9	..	6.1	..	..	..	4.3	..
102 Spain	7.1	4.0	..	2.5	..	3.9	..	6.0	..	4.5
103 Italy	5.3	3.0	2.8	1.5	6.2	1.5	7.1	3.8	5.1	2.3
104 New Zealand	3.9	2.3	..	..	..	..	..	..	..	..
105 United Kingdom	2.9	1.9	2.3	1.4	3.2	0.7	3.3	0.1	3.6	2.4
106 Finland	4.8	3.1	0.6	-0.5	6.3	3.3	6.2	3.3	5.3	3.5
107 Australia	5.6	3.0	2.7	..	4.6	..	5.6	..	4.0	..
108 Japan	10.9	5.0	4.0	1.1	10.9	5.5	11.0	6.4	11.7	5.5
109 Canada	5.6	3.9	2.5	2.8	6.3	3.4	6.7	3.6	5.5	4.3
110 Austria	4.5	3.7	1.3	2.1	4.9	3.3	4.8	3.5	4.5	4.2
111 United States	4.3	3.0	0.3	1.2	4.9	1.2	5.3	2.9	4.2	3.2
112 Netherlands	5.2	2.9	2.8	3.7	6.8	1.2	6.6	2.7	5.1	3.3
113 France	5.5	3.5	1.8	1.4	6.4	3.1	6.6	3.6	5.7	4.0
114 Belgium	4.7	3.0	-0.5	-0.2	5.5	3.0	6.2	2.8	4.6	3.3
115 Norway	4.4	4.8	0.1	1.7	5.5	5.4	5.3	1.2	5.0	4.7
116 Denmark	5.4	2.5	0.2	..	5.5	..	5.4	..	4.9	..
117 Sweden	4.4	1.7	0.8	-1.4	6.2	0.9	5.9	0.8	3.9	2.3
118 Germany, Fed. Rep.	4.4	2.6	1.5	1.4	5.2	..	5.4	2.1	4.1	..
119 Switzerland	4.3	0.4	..	..	..	..	..	..	..	..
Nonmarket Industrial economies^c	..	6.4 <i>w</i>	..	..	..	..	..	..	..	..
120 Poland	..	8.9	..	..	..	..	..	..	..	..
121 Bulgaria	..	7.1	..	..	..	..	..	..	..	..
122 Hungary	..	5.4	..	..	..	..	..	..	..	..
123 USSR	..	..	..	..	..	..	..	..	..	..
124 Czechoslovakia	..	5.1	..	..	..	..	..	..	..	..
125 German Dem. Rep.	..	4.8	..	..	..	..	..	..	..	..

a. Figures in italics are for 1961-70, not 1960-70. b. Figures in italics are for 1970-79, not 1970-80. c. Based on net material product.

Table 3. Structure of production

	GDP (millions of dollars)		Distribution of gross domestic product (percent)							
			Agriculture		Industry		(Manufacturing) ^a		Services	
	1960 ^b	1980 ^c	1960 ^b	1980 ^c	1960 ^b	1980 ^c	1960 ^b	1980 ^c	1960 ^b	1980 ^c
Low-income economies			50 w	36 w	18 w	35 w	12 w	15 w	32 w	29 w
China and India			..	33 w	..	39 w	..	..	..	28 w
Other low-income			49 w	45 w	12 w	17 w	8 w	10 w	39 w	38 w
1 Kampuchea, Dem.	..	..	..	..	..	..	..	..	..	..
2 Lao PDR	..	..	..	..	..	..	..	..	..	..
3 Bhutan	..	..	..	..	..	..	..	..	..	..
4 Chad	180	500	52	57	12	5	4	4	36	38
5 Bangladesh	3,170	11,140	58	54	7	13	5	7	35	33
6 Ethiopia	900	3,690	65	51	12	16	6	11	23	33
7 Nepal	410	1,860	..	57	..	13	..	4	..	30
8 Somalia	160	1,130	71	60	8	11	3	7	21	29
9 Burma	1,280	5,550	33	46	12	13	8	10	55	41
10 Afghanistan	1,190	..	..	..	..	..	..	..	..	..
11 Viet Nam	..	..	..	..	..	..	..	..	..	..
12 Mali	270	1,410	55	42	10	10	5	6	35	48
13 Burundi	190	790	..	55	..	16	..	9	..	29
14 Rwanda	120	1,120	81	48	7	22	1	16	12	30
15 Upper Volta	200	980	62	40	14	18	8	13	24	42
16 Zaire	130	6,160	30	32	27	23	13	4	43	45
17 Malawi	170	1,420	58	43	11	20	6	13	31	37
18 Mozambique	830	2,360	55	44	9	16	8	9	36	40
19 India	29,550	142,010	50	37	20	26	14	18	30	37
20 Haiti	270	1,410	..	..	..	..	..	..	..	..
21 Sri Lanka	1,500	3,760	32	28	20	30	15	18	48	42
22 Sierra Leone	..	930	..	36	..	20	..	5	..	44
23 Tanzania	550	4,350	57	54	11	13	5	9	32	33
24 China	..	252,230	..	31	..	47	..	..	..	22
25 Guinea	370	1,670	..	37	..	33	..	4	..	30
26 Central African Rep.	110	780	51	37	10	15	4	7	39	48
27 Pakistan	3,500	21,460	46	31	16	25	12	16	38	44
28 Uganda	540	12,790	52	76	12	6	9	6	36	18
29 Benin	160	950	55	43	8	12	3	7	37	45
30 Niger	250	1,890	69	33	9	34	4	8	22	33
31 Madagascar	540	3,260	37	36	10	18	4	..	53	46
32 Sudan	1,160	7,190	..	38	..	14	..	6	..	48
33 Togo	120	1,060	55	26	16	20	8	7	29	54
Middle-income economies			24 w	15 w	30 w	40 w	20 w	19 w	46 w	45 w
Oil exporters			28 w	14 w	24 w	43 w	13 w	16 w	48 w	43 w
Oil importers			23 w	15 w	32 w	37 w	23 w	23 w	45 w	48 w
34 Ghana	1,220	15,390	..	66	..	21	..	..	..	13
35 Kenya	730	5,990	38	34	18	21	9	13	44	45
36 Lesotho	30	250	..	31	..	21	..	5	..	48
37 Yemen, PDR	..	540	..	13	..	28	..	14	..	59
38 Indonesia	8,670	69,800	54	26	14	42	8	9	32	32
39 Yemen Arab Rep.	..	2,610	..	29	..	16	..	6	..	55
40 Mauritania	70	490	59	26	24	33	3	8	17	41
41 Senegal	610	2,650	24	29	17	24	12	19	59	47
42 Angola	690	2,500	50	48	8	23	4	3	42	29
43 Liberia	220	1,040	..	36	..	31	..	9	..	33
44 Honduras	300	2,230	37	31	19	25	13	17	44	44
45 Zambia	680	3,790	11	15	63	39	4	17	26	46
46 Bolivia	460	6,100	26	18	25	29	15	14	49	53
47 Egypt	3,880	22,970	30	23	24	35	20	28	46	42
48 Zimbabwe	780	3,640	18	12	35	39	17	25	47	49
49 El Salvador	570	3,390	32	27	19	21	15	15	49	52
50 Cameroon	550	6,010	..	32	..	22	..	9	..	46
51 Thailand	2,550	33,450	40	25	19	29	13	20	41	46
52 Philippines	6,960	35,490	26	23	28	37	20	26	46	40
53 Nicaragua	340	2,120	24	23	21	31	16	25	55	46
54 Papua New Guinea	250	2,490	53	34	11	30	3	8	36	37
55 Congo, People's Rep.	130	1,750	23	12	17	45	10	6	60	43
56 Morocco	2,040	17,940	23	18	27	32	16	17	50	50
57 Mongolia	..	..	..	..	..	..	..	..	..	..
58 Albania	..	..	..	..	..	..	..	..	..	..
59 Peru	2,410	19,240	18	8	33	45	24	27	49	47
60 Nigeria	3,150	91,130	63	20	11	42	5	6	26	38
61 Jamaica	700	2,660	10	8	36	37	15	15	54	55
62 Guatemala	1,040	7,850	..	..	..	..	..	..	..	..
63 Ivory Coast	570	7,030	43	34	14	22	7	11	43	44
64 Dominican Rep.	720	7,120	27	18	23	27	17	15	50	55
65 Colombia	4,010	29,570	34	28	26	30	17	22	40	42
66 Ecuador	960	11,380	29	13	19	38	13	8	48	49

	GDP		Distribution of gross domestic product (percent)							
	(millions of dollars)		Agriculture		Industry		(Manufacturing) ^a		Services	
	1960 ^b	1980 ^c	1960 ^b	1980 ^c	1960 ^b	1980 ^c	1960 ^b	1980 ^c	1960 ^b	1980 ^c
67 Paraguay	300	4,450	36	30	20	25	17	17	44	45
68 Tunisia	770	7,300	24	17	18	35	8	13	58	48
69 Korea, Dem. Rep.			..	..	..	..	..	..	..	..
70 Syrian Arab Rep.	890	12,900	..	20	..	27	..	21	..	53
71 Jordan	..	2,190	..	8	..	32	..	16	..	60
72 Lebanon	830	..	12	..	20	..	13	..	68	..
73 Turkey	8,820	53,820	41	23	21	30	13	21	38	47
74 Cuba	..	..	..	..	..	..	..	..	..	..
75 Korea, Rep. of	3,810	58,250	37	16	20	41	14	28	43	43
76 Malaysia	2,290	23,600	37	24	18	37	9	23	45	39
77 Costa Rica	510	4,850	26	17	20	29	14	20	54	54
78 Panama	420	3,390	23	..	21	..	13	..	56	..
79 Algeria	2,740	39,870	16	6	35	57	6	14	49	37
80 Brazil	24,080	237,930	16	10	35	37	26	..	49	53
81 Mexico	12,040	166,700	16	10	29	38	19	24	55	52
82 Chile	3,730	28,080	10	7	51	37	29	21	39	56
83 South Africa	6,980	74,660	12	7	40	53	21	23	48	40
84 Romania	..	57,650	..	11	..	64	..	..	..	25
85 Portugal	2,340	21,930	25	13	36	46	29	36	39	41
86 Argentina	11,080	130,920	16	..	38	..	32	..	46	..
87 Yugoslavia	9,860	62,150	24	12	45	43	36	30	31	45
88 Uruguay	1,110	8,430	19	10	28	33	21	25	53	57
89 Iran	4,120	..	29	..	33	..	11	..	38	..
90 Iraq	1,580	35,810	17	7	52	73	10	6	31	19
91 Venezuela	7,570	60,030	6	6	22	47	..	16	72	47
92 Hong Kong	950	20,230	4	1	39	..	26	27	57	..
93 Trinidad and Tobago	470	5,310	8	..	46	..	24	..	46	..
94 Greece	3,110	35,650	23	16	26	..	16	19	51	52
95 Singapore	700	10,480	4	1	18	37	12	28	78	62
96 Israel	2,030	15,340	11	5	32	36	23	24	57	59
High-income oil exporters			..	1 w	..	77 w	..	4 w	..	22 w
97 Libya	310	32,090	..	2	..	72	..	4	..	26
98 Saudi Arabia	..	115,430	..	1	..	78	..	4	..	21
99 Kuwait	..	27,290	..	(.)	..	79	..	6	..	21
100 United Arab Emirates	..	30,020	..	1	..	77	..	4	..	22
Industrial market economies			6 w	4 w	40 w	37 w	30 w	27 w	54 w	62 w
101 Ireland	1,770	17,800	22	..	26	..	..	..	52	..
102 Spain	10,350	198,320	..	8	..	37	..	..	..	55
103 Italy	37,190	393,950	13	6	41	43	31	..	46	51
104 New Zealand	3,760	23,300	..	13	..	32	..	23	..	55
105 United Kingdom	71,380	522,850	4	2	43	35	32	22	53	63
106 Finland	4,940	49,900	18	8	35	35	24	26	47	57
107 Australia	16,310	148,060	12	..	37	..	26	..	51	..
108 Japan	43,060	1,039,980	13	4	45	41	34	29	42	55
109 Canada	39,940	253,350	6	4	34	33	23	19	60	63
110 Austria	6,280	76,980	11	4	49	41	38	29	40	55
111 United States	506,700	2,587,100	4	3	38	34	29	24	58	63
112 Netherlands	11,010	167,630	9	4	46	37	34	29	45	59
113 France	60,060	651,890	10	4	38	36	29	27	52	60
114 Belgium	11,280	116,480	6	2	41	37	30	25	53	62
115 Norway	4,640	57,290	9	5	33	41	21	16	58	54
116 Denmark	5,900	66,380	11	..	32	..	22	..	57	..
117 Sweden	13,950	122,750	7	3	40	32	27	23	53	65
118 Germany, Fed. Rep.	72,100	819,140	6	2	53	..	40	37	41	..
119 Switzerland	8,550	101,470	..	..	..	..	..	..	..	..
Nonmarket industrial economies^d			21 w	15 w	62 w	63 w	52 w	..	17 w	22 w
120 Poland	..	..	26	15	57	64	47	..	17	21
121 Bulgaria	..	..	32	17	53	58	46	..	15	25
122 Hungary	..	..	24	14	69	59	59	..	7	27
123 USSR	..	..	21	16	62	62	52	..	17	22
124 Czechoslovakia	..	..	16	8	73	75	63	..	11	14
125 German Dem. Rep.	..	..	..	9	..	70	..	..	..	21

a. Manufacturing is a part of the industrial sector, but its share of GDP is also shown separately because it typically is the most dynamic part of the industrial sector. b. Figures in italics are for 1961, not 1960. c. Figures in italics are for 1979, not 1980. d. Based on net material product.

Table 4. Growth of consumption and investment

	Average annual growth rate (percent)					
	Public consumption		Private consumption		Gross domestic investment	
	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b
Low-income economies	4.5 <i>m</i>	3.1 <i>m</i>	3.3 <i>m</i>	3.6 <i>m</i>	5.1 <i>m</i>	4.8 <i>m</i>
China and India	..	..	3.3 <i>m</i>	4.8 <i>m</i>	7.6 <i>m</i>	5.8 <i>m</i>
Other low-income	4.6 <i>m</i>	3.0 <i>m</i>	3.2 <i>m</i>	3.4 <i>m</i>	4.6 <i>m</i>	4.8 <i>m</i>
1 Kampuchea, Dem.	2.6	..	3.2	..	0.3	..
2 Lao PDR	..	..	..	..	..	..
3 Bhutan	..	..	..	..	..	..
4 Chad	4.4	-1.7	-0.7	0.3	2.3	-0.5
5 Bangladesh	c	c	3.4	4.0	11.2	1.8
6 Ethiopia	4.7	3.2	4.7	3.2	5.7	-1.2
7 Nepal	..	..	..	..	..	11.7
8 Somalia	3.7	10.8	0.4	4.0	4.3	7.5
9 Burma	c	c	2.9	4.0	2.8	8.0
10 Afghanistan	c	..	2.5	..	-1.0	..
11 Viet Nam	..	..	..	..	..	..
12 Mali	6.2	7.5	2.8	5.3	4.9	3.3
13 Burundi	19.2	3.6	3.2	3.6	4.3	15.8
14 Rwanda	1.1	14.0	4.2	1.6	3.5	18.9
15 Upper Volta	..	7.3	..	3.4	..	4.8
16 Zaire	8.5	-2.2	3.5	-1.3	9.6	1.1
17 Malawi	4.6	2.5	4.1	6.4	15.4	2.6
18 Mozambique	6.8	-4.0	4.4	-2.3	8.3	-8.4
19 India	-0.2	4.2	3.7	3.2	5.3	4.8
20 Haiti	c	c	-1.0	3.5	1.7	11.1
21 Sri Lanka	c	c	2.1	2.7	6.6	9.8
22 Sierra Leone	..	4.3	..	1.0	..	-0.2
23 Tanzania	c	c	5.2	6.0	9.8	3.0
24 China	c	c	2.7	5.4	9.8	6.8
25 Guinea	..	..	..	..	..	..
26 Central African Rep.	2.2	-2.6	3.0	5.8	1.3	-10.6
27 Pakistan	7.3	4.3	7.1	4.9	6.9	2.4
28 Uganda	c	c	5.6	-0.9	7.5	-16.4
29 Benin	1.7	2.0	4.9	3.5	4.2	7.2
30 Niger	2.0	3.0	3.9	1.4	3.0	7.6
31 Madagascar	2.7	0.2	2.0	-0.6	5.4	-1.8
32 Sudan	12.1	-4.2	-1.6	6.6	-1.3	6.7
33 Togo	6.7	10.1	7.6	5.7	11.1	10.5
Middle-income economies	6.3 <i>m</i>	7.1 <i>m</i>	5.1 <i>m</i>	5.2 <i>m</i>	7.5 <i>m</i>	7.8 <i>m</i>
Oil exporters	7.3 <i>m</i>	9.9 <i>m</i>	4.2 <i>m</i>	6.9 <i>m</i>	4.6 <i>m</i>	11.0 <i>m</i>
Oil importers	6.1 <i>m</i>	6.4 <i>m</i>	5.5 <i>m</i>	5.1 <i>m</i>	7.9 <i>m</i>	6.6 <i>m</i>
34 Ghana	6.1	0.8	2.0	-0.1	-3.2	-6.2
35 Kenya	10.0	9.0	4.6	6.9	7.0	1.2
36 Lesotho	(.)	15.2	6.5	11.9	20.7	22.0
37 Yemen, PDR	..	..	..	..	..	..
38 Indonesia	0.9	12.9	4.1	8.1	4.6	14.4
39 Yemen Arab Rep.	..	10.8	..	10.0	..	24.6
40 Mauritania	1.0	15.1	17.2	0.5	-2.1	4.9
41 Senegal	-0.2	3.0	3.2	2.7	1.1	2.4
42 Angola	9.1	3.0	4.0	-7.9	9.7	-9.0
43 Liberia	5.6	2.8	0.7	5.1	-3.9	5.8
44 Honduras	5.3	7.6	4.8	4.1	10.2	9.6
45 Zambia	11.0	1.4	6.8	1.5	10.6	-10.9
46 Bolivia	8.9	7.3	4.1	6.4	9.6	2.9
47 Egypt	c	c	6.7	5.1	3.1	16.5
48 Zimbabwe	..	..	..	..	..	..
49 El Salvador	6.4	6.1	6.1	5.3	3.5	5.2
50 Cameroon	6.1	5.8	2.7	5.0	9.3	8.5
51 Thailand	9.7	9.2	7.0	6.3	15.8	7.7
52 Philippines	5.0	7.2	4.7	5.0	8.2	10.5
53 Nicaragua	2.2	9.7	7.6	0.6	10.9	2.5
54 Papua New Guinea	6.5	-0.6	6.1	2.3	21.1	-5.9
55 Congo, People's Rep.	5.4	..	-0.3	..	2.9	2.7
56 Morocco	4.4	14.7	4.1	4.2	8.8	9.2
57 Mongolia	..	..	..	..	..	..
58 Albania	..	..	..	..	..	..
59 Peru	6.3	6.2	7.1	3.0	1.0	2.3
60 Nigeria	10.0	11.3	1.1	6.6	7.4	15.8
61 Jamaica	8.6	6.7	3.0	-1.0	7.8	-9.5
62 Guatemala	4.7	6.4	4.7	5.3	7.9	7.9
63 Ivory Coast	11.8	8.1	8.0	7.6	12.7	13.2
64 Dominican Rep.	1.9	2.2	6.3	6.0	11.4	9.6
65 Colombia	5.5	4.9	5.5	5.8	4.5	5.4
66 Ecuador	..	13.5	..	9.8	..	8.8

Average annual growth rate (percent)

	Public consumption		Private consumption		Gross domestic investment	
	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b	1960-70 ^a	1970-80 ^b
67 Paraguay	6.9	5.6	5.3	7.7	6.8	18.7
68 Tunisia	5.2	9.5	3.2	8.1	4.2	11.0
69 Korea, Dem. Rep.	..	..	..	..	..	..
70 Syrian Arab Rep.	..	16.1	..	11.9	..	16.7
71 Jordan	..	..	..	..	..	..
72 Lebanon	5.9	..	4.4	..	6.2	..
73 Turkey	6.7	6.4	5.1	4.2	8.8	9.4
74 Cuba	..	..	..	..	..	..
75 Korea, Rep. of	5.5	8.3	7.0	7.5	23.6	13.4
76 Malaysia	7.5	9.9	4.2	7.2	7.5	10.3
77 Costa Rica	8.0	5.9	6.0	5.2	7.1	8.8
78 Panama	7.8	5.8	6.7	3.0	12.4	1.1
79 Algeria	1.5	10.8	2.3	9.3	-0.1	13.2
80 Brazil	3.5	8.1	5.1	8.5	7.0	9.7
81 Mexico	9.5	9.9	6.6	4.0	9.6	7.4
82 Chile	4.7	0.9	4.9	2.6	4.2	-1.8
83 South Africa	7.0	4.9	5.7	2.0	9.4	2.7
84 Romania	..	..	..	..	11.2	9.9
85 Portugal	7.7	8.7	5.5	3.8	7.7	1.6
86 Argentina	1.2	12.1	4.1	-2.0	4.1	2.9
87 Yugoslavia	0.6	4.6	9.5	6.1	4.7	6.5
88 Uruguay	4.4	3.6	0.7	0.9	-1.8	9.3
89 Iran	16.0	..	10.0	..	12.2	..
90 Iraq	8.1	c	4.9	17.0	3.0	27.2
91 Venezuela	6.3	..	5.0	..	7.6	..
92 Hong Kong	8.6	9.4	8.6	9.5	6.9	12.7
93 Trinidad and Tobago	7.1	..	3.9	..	-2.3	..
94 Greece	6.6	6.9	7.1	4.5	10.4	2.0
95 Singapore	12.6	6.4	5.4	6.8	20.5	6.7
96 Israel	13.8	3.3	7.4	5.2	5.7	0.1
High-income oil exporters	..	..	..	18.7 <i>m</i>	..	26.1 <i>m</i>
97 Libya	..	21.6	..	18.7	16.3	10.6
98 Saudi Arabia	..	c	..	18.8	..	42.6
99 Kuwait	..	12.8	..	10.1	..	26.1
100 United Arab Emirates	..	..	..	..	..	..
Industrial market economies	4.5 <i>m</i>	3.7 <i>m</i>	4.5 <i>m</i>	3.4 <i>m</i>	5.9 <i>m</i>	1.6 <i>m</i>
101 Ireland	3.9	5.1	3.7	3.2	8.9	3.1
102 Spain	3.8	5.4	7.0	4.1	11.4	2.2
103 Italy	4.0	3.1	6.2	2.7	3.7	0.5
104 New Zealand	..	..	..	..	..	..
105 United Kingdom	2.2	2.5	2.4	1.5	5.0	()
106 Finland	5.5	5.3	4.9	2.8	3.9	-0.2
107 Australia	7.0	5.5	4.9	3.3	6.6	1.4
108 Japan	6.1	4.7	9.4	5.1	14.6	3.2
109 Canada	6.2	2.6	4.9	4.8	5.8	4.2
110 Austria	3.2	3.6	4.4	3.7	6.3	3.7
111 United States	4.1	1.8	4.4	3.4	4.8	1.6
112 Netherlands	2.8	2.7	6.1	3.6	7.1	0.1
113 France	4.0	3.3	5.3	4.2	7.7	1.9
114 Belgium	5.7	4.4	3.8	3.7	6.0	1.5
115 Norway	6.3	5.3	3.8	3.5	5.2	2.9
116 Denmark	7.0	3.7	4.4	2.5	7.9	-0.6
117 Sweden	5.6	3.3	3.7	1.8	5.1	-0.5
118 Germany, Fed. Rep.	4.1	3.7	4.6	2.8	4.1	1.6
119 Switzerland	4.8	1.8	4.3	1.5	3.9	-1.9
Nonmarket industrial economies	..	..	..	..	..	..
120 Poland	..	..	..	..	..	..
121 Bulgaria	..	..	..	..	..	..
122 Hungary	..	..	..	..	..	..
123 USSR	..	..	..	..	..	..
124 Czechoslovakia	..	..	..	..	..	..
125 German Dem. Rep.	..	..	..	..	..	..

a. Figures in italics are for 1961-70, not 1960-70. b. Figures in italics are for 1970-79, not 1970-80. c. Separate figures are not available for public consumption, which is therefore included in private consumption.

Table 5. Structure of demand

Distribution of gross domestic product (percent)												
	Public consumption		Private consumption		Gross domestic investment		Gross domestic saving		Exports of goods and nonfactor services		Resource balance	
	1960 ^a	1980 ^b	1960 ^a	1980 ^b	1960 ^a	1980 ^b	1960 ^a	1980 ^b	1960 ^a	1980 ^b	1960 ^a	1980 ^b
Low-income economies	8 w	11 w	79 w	68 w	19 w	25 w	17 w	22 w	7 w	9 w	-2 w	-3 w
China and India	11 w	11 w	77 w	63 w	21 w	28 w	19 w	26 w	5 w	..	-1 w	-2 w
Other low-income	10 w	12 w	83 w	84 w	11 w	15 w	9 w	7 w	15 w	14 w	-2 w	-8 w
1 Kampuchea, Dem.	..	..	..	..	..	..	..	..	..	..	..	..
2 Lao PDR	..	..	..	..	..	..	..	..	..	..	..	..
3 Bhutan	..	..	..	..	..	..	..	..	..	..	..	..
4 Chad	13	18	82	96	11	13	5	-14	23	33	-6	-27
5 Bangladesh	6	7	86	91	7	17	8	2	10	8	1	-15
6 Ethiopia	8	15	81	80	12	10	11	5	9	15	-1	-5
7 Nepal	..	c	96	93	9	14	4	7	..	12	-5	-7
8 Somalia	8	19	86	78	10	16	6	3	13	15	-4	-13
9 Burma	c	c	89	82	12	24	11	18	20	8	-1	-6
10 Afghanistan	c	c	87	89	16	14	13	11	4	11	-3	-3
11 Viet Nam	..	..	..	..	..	..	..	..	..	..	..	..
12 Mali	12	22	79	81	14	15	9	-3	12	19	-5	-12
13 Burundi	3	12	92	88	6	14	5	(.)	13	8	-1	-14
14 Rwanda	10	12	82	85	6	16	8	3	12	14	2	-13
15 Upper Volta	10	16	94	93	10	18	-4	-9	9	14	-14	-27
16 Zaire	18	12	61	75	12	11	21	13	55	29	9	2
17 Malawi	16	10	88	80	10	22	-4	10	21	22	-14	-12
18 Mozambique	11	15	81	85	10	10	8	(.)	14	13	-2	-10
19 India	7	10	79	70	17	23	14	20	5	..	-3	-3
20 Haiti	c	c	93	91	9	18	7	9	20	19	-2	-9
21 Sri Lanka	13	8	78	78	14	36	9	14	44	31	-5	-22
22 Sierra Leone	..	17	..	77	..	15	..	6	..	23	..	-9
23 Tanzania	9	14	72	78	14	22	19	8	31	14	5	-14
24 China	c	11	77	59	23	31	23	30	4	6	(.)	-1
25 Guinea	..	19	..	67	..	11	..	14	..	34	..	3
26 Central African Rep.	19	c	72	101	20	10	9	-1	23	29	-11	-19
27 Pakistan	11	11	84	83	12	18	5	6	8	13	-7	-13
28 Uganda	9	c	75	98	11	3	16	2	26	4	5	-1
29 Benin	16	15	75	80	15	24	9	5	12	28	-6	-19
30 Niger	9	9	79	70	13	29	12	21	9	25	-1	-8
31 Madagascar	20	17	75	74	11	21	5	9	12	15	-6	-12
32 Sudan	8	12	80	85	12	12	12	3	16	10	(.)	-9
33 Togo	8	16	88	70	11	26	4	14	19	41	-7	-12
Middle-income economies	11 w	14 w	70 w	64 w	20 w	27 w	19 w	25 w	16 w	25 w	-1 w	-2 w
Oil exporters	11 w	13 w	70 w	58 w	18 w	27 w	19 w	30 w	21 w	29 w	1 w	3 w
Oil importers	12 w	14 w	69 w	68 w	21 w	27 w	19 w	21 w	14 w	22 w	-2 w	-6 w
34 Ghana	10	9	73	86	24	5	17	5	28	12	-7	(.)
35 Kenya	11	20	72	65	20	22	17	15	31	26	-3	-7
36 Lesotho	17	20	108	158	2	30	-25	-78	12	18	-27	-108
37 Yemen, PDR	..	..	..	..	..	..	..	..	..	..	..	..
38 Indonesia	12	13	80	57	8	22	8	30	13	31	(.)	8
39 Yemen Arab Rep.	..	18	..	102	..	44	..	-20	..	7	..	-64
40 Mauritania	24	39	79	47	37	51	-3	14	18	38	-40	-37
41 Senegal	17	14	68	88	16	15	15	-2	40	31	-1	-17
42 Angola	9	25	77	56	12	9	14	19	20	43	2	10
43 Liberia	7	16	58	55	28	29	35	29	39	53	7	(.)
44 Honduras	11	13	77	67	14	28	12	20	22	37	-2	-8
45 Zambia	11	28	48	54	25	23	41	18	56	38	16	-5
46 Bolivia	7	10	86	75	14	13	7	15	13	17	-7	2
47 Egypt	17	19	71	65	13	31	12	16	20	32	-1	-15
48 Zimbabwe	11	21	67	63	23	18	22	16	..	..	-1	-2
49 El Salvador	10	15	79	75	16	12	11	10	20	31	-5	-2
50 Cameroon	..	11	..	66	..	25	..	23	..	29	..	-2
51 Thailand	10	12	76	66	16	27	14	22	17	25	-2	-5
52 Philippines	8	8	76	67	16	30	16	25	11	20	(.)	-5
53 Nicaragua	9	21	79	80	15	20	12	-1	24	24	-3	-21
54 Papua New Guinea	26	26	71	59	15	27	3	15	17	42	-12	-12
55 Congo, People's Rep.	23	13	98	50	45	37	-21	37	21	..	-66	(.)
56 Morocco	12	22	77	67	10	21	11	11	24	18	1	-10
57 Mongolia	..	..	..	..	..	..	..	..	..	..	..	..
58 Albania	..	..	..	..	..	..	..	..	..	..	..	..
59 Peru	9	13	64	68	25	16	27	19	20	24	2	3
60 Nigeria	6	10	87	62	13	24	7	28	15	26	-6	4
61 Jamaica	7	21	67	67	30	16	26	12	34	50	-4	-4
62 Guatemala	8	8	84	79	10	16	8	13	13	22	-2	-3
63 Ivory Coast	10	18	73	59	15	28	17	23	37	33	2	-5
64 Dominican Rep.	13	8	68	78	12	24	19	14	24	17	7	-10
65 Colombia	6	8	73	67	21	25	21	25	16	17	(.)	(.)
66 Ecuador	10	14	75	63	15	25	15	23	18	24	(.)	-2

Distribution of gross domestic product (percent)

	Public consumption		Private consumption		Gross domestic investment		Gross domestic saving		Exports of goods and nonfactor services		Resource balance	
	1960 ^a	1980 ^b	1960 ^a	1980 ^b	1960 ^a	1980 ^b	1960 ^a	1980 ^b	1960 ^a	1980 ^b	1960 ^a	1980 ^b
67 Paraguay	8	6	76	74	17	29	16	20	18	10	-1	-9
68 Tunisia	17	15	76	60	17	28	7	25	20	41	-10	-3
69 Korea, Dem. Rep.	..	..	..	..	..	..	..	..	..	..	..	..
70 Syrian Arab Rep.	..	23	..	67	..	25	..	10	..	18	..	-15
71 Jordan	..	33	..	94	..	48	..	-27	..	48	..	-75
72 Lebanon	10	..	85	..	16	..	5	..	27	..	-11	..
73 Turkey	11	13	76	69	16	27	13	18	3	7	-3	-9
74 Cuba	..	..	..	..	..	..	..	..	..	..	..	..
75 Korea, Rep. of	15	13	84	64	11	31	1	23	3	37	-10	-8
76 Malaysia	11	17	62	51	14	29	27	32	54	60	13	3
77 Costa Rica	10	18	77	67	18	25	13	15	21	26	-5	-10
78 Panama	11	15	78	60	16	27	11	25	31	48	-5	-2
79 Algeria	15	14	60	44	42	41	25	42	31	35	-17	1
80 Brazil	12	c	67	80	22	22	21	20	5	9	-1	-2
81 Mexico	6	12	76	62	20	28	18	26	10	14	-2	-2
82 Chile	12	12	63	72	27	18	25	16	17	21	-2	-2
83 South Africa	9	13	64	50	22	29	27	37	30	36	5	8
84 Romania	..	..	..	..	..	34	..	..	..	21	..	-3
85 Portugal	11	15	77	74	19	25	12	11	17	28	-7	-14
86 Argentina	9	..	70	..	22	..	21	..	10	..	-1	..
87 Yugoslavia	19	17	49	51	37	35	32	32	14	20	-5	-3
88 Uruguay	9	14	79	74	18	19	12	12	14	9	-6	-7
89 Iran	10	..	69	..	17	..	21	..	19	..	4	..
90 Iraq	18	c	48	41	20	33	34	59	42	63	14	26
91 Venezuela	14	13	53	55	21	25	33	32	32	33	12	7
92 Hong Kong	7	7	87	69	18	29	6	24	82	111	-12	-5
93 Trinidad and Tobago	9	17	61	42	28	28	30	41	37	45	2	13
94 Greece	12	16	77	64	19	28	11	20	9	19	-8	-8
95 Singapore	8	11	95	59	11	43	-3	30	163	..	-14	-13
96 Israel	18	35	68	57	27	22	14	8	14	44	-13	-14
High-income oil exporters	..	19 <i>w</i>	..	23 <i>w</i>	..	24 <i>w</i>	..	62 <i>w</i>	..	72 <i>w</i>	..	38 <i>w</i>
97 Libya	..	c	..	41	..	25	..	59	..	74	..	34
98 Saudi Arabia	..	23	..	18	..	26	..	59	..	68	..	33
99 Kuwait	..	11	..	26	..	11	..	63	..	84	..	52
100 United Arab Emirates	..	10	..	17	..	30	..	73	..	77	..	43
Industrial market economies	15 <i>w</i>	17 <i>w</i>	63 <i>w</i>	60 <i>w</i>	21 <i>w</i>	23 <i>w</i>	22 <i>w</i>	22 <i>w</i>	12 <i>w</i>	20 <i>w</i>	1 <i>w</i>	-1 <i>w</i>
101 Ireland	12	21	77	64	16	28	11	15	31	55	-5	-13
102 Spain	9	12	69	70	19	21	22	18	11	16	3	-3
103 Italy	13	16	62	62	25	25	25	22	14	25	(.)	-3
104 New Zealand	13	17	65	61	24	23	22	22	23	30	-2	-1
105 United Kingdom	17	21	66	60	19	16	17	19	21	28	-2	3
106 Finland	13	18	58	55	30	28	29	27	23	34	-1	-1
107 Australia	10	17	65	61	29	24	25	22	15	19	-3	-2
108 Japan	9	10	57	59	34	32	34	31	11	14	(.)	-1
109 Canada	14	20	65	56	23	22	21	24	18	29	-2	2
110 Austria	13	18	60	55	28	29	27	27	24	39	-1	-2
111 United States	17	18	64	65	18	18	19	17	5	10	1	-1
112 Netherlands	14	18	57	61	27	22	29	21	50	53	2	-1
113 France	13	15	62	64	23	23	25	21	15	22	2	-2
114 Belgium	13	18	69	64	19	21	18	18	33	63	-1	-3
115 Norway	12	19	60	47	30	28	28	34	41	48	-2	6
116 Denmark	12	27	66	56	23	18	22	17	34	33	-1	-1
117 Sweden	16	29	60	52	25	21	24	19	23	30	-1	-2
118 Germany, Fed. Rep.	14	20	57	55	27	25	29	25	19	28	2	(.)
119 Switzerland	9	13	62	64	29	27	29	23	29	37	(.)	-4
Nonmarket industrial economies^d	3 <i>w</i>	11 <i>w</i>	70 <i>w</i>	73 <i>w</i>	25 <i>w</i>	24 <i>w</i>	27 <i>w</i>	25 <i>w</i>	..	..	2 <i>w</i>	1 <i>w</i>
120 Poland	8	14	68	73	24	19	24	13	..	..	(.)	-5
121 Bulgaria	3	..	69	..	27	..	28	..	..	..	1	..
122 Hungary	7	9	72	69	24	23	21	22	..	..	-3	-1
123 USSR	2	c	70	74	26	24	28	26	..	..	2	2
124 Czechoslovakia	6	7	75	66	17	25	19	27	..	..	2	2
125 German Dem. Rep.	..	..	..	..	..	..	..	..	..	..	..	..

a. Figures in italics are for 1961, not 1960. b. Figures in italics are for 1979, not 1980. c. Separate figures are not available for public consumption, which is therefore included in private consumption. d. Based on net material product.

Table 6. Industrialization

	Distribution of manufacturing value added (percent; 1975 prices)					Value added in manufacturing (millions of 1975 dollars)		Gross manufacturing output per capita (1975 dollars)	
	Food and agriculture 1979 ^a	Textiles and clothing 1979 ^a	Machinery and transport equipment 1979 ^a	Chemicals 1979 ^a	Other manufacturing 1979 ^a	1970	1979	1970	1978 ^b
Low-income economies									
China and India									
Other low-income									
1 Kampuchea, Dem.	..	..	..	..	..	..	..	..	..
2 Lao PDR	..	..	..	..	..	..	..	..	..
3 Bhutan	..	..	..	..	..	..	..	..	..
4 Chad	..	..	..	..	..	37	30	..	..
5 Bangladesh	28	42	3	13	14	647	1,195	22	37
6 Ethiopia	..	..	..	..	..	236	314	19	19
7 Nepal	..	..	..	..	..	..	..	..	..
8 Somalia	..	..	..	..	..	42	32	22	22
9 Burma	36	14	1	4	45	287	395	..	..
10 Afghanistan	..	..	..	..	..	..	..	..	..
11 Viet Nam	..	..	..	..	..	..	..	..	..
12 Mali	..	..	..	..	..	44	56	..	..
13 Burundi	..	..	..	..	..	23	37	..	..
14 Rwanda	..	..	..	..	..	113	97	75	22
15 Upper Volta	74	11	..	6	9	63	82	..	..
16 Zaire	44	20	..	10	26	186	164	..	..
17 Malawi	..	..	..	..	..	56	99	43	..
18 Mozambique	..	..	..	..	..	246	224	66	..
19 India	13	18	19	13	37	10,202	15,595	73	113
20 Haiti	..	..	..	..	..	..	..	..	..
21 Sri Lanka	39	15	..	3	43	556	673	..	..
22 Sierra Leone	..	..	..	..	..	25	35	..	..
23 Tanzania	..	..	..	..	..	190	273	44	..
24 China	..	..	..	..	..	..	..	..	214
25 Guinea	..	..	..	..	..	..	55	..	..
26 Central African Rep.	62	18	1	3	16	54	40	..	..
27 Pakistan	42	15	8	15	20	1,492	2,056	60	..
28 Uganda	..	..	..	..	..	222	87	..	..
29 Benin	..	..	..	..	..	..	38	..	..
30 Niger	..	..	..	..	..	54	158	..	..
31 Madagascar	27	41	2	10	20	298	362	101	..
32 Sudan	49	31	..	2	18	266	274	54	..
33 Togo	..	..	..	..	..	..	..	..	..
Middle-income economies									
Oil exporters									
Oil importers									
34 Ghana	..	..	..	..	..	601	758	138	..
35 Kenya	32	11	12	8	37	199	570	63	191
36 Lesotho	..	..	..	..	..	5	9	..	..
37 Yemen, PDR	..	..	..	..	..	..	..	..	..
38 Indonesia	..	..	..	..	..	1,517	4,136	50	92
39 Yemen Arab Rep.	..	..	..	..	..	25	72	..	..
40 Mauritania	..	..	..	..	..	30	30	..	..
41 Senegal	52	15	..	7	26	276	377	..	..
42 Angola	..	..	..	..	..	158	82	..	..
43 Liberia	..	..	..	..	..	25	52	..	..
44 Honduras	43	15	1	6	35	137	226	..	..
45 Zambia	41	13	6	11	29	275	324	163	..
46 Bolivia	..	..	..	..	..	238	395	148	..
47 Egypt	21	28	12	8	31	1,835	3,597	208	..
48 Zimbabwe	22	18	9	10	41	519	749	248	250
49 El Salvador	..	..	..	..	..	252	337	..	..
50 Cameroon	..	..	..	..	..	201	318	..	..
51 Thailand	37	24	10	3	26	1,675	4,154	210	..
52 Philippines	40	9	7	12	32	2,816	5,339	193	..
53 Nicaragua	..	..	..	..	..	262	287	..	..
54 Papua New Guinea	..	..	..	..	..	..	..	..	..
55 Congo, People's Rep.	31	6	..	7	56	57	72	107	..
56 Morocco	32	13	9	9	37	1,138	1,872	..	..
57 Mongolia	..	..	..	..	..	..	..	..	..
58 Albania	..	..	..	..	..	..	..	..	..
59 Peru	..	..	..	..	..	2,911	3,830	525	..
60 Nigeria	24	14	12	15	35	1,199	2,890	39	..
61 Jamaica	50	8	6	8	28	428	388	674	..
62 Guatemala	..	..	..	..	..	..	..	..	..
63 Ivory Coast	..	..	..	..	..	398	776	..	314
64 Dominican Rep.	72	4	1	5	18	483	886	234	477
65 Colombia	30	17	12	12	29	1,784	3,217	198	261
66 Ecuador	30	13	9	7	41	351	765	153	..

Distribution of manufacturing value added (percent; 1975 prices)							Value added in manufacturing (millions of 1975 dollars)		Gross manufacturing output per capita (1975 dollars)	
	Food and agriculture 1979 ^a	Textiles and clothing 1979 ^a	Machinery and transport equipment 1979 ^a	Chemicals 1979 ^a	Other manufacturing 1979 ^a	1970	1979	1970	1978 ^b	
67 Paraguay	33	13	8	5	41	182	354	..	..
68 Tunisia	24	14	10	16	36	222	617	174	330	
69 Korea, Dem. Rep.	..	..	..	..	..	..	..	..	..
70 Syrian Arab Rep.	29	36	3	3	29	575	1,118	282	421	
71 Jordan	..	..	..	..	..	..	181	..	120
72 Lebanon	..	..	..	..	..	..	..	..	..
73 Turkey	25	13	13	11	38	3,678	6,386	202	401	
74 Cuba	..	..	..	..	..	..	..	..	..
75 Korea, Rep. of	20	19	19	11	31	2,346	9,955	182	621	
76 Malaysia	22	8	17	6	47	946	2,597	311	..	
77 Costa Rica	..	..	..	..	..	261	530	..	..
78 Panama	52	11	2	5	30	252	307	419	497	
79 Algeria	..	..	..	..	..	967	2,538	..	..
80 Brazil	14	9	28	11	38	17,852	40,327	410	..	
81 Mexico	20	9	18	12	41	13,801	23,429	..	..
82 Chile	15	6	14	10	55	1,814	1,967	323	310	
83 South Africa	15	11	17	10	47	..	..	..	..
84 Romania	12	14	32	12	30	..	..	..	..
85 Portugal	13	20	20	10	37	3,496	5,565	..	1,623	
86 Argentina	20	11	22	13	34	9,174	11,192	..	..
87 Yugoslavia	15	14	21	8	42	6,579	12,816	837	1,686	
88 Uruguay	26	24	9	9	32	725	1,008	..	829	
89 Iran	13	14	11	6	56	2,601	..	243	..	
90 Iraq	..	..	..	..	..	522	1,442	124	..
91 Venezuela	18	9	7	7	59	3,419	5,491	..	..
92 Hong Kong	..	..	..	..	..	1,620	3,596	..	1,920
93 Trinidad and Tobago	13	4	10	7	66	328	..	..	..
94 Greece	20	26	8	8	38	2,540	4,588	770	1,346	
95 Singapore	6	4	48	4	38	827	2,080	1,628	3,064	
96 Israel	13	12	25	8	42	..	33,629	..	..
High-income oil exporters										
97 Libya	..	..	..	..	..	154	677	165	..
98 Saudi Arabia	..	..	..	..	..	1,726	3,058	..	..
99 Kuwait	..	..	..	..	..	367	852	685	966
100 United Arab Emirates	..	..	..	..	..	..	..	..	..
Industrial market economies										
101 Ireland	25	13	11	15	36	..	..	..	..
102 Spain	12	19	17	10	42	18,331	33,629	1,704	2,690	
103 Italy	10	15	26	9	40	51,192	71,231	2,204	2,982	
104 New Zealand	26	11	15	5	43	..	..	..	..
105 United Kingdom	12	8	33	10	37	56,215	59,550	2,442	2,667	
106 Finland	12	8	22	8	50	5,636	8,088	3,449	4,091	
107 Australia	17	8	21	8	46	15,895	..	3,202	..	
108 Japan	9	6	34	10	41	115,497	207,566	2,867	4,556	
109 Canada	13	8	23	7	49	26,023	38,271	3,016	4,321	
110 Austria	14	8	22	9	47	9,402	13,409	3,292	4,818	
111 United States	11	6	33	11	39	331,522	448,167	3,401	4,616	
112 Netherlands	19	4	24	15	38	19,114	25,024	4,443	4,055	
113 France	16	8	32	9	35	75,800	109,085	..	4,606	
114 Belgium	17	8	28	13	34	14,403	19,415	..	..
115 Norway	15	4	26	7	48	5,322	6,155	3,500	4,894	
116 Denmark	22	7	25	7	39	6,345	..	3,038	..	
117 Sweden	10	3	34	6	47	17,038	18,939	4,640	4,834	
118 Germany, Fed. Rep.	9	6	36	10	39	149,071	184,140	4,297	5,619	
119 Switzerland	18	8	23	12	39	..	..	..	..
Nonmarket industrial economies										
120 Poland	5	19	32	8	36	..	..	..	..
121 Bulgaria	27	16	15	5	37	..	..	..	..
122 Hungary	10	10	29	10	41	..	..	..	..
123 USSR	12	11	28	6	43	..	..	..	..
124 Czechoslovakia	8	9	35	9	39	..	..	..	..
125 German Dem. Rep.	18	11	32	9	30	..	..	..	..

a. Figures in italics are for 1978, not 1979. b. Figures in italics are for 1977, not 1978.

Table 7. Commercial energy

	Average annual growth rate (percent)				Energy consumption per capita (kilograms of coal equivalent)		Energy imports as a percentage of merchandise exports	
	Energy production		Energy consumption		1960	1979	1960 ^b	1979 ^c
	1960-74 ^a	1974-79	1960-74	1974-79				
Low-income economies	4.7 <i>w</i>	8.3 <i>w</i>	4.4 <i>w</i>	7.7 <i>w</i>	331 <i>w</i>	421 <i>w</i>	11 <i>w</i>	29 <i>w</i>
China and India	4.6 <i>w</i>	8.3 <i>w</i>	4.3 <i>w</i>	8.0 <i>w</i>	384 <i>w</i>	514 <i>w</i>	..	..
Other low-income	10.1 <i>w</i>	10.0 <i>w</i>	6.1 <i>w</i>	3.4 <i>w</i>	62 <i>w</i>	87 <i>w</i>	10 <i>w</i>	26 <i>w</i>
1 Kampuchea, Dem.	..	..	-0.7	-38.9	29	2	9	..
2 Lao PDR	..	16.1	13.8	13.8	16	98	..	..
3 Bhutan	..	..	..	..	..	..	..	..
4 Chad	..	..	7.6	4.6	8	22	23	..
5 Bangladesh	..	10.1	..	6.6	..	40	..	27
6 Ethiopia	14.1	2.3	13.6	-5.3	9	20	11	26
7 Nepal	26.8	4.6	12.6	2.4	4	13	..	24
8 Somalia	..	..	8.7	13.1	16	74	4	..
9 Burma	5.6	12.4	3.7	5.8	55	67	4	..
10 Afghanistan	38.8	-2.8	10.3	6.6	23	88	12	..
11 Viet Nam	..	7.6	..	..	98	138	..	..
12 Mali	..	8.3	5.7	5.3	14	28	13	..
13 Burundi	..	22.0	..	7.0	..	17	..	14
14 Rwanda	..	3.5	..	10.2	..	28	..	..
15 Upper Volta	..	..	7.8	10.2	5	26	38	45
16 Zaire	3.0	17.9	3.8	0.3	96	100	3	..
17 Malawi	..	6.9	..	5.6	..	67	..	27
18 Mozambique	3.2	60.0	5.1	1.0	111	121	11	..
19 India	4.9	5.4	5.0	5.0	111	194	11	32
20 Haiti	..	13.7	1.5	20.8	34	63	..	15
21 Sri Lanka	10.1	8.2	3.8	3.8	110	135	8	26
22 Sierra Leone	..	..	9.0	-1.1	29	84	11	..
23 Tanzania	10.6	10.4	9.4	-2.8	41	51	..	30
24 China	4.5	8.7	4.2	8.5	560	734	..	..
25 Guinea	16.0	(.)	3.2	1.6	64	83	7	..
26 Central African Rep.	14.1	4.1	7.6	8.5	30	46	12	2
27 Pakistan	9.4	6.6	5.3	4.4	132	209	17	34
28 Uganda	5.2	-4.4	9.1	-8.1	39	39	5	..
29 Benin	..	..	9.6	-0.5	37	65	16	..
30 Niger	..	..	14.8	12.9	5	46	6	..
31 Madagascar	6.7	4.1	9.0	3.9	39	89	9	10
32 Sudan	..	13.7	13.1	-0.9	52	133	8	3
33 Togo	..	22.3	12.8	11.9	22	112	10	32
Middle-income economies	7.7 <i>w</i>	2.0 <i>w</i>	7.7 <i>w</i>	6.1 <i>w</i>	418 <i>w</i>	965 <i>w</i>	9 <i>w</i>	16 <i>w</i>
Oil exporters	8.2 <i>w</i>	1.4 <i>w</i>	7.8 <i>w</i>	6.5 <i>w</i>	274 <i>w</i>	658 <i>w</i>	5 <i>w</i>	5 <i>w</i>
Oil importers	6.0 <i>w</i>	4.1 <i>w</i>	7.6 <i>w</i>	6.0 <i>w</i>	425 <i>w</i>	1,204 <i>w</i>	13 <i>w</i>	25 <i>w</i>
34 Ghana	..	2.6	12.5	2.3	100	258	7	14
35 Kenya	9.6	17.6	3.3	3.6	144	172	18	38
36 Lesotho	..	..	..	..	..	..	..	..
37 Yemen, PDR	..	..	8.7	7.1	210	509	..	..
38 Indonesia	8.5	6.6	3.7	10.3	125	225	3	5
39 Yemen Arab Rep.	..	..	12.9	16.0	7	58	..	..
40 Mauritania	..	..	21.3	5.5	18	196	39	..
41 Senegal	..	..	4.7	12.5	116	253	8	29
42 Angola	35.4	-2.4	10.4	1.1	86	200	6	..
43 Liberia	31.8	-1.3	19.0	-0.9	83	425	3	19
44 Honduras	29.4	6.4	7.7	1.7	149	238	10	13
45 Zambia	..	5.6	..	5.6	..	832	..	13
46 Bolivia	17.1	-3.0	6.8	9.2	177	447	4	1
47 Egypt	9.4	27.0	3.6	10.5	283	539	12	2
48 Zimbabwe	2.5	-3.1	2.4	-0.4	1,333	783	..	..
49 El Salvador	5.1	24.3	7.7	8.4	143	338	6	9
50 Cameroon	1.1	45.0	3.8	7.6	85	143	7	12
51 Thailand	28.3	-0.2	16.2	7.4	60	353	12	31
52 Philippines	3.0	24.4	8.4	5.6	147	329	9	32
53 Nicaragua	26.4	-16.3	10.4	2.7	176	446	12	14
54 Papua New Guinea	..	..	..	..	51	299	7	..
55 Congo, People's Rep.	15.8	5.1	5.4	6.9	120	195	25	3
56 Morocco	2.0	4.7	6.4	6.3	163	302	9	36
57 Mongolia	10.4	12.2	7.4	11.5	537	1,483	..	..
58 Albania	9.7	5.3	11.3	9.2	318	1,118	..	..
59 Peru	3.6	18.5	6.5	2.8	417	716	4	..
60 Nigeria	36.6	1.0	9.3	1.5	28	80	7	2
61 Jamaica	-0.7	-2.0	11.0	-5.4	424	1,326	11	39
62 Guatemala	9.9	2.4	6.2	1.6	167	229	12	12
63 Ivory Coast	9.7	-12.2	14.3	5.5	71	230	5	11
64 Dominican Rep.	1.8	-5.1	14.4	-1.1	156	490	..	37
65 Colombia	3.5	2.0	5.7	7.1	494	914	3	10
66 Ecuador	19.4	5.0	8.7	14.8	196	640	2	1

	Average annual growth rate (percent)				Energy consumption per capita (kilograms of coal equivalent)		Energy imports as a percentage of merchandise exports	
	Energy production		Energy consumption		1960	1979	1960 ^b	1979 ^c
	1960-74 ^a	1974-79	1960-74	1974-79				
67 Paraguay	..	6.7	8.3	10.7	80	234	..	41
68 Tunisia	71.9	5.5	8.8	10.7	165	590	15	28
69 Korea, Dem. Rep.	9.4	2.9	9.3	3.6	1,189	2,775	..	..
70 Syrian Arab Rep.	86.0	7.5	7.5	15.4	306	925	16	50
71 Jordan	..	..	5.9	13.3	186	522	79	90
72 Lebanon	12.7	0.5	8.6	-3.7	537	1,028	68	..
73 Turkey	7.5	2.5	9.7	6.8	250	771	16	78
74 Cuba	21.2	5.6	4.5	6.0	849	1,358	..	..
75 Korea, Rep. of	6.3	4.6	13.9	12.0	208	1,473	70	25
76 Malaysia	36.8	25.9	11.4	4.1	239	713	2	9
77 Costa Rica	9.5	3.5	10.1	7.5	304	812	7	20
78 Panama	14.7	35.9	8.8	4.8	415	895	..	116
79 Algeria	11.1	6.4	7.1	12.2	249	645	14	2
80 Brazil	8.3	7.3	8.2	7.6	375	1,018	21	48
81 Mexico	5.8	15.7	7.7	7.8	713	1,535	3	3
82 Chile	3.9	0.1	6.1	0.7	797	1,153	10	24
83 South Africa	3.6	7.3	4.9	3.9	2,062	2,895	9	(.)
84 Romania	5.9	2.8	8.2	6.6	1,445	4,659	..	..
85 Portugal	4.4	11.7	7.3	6.1	460	1,443	17	38
86 Argentina	6.5	3.7	5.5	3.2	1,057	1,965	14	14
87 Yugoslavia	4.3	4.5	6.6	5.4	932	2,415	8	33
88 Uruguay	3.7	8.5	2.8	3.4	851	1,219	35	36
89 Iran	14.6	-9.1	15.7	1.3	257	1,141	1	..
90 Iraq	5.0	9.2	5.9	2.6	473	664	(.)	(.)
91 Venezuela	1.1	-3.3	7.1	5.5	1,521	2,944	1	1
92 Hong Kong	..	..	9.5	9.6	450	1,481	5	9
93 Trinidad and Tobago	2.8	3.9	10.5	6.2	1,619	4,872	35	23
94 Greece	14.3	9.2	12.8	6.4	407	2,164	26	53
95 Singapore	..	..	13.1	17.1	498	5,784	17	31
96 Israel	41.8	-62.2	11.7	4.7	1,204	3,513	17	29
High-income oil exporters	9.8 w	3.2 w	8.1 w	15.6 w	1,015 w	2,609 w	..	(.) w
97 Libya	29.1	6.9	16.7	27.6	238	2,254	83	(.)
98 Saudi Arabia	14.0	3.5	8.3	15.9	674	1,984	..	(.)
99 Kuwait	4.5	-0.2	3.9	9.3	10,083	6,159	..	(.)
100 United Arab Emirates	..	2.7	57.2	15.1	98	4,451	..	(.)
Industrial market economies	3.3 w	2.1 w	5.0 w	2.2 w	4,257 w	7,293 w	12 w	24 w
101 Ireland	0.1	-1.2	4.7	4.3	1,892	3,687	17	17
102 Spain	3.0	6.8	9.2	4.1	791	2,698	22	42
103 Italy	2.3	0.8	7.7	1.4	1,273	3,312	18	25
104 New Zealand	5.7	4.9	6.0	1.5	2,637	4,706	7	16
105 United Kingdom	-1.0	12.8	2.0	0.5	4,364	5,272	14	13
106 Finland	3.3	2.9	8.7	2.4	1,833	6,001	11	27
107 Australia	11.0	4.6	5.6	2.5	3,741	6,539	12	9
108 Japan	-1.4	3.6	9.8	3.1	1,246	4,048	18	44
109 Canada	8.7	1.7	6.2	3.1	6,900	13,164	9	9
110 Austria	1.4	0.6	5.0	2.8	2,439	5,087	12	16
111 United States	3.4	0.7	4.4	2.0	7,981	11,681	8	37
112 Netherlands	16.1	0.3	9.3	2.6	2,397	6,597	15	21
113 France	-1.2	3.2	5.5	2.4	2,552	4,810	16	23
114 Belgium	-7.2	5.9	4.5	2.1	3,571	6,513	11	15
115 Norway	6.8	22.1	5.7	5.0	4,875	11,749	15	15
116 Denmark	-19.8	39.5	8.1	0.8	2,650	5,726	15	25
117 Sweden	3.6	6.0	4.7	2.6	4,442	8,258	16	23
118 Germany, Fed. Rep.	-0.6	0.1	4.2	2.0	3,701	6,264	7	18
119 Switzerland	4.2	2.7	5.4	2.0	2,709	5,002	10	13
Nonmarket industrial economies	5.1 w	4.7 w	4.8 w	3.8 w	2,913 w	5,822 w	..	..
120 Poland	3.9	4.1	4.4	2.5	3,102	5,752	..	..
121 Bulgaria	3.3	4.5	9.5	5.0	1,345	5,487	7	..
122 Hungary	2.8	3.1	4.8	4.6	1,626	3,797	13	17
123 USSR	5.9	5.0	5.2	4.1	2,816	5,793	4	..
124 Czechoslovakia	1.2	2.2	3.3	3.6	3,773	6,656	..	20
125 German Dem. Rep.	0.6	1.4	1.8	1.8	4,581	7,136	..	..

a. Figures in italics are for 1961-74, not 1960-74. b. Figures in italics are for 1961, not 1960. c. Figures in italics are for 1978, not 1979.

Table 8. Growth of merchandise trade

	Merchandise trade (millions of dollars)		Average annual growth rate ^a (percent)				Terms of trade (1975 = 100)	
	Exports 1980 ^b	Imports 1980 ^b	Exports		Imports		1960	1980 ^b
			1960-70	1970-80 ^c	1960-70	1970-80 ^c		
Low-income economies	37,837 t	54,024 t	5.0 m	-0.4 m	5.4 m	3.1 m	111 m	89 m
China and India	24,965 t	32,408 t						
Other low-income	12,872 t	21,616 t	5.0 m	-1.1 m	5.7 m	3.4 m	111 m	90 m
1 Kampuchea, Dem.	..	..	..	..	..	..	..	..
2 Lao PDR	21	114	..	..	..	..	..	..
3 Bhutan	..	..	..	..	..	..	..	..
4 Chad	65	160	5.9	-4.0	5.0	-2.2	98	96
5 Bangladesh	761	2,438	6.5	-1.9	7.0	3.5	201	84
6 Ethiopia	350	537	3.6	-1.7	6.2	-0.2	143	97
7 Nepal	97	345	..	..	..	..	..	105
8 Somalia	141	240	2.3	5.5	2.6	7.2	145	88
9 Burma	471	353	-11.6	0.4	-5.7	-4.1	115	110
10 Afghanistan	551	750	2.5	3.7	0.7	8.1	82	106
11 Viet Nam	..	..	..	..	..	..	..	..
12 Mali	200	290	3.0	9.4	-0.4	3.4	107	91
13 Burundi	65	168	..	..	..	..	..	..
14 Rwanda	140	220	15.8	3.5	8.1	11.6	111	157
15 Upper Volta	45	330	15.9	2.0	7.7	7.9	88	89
16 Zaire	1,639	725	-1.8	2.2	5.4	-12.0	122	79
17 Malawi	317	439	11.6	5.7	7.6	3.5	115	76
18 Mozambique	180	270	6.0	-15.1	7.9	-17.1	90	69
19 India	6,694	12,858	3.0	3.7	-0.9	2.8	134	71
20 Haiti	601	364	..	..	..	..	..	..
21 Sri Lanka	924	2,029	4.7	-2.4	-0.2	1.1	203	93
22 Sierra Leone	240	420	0.3	-4.8	1.9	-3.0	111	84
23 Tanzania	508	1,258	3.4	-7.3	6.0	-0.3	98	100
24 China	18,271	19,550	..	..	..	..	..	..
25 Guinea	421	375	..	..	..	..	..	..
26 Central African Rep.	90	95	8.1	-1.1	4.5	-2.4	109	120
27 Pakistan	2,588	5,350	8.2	1.2	5.3	4.3	102	74
28 Uganda	450	340	5.0	-8.5	6.2	-9.8	123	130
29 Benin	54	360	5.0	-7.6	7.4	4.8	114	82
30 Niger	290	630	6.0	12.8	11.9	15.8	98	80
31 Madagascar	480	770	5.3	-1.2	4.1	-0.8	136	94
32 Sudan	543	1,616	0.1	-5.7	1.2	3.5	57	86
33 Togo	640	630	10.5	1.6	8.6	12.4	56	74
Middle-income economies	370,046 t	376,373 t	5.4 m	3.9 m	6.4 m	4.2 m	100 m	94 m
Oil exporters	169,587 t	121,336 t	4.5 m	2.6 m	3.2 m	8.9 m	69 m	135 m
Oil importers	200,459 t	255,037 t	7.1 m	4.1 m	7.3 m	3.8 m	109 m	83 m
34 Ghana	960	900	0.2	-8.4	-1.5	-3.3	111	110
35 Kenya	1,299	2,305	7.2	-1.0	6.6	-1.0	133	94
36 Lesotho	..	..	..	..	..	..	..	..
37 Yemen, PDR	44	434	..	..	..	..	..	..
38 Indonesia	21,909	10,834	4.0	8.7	2.0	11.9	98	135
39 Yemen Arab Rep.	14	1,492	..	..	..	..	..	..
40 Mauritania	194	255	50.7	-1.1	4.5	5.6	149	77
41 Senegal	520	1,200	1.2	1.2	2.3	4.1	71	63
42 Angola	1,000	1,250	9.0	-13.4	11.5	-1.4	60	140
43 Liberia	601	640	18.4	1.0	2.9	1.2	255	71
44 Honduras	806	1,019	11.1	4.4	11.6	1.0	119	83
45 Zambia	1,700	1,000	2.2	1.2	9.7	-7.3	115	82
46 Bolivia	1,033	833	9.8	-1.6	8.2	8.9	56	159
47 Egypt	3,046	4,860	3.2	-0.7	-1.1	8.8	92	79
48 Zimbabwe	1,415	1,287	..	..	..	..	..	..
49 El Salvador	966	966	5.4	1.5	6.3	3.8	109	110
50 Cameroon	1,383	1,602	7.1	2.5	9.2	7.2	106	123
51 Thailand	6,505	9,212	5.2	11.8	11.2	5.4	121	63
52 Philippines	5,977	7,727	2.2	7.0	7.1	3.4	112	75
53 Nicaragua	550	660	9.7	2.3	10.5	-2.6	112	92
54 Papua New Guinea	1,031	788	..	..	..	..	..	..
55 Congo, People's Rep.	400	400	5.1	8.9	-1.0	5.0	87	99
56 Morocco	2,403	4,185	2.5	2.1	3.4	8.5	75	57
57 Mongolia	..	..	..	..	..	..	..	..
58 Albania	..	..	..	..	..	..	..	..
59 Peru	3,364	2,541	2.0	3.9	3.6	0.2	89	87
60 Nigeria	26,000	15,000	6.6	2.6	1.6	20.0	39	173
61 Jamaica	942	1,178	4.7	-6.8	8.1	-7.0	85	83
62 Guatemala	1,521	1,528	9.1	4.3	7.1	5.2	126	113
63 Ivory Coast	2,700	2,650	8.8	4.6	9.7	8.1	113	102
64 Dominican Rep.	962	1,436	-2.3	4.6	9.9	2.7	47	40
65 Colombia	3,925	4,495	2.2	1.9	2.5	5.7	96	132
66 Ecuador	2,400	2,248	2.9	7.5	11.5	9.9	89	147

	Merchandise trade (millions of dollars)		Average annual growth rate ^a (percent)				Terms of trade (1975 = 100)	
	Exports 1980 ^b	Imports 1980 ^b	Exports		Imports		1960	1980 ^b
			1960-70	1970-80 ^c	1960-70	1970-80 ^c		
67 Paraguay	313	517	5.4	7.1	7.3	7.4	116	76
68 Tunisia	2,201	3,536	4.2	4.8	1.9	10.6	64	99
69 Korea, Dem. Rep.	..	..	..	..	..	..	..	..
70 Syrian Arab Rep.	2,108	4,124	3.4	6.8	4.0	13.0	69	120
71 Jordan	578	2,395	10.1	18.4	3.5	13.5	78	59
72 Lebanon	700	3,300	14.2	0.7	5.1	2.4	87	84
73 Turkey	2,910	7,667	..	1.7	..	3.3	..	91
74 Cuba	5,800	6,000	4.0	2.7	5.5	3.3	58	71
75 Korea, Rep. of	17,548	22,292	34.1	23.0	20.5	11.8	99	75
76 Malaysia	13,780	10,600	5.8	7.4	2.3	7.0	150	109
77 Costa Rica	963	1,528	9.6	3.5	9.9	3.8	132	107
78 Panama	349	1,149	10.5	-0.2	10.5	-4.1	117	77
79 Algeria	12,409	9,600	4.5	2.2	-0.9	12.7	48	177
80 Brazil	20,131	25,000	5.1	7.5	4.9	4.2	114	72
81 Mexico	15,308	19,517	2.8	13.4	6.4	7.0	97	94
82 Chile	4,818	5,720	0.6	10.9	4.7	2.8	126	73
83 South Africa	26,130	18,838	5.4	7.2	8.2	-1.4	108	81
84 Romania	12,230	13,201	9.4	4.7	8.8	6.1	..	98
85 Portugal	4,628	9,410	9.6	-0.3	14.2	3.3	97	95
86 Argentina	8,020	10,555	3.4	9.3	0.3	2.1	109	73
87 Yugoslavia	8,367	14,029	7.7	3.9	8.8	3.9	100	99
88 Uruguay	1,059	1,615	2.2	4.8	-2.9	3.8	132	92
89 Iran	13,523	12,247	12.6	-9.7	11.4	12.3	27	192
90 Iraq	26,429	10,500	5.4	2.2	1.4	20.5	25	170
91 Venezuela	20,600	10,068	1.6	-6.7	4.2	-10.9	46	160
92 Hong Kong	19,713	22,413	12.7	9.4	9.2	11.7	94	103
93 Trinidad and Tobago	4,077	3,178	4.9	-2.8	3.2	-5.5	100	99
94 Greece	5,143	10,531	10.8	11.8	10.8	5.3	109	93
95 Singapore	19,376	24,008	4.2	12.0	5.9	9.9	100	99
96 Israel	5,265	7,910	11.0	9.6	8.7	3.3	103	73
High-income oil exporters	172,350 <i>t</i>	60,328 <i>t</i>	10.9 <i>m</i>	-0.6 <i>m</i>	10.9 <i>m</i>	22.3 <i>m</i>	27 <i>m</i>	168 <i>m</i>
97 Libya	22,795	10,000	67.5	-6.5	15.4	16.8	31	183
98 Saudi Arabia	109,111	30,209	10.9	5.4	10.9	35.2	27	165
99 Kuwait	19,812	11,367	5.2	-8.5	10.6	16.3	23	171
100 United Arab Emirates	20,632	8,752	..	6.1	..	27.7	..	162
Industrial market economies	1,229,153 <i>t</i>	1,362,479 <i>t</i>	8.5 <i>m</i>	5.8 <i>m</i>	9.5 <i>m</i>	4.4 <i>m</i>	98 <i>m</i>	94 <i>m</i>
101 Ireland	8,489	11,159	7.1	8.6	8.3	6.8	96	93
102 Spain	20,721	34,080	11.5	11.2	18.5	3.7	124	103
103 Italy	77,667	99,452	13.6	6.7	9.7	3.7	130	94
104 New Zealand	5,418	5,468	4.6	3.8	2.9	1.6	135	109
105 United Kingdom	115,350	120,095	4.8	7.5	5.0	4.1	112	106
106 Finland	14,155	15,580	6.8	4.5	7.0	2.3	95	85
107 Australia	22,048	20,332	6.5	3.6	7.2	4.4	98	86
108 Japan	129,248	140,520	17.2	8.9	13.7	4.4	150	77
109 Canada	64,252	58,545	10.0	4.4	9.1	6.0	92	99
110 Austria	17,508	24,495	9.6	7.1	9.6	7.1	94	93
111 United States	216,668	255,657	6.0	6.9	9.8	4.8	115	82
112 Netherlands	73,871	76,881	9.9	5.3	9.5	4.0	111	96
113 France	111,251	134,912	8.2	6.8	11.0	6.9	93	94
114 Belgium	64,066	71,185	10.9	4.9	10.3	5.5	102	94
115 Norway	18,478	16,957	9.1	7.3	9.7	4.5	89	117
116 Denmark	16,485	19,363	7.1	4.7	8.2	3.1	105	90
117 Sweden	30,914	33,441	7.7	2.4	7.2	2.3	97	90
118 Germany, Fed. Rep.	192,930	188,001	10.1	5.8	10.0	5.9	90	89
119 Switzerland	29,634	36,356	8.5	4.1	9.0	4.4	85	97
Nonmarket industrial economies	144,698 <i>t</i>	140,727 <i>t</i>	9.0 <i>m</i>	7.1 <i>m</i>	7.9 <i>m</i>	6.6 <i>m</i>	..	..
120 Poland	16,997	19,089	-0.3	6.7	-0.4	6.0	..	..
121 Bulgaria	10,372	9,650	14.4	11.7	12.9	8.7	..	..
122 Hungary	8,677	9,235	9.7	8.2	9.1	6.1	..	..
123 USSR	76,449	68,523	9.7	5.6	7.1	8.3	..	..
124 Czechoslovakia	14,891	15,148	6.7	6.5	7.0	5.7	..	..
125 German Dem. Rep.	17,312	19,082	8.3	7.5	8.6	7.0	..	..

a. See the technical notes. b. Figures in italics are for 1979, not 1980. c. Figures in italics are for 1970-79, not 1970-80.

Table 9. Structure of merchandise exports

Percentage share of merchandise exports

	Fuels, minerals, and metals		Other primary commodities		Textiles and clothing		Machinery and transport equipment		Other manufactures	
	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b
Low-income economies	9 w	14 w	70 w	42 w	15 w	19 w	(.) w	3 w	6 w	20 w
China and India	..	11 w	..	36 w	..	23 w	..	5 w	..	26 w
Other low-income	8 w	18 w	83 w	53 w	4 w	13 w	(.) w	1 w	5 w	8 w
1 Kampuchea, Dem.	0	0	100	83	0	4	0	1	0	12
2 Lao PDR	..	18	..	64	..	0	..	1	..	17
3 Bhutan	..	..	..	..	..	..	..	..	..	..
4 Chad	3	0	94	96	0	1	0	0	3	3
5 Bangladesh	..	(.)	..	34	..	49	..	1	..	16
6 Ethiopia	0	5	100	95	0	(.)	0	(.)	0	(.)
7 Nepal	..	0	..	72	..	22	..	0	..	6
8 Somalia	0	(.)	88	99	0	(.)	8	(.)	4	1
9 Burma	4	4	95	93	0	0	0	0	1	3
10 Afghanistan	(.)	17	82	70	14	11	3	0	1	2
11 Viet Nam	..	6	..	32	..	38	..	(.)	..	24
12 Mali	0	(.)	96	99	1	(.)	1	(.)	2	1
13 Burundi	..	(.)	..	99	..	(.)	..	(.)	..	1
14 Rwanda	..	1	..	99	..	0	..	(.)	..	(.)
15 Upper Volta	0	1	100	87	0	3	0	3	(.)	6
16 Zaire	42	56	57	37	0	(.)	0	1	1	6
17 Malawi	..	(.)	..	96	..	3	..	(.)	..	1
18 Mozambique	0	12	100	86	0	2	0	0	0	(.)
19 India	10	8	45	31	35	20	1	8	9	33
20 Haiti	0	11	100	50	0	7	0	5	0	27
21 Sri Lanka	(.)	14	99	74	0	7	0	(.)	1	5
22 Sierra Leone	15	8	20	48	0	0	0	0	65	44
23 Tanzania	(.)	4	87	79	0	8	0	(.)	13	9
24 China	..	13	..	38	..	24	..	3	..	22
25 Guinea	42	98	58	2	0	0	0	(.)	0	0
26 Central African Rep.	12	0	86	56	(.)	(.)	1	(.)	1	44
27 Pakistan	0	7	73	37	23	40	1	2	3	14
28 Uganda	8	3	92	96	0	(.)	0	(.)	(.)	(.)
29 Benin	10	2	80	90	7	3	(.)	2	3	3
30 Niger	..	40	100	25	0	1	0	0	0	34
31 Madagascar	4	10	90	82	1	3	1	2	4	3
32 Sudan	0	4	100	96	0	(.)	0	0	0	(.)
33 Togo	3	62	89	31	3	3	0	3	5	1
Middle-income economies	15 w	11 w	9 w	15 w	13 w	7 w	28 w	34 w	35 w	33 w
Oil exporters	19 w	14 w	7 w	5 w	8 w	5 w	27 w	42 w	39 w	34 w
Oil importers	14 w	10 w	10 w	20 w	16 w	8 w	29 w	29 w	31 w	33 w
34 Ghana	7	16	83	83	0	(.)	0	(.)	10	1
35 Kenya	1	21	87	65	0	1	0	(.)	12	13
36 Lesotho	..	56	..	4	..	0	..	0	..	40
37 Yemen, PDR	..	75	..	25	..	(.)	..	(.)	..	(.)
38 Indonesia	33	69	67	28	0	1	(.)	1	(.)	1
39 Yemen Arab Rep.	..	(.)	..	74	..	2	..	6	..	18
40 Mauritania	4	89	69	11	1	(.)	20	(.)	6	(.)
41 Senegal	3	29	94	63	1	1	1	1	1	6
42 Angola	..	64	..	28	..	0	..	1	..	7
43 Liberia	45	39	55	35	0	(.)	0	1	0	25
44 Honduras	5	5	93	85	0	1	0	(.)	2	9
45 Zambia	..	97	..	2	..	0	..	(.)	..	1
46 Bolivia	..	86	..	11	..	(.)	..	1	..	2
47 Egypt	4	47	84	33	9	15	(.)	(.)	3	5
48 Zimbabwe	71	25	25	62	1	10	(.)	3	3	0
49 El Salvador	0	2	94	74	3	8	(.)	2	3	14
50 Cameroon	19	29	77	65	0	1	2	1	2	4
51 Thailand	7	12	91	63	0	10	0	4	2	11
52 Philippines	10	18	86	47	1	6	0	2	3	27
53 Nicaragua	3	1	95	87	0	2	0	1	2	9
54 Papua New Guinea	0	46	92	52	0	0	0	0	8	2
55 Congo, People's Rep.	7	86	84	7	(.)	(.)	5	(.)	4	7
56 Morocco	38	44	54	33	1	11	1	(.)	6	12
57 Mongolia	..	8	..	81	..	7	..	(.)	..	4
58 Albania	..	49	..	33	..	6	..	1	..	11
59 Peru	49	46	50	43	0	3	0	1	1	7
60 Nigeria	8	91	89	8	0	(.)	0	(.)	3	1
61 Jamaica	50	31	45	17	2	1	0	1	3	50
62 Guatemala	2	2	95	75	1	6	0	2	2	15
63 Ivory Coast	1	5	98	87	0	2	(.)	2	1	4
64 Dominican Rep.	6	3	92	71	0	(.)	0	2	2	24
65 Colombia	19	4	79	74	0	7	(.)	2	2	13
66 Ecuador	0	46	99	51	0	1	0	1	1	1

Percentage share of merchandise exports

	Fuels, minerals, and metals		Other primary commodities		Textiles and clothing		Machinery and transport equipment		Other manufactures	
	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b
67 Paraguay	0	1	100	88	0	(.)	0	(.)	0	11
68 Tunisia	24	52	66	14	1	18	1	3	8	13
69 Korea, Dem. Rep.	..	31	..	29	..	5	..	5	..	30
70 Syrian Arab Rep.	0	74	81	18	2	4	0	2	17	2
71 Jordan	0	33	96	32	0	4	0	2	4	29
72 Lebanon	..	4	..	32	..	10	..	17	..	37
73 Turkey	8	6	89	66	0	19	0	2	3	7
74 Cuba	2	5	93	94	1	0	(.)	(.)	4	1
75 Korea, Rep. of	30	1	56	10	8	31	(.)	20	6	38
76 Malaysia	20	29	74	53	(.)	2	(.)	11	6	5
77 Costa Rica	0	(.)	95	75	0	4	0	4	5	17
78 Panama	..	26	..	64	..	3	..	(.)	..	7
79 Algeria	12	98	81	1	0	(.)	1	(.)	6	1
80 Brazil	8	11	89	50	0	5	(.)	16	3	18
81 Mexico	24	39	64	22	4	3	1	19	7	17
82 Chile	92	59	4	21	0	(.)	0	1	4	19
83 South Africa	29	23	42	23	2	1	4	5	23	48
84 Romania	..	12	..	18	..	10	..	24	..	36
85 Portugal	8	2	37	22	18	31	3	12	34	33
86 Argentina	1	2	95	74	0	3	(.)	6	4	15
87 Yugoslavia	18	10	45	18	4	8	15	30	18	34
88 Uruguay	..	1	71	51	21	19	..	5	8	24
89 Iran	88	95	9	2	0	2	0	(.)	3	1
90 Iraq	97	99	3	1	0	(.)	0	(.)	0	(.)
91 Venezuela	74	98	26	1	0	(.)	0	(.)	(.)	1
92 Hong Kong	5	1	15	2	45	43	4	16	31	38
93 Trinidad and Tobago	82	91	14	3	0	(.)	0	1	4	5
94 Greece	9	21	81	33	1	17	1	4	8	25
95 Singapore	1	27	73	22	5	5	7	26	14	20
96 Israel	4	2	35	18	8	7	2	12	51	61
High-income oil exporters	..	99 <i>w</i>	..	(.) <i>w</i>	..	(.) <i>w</i>	..	(.) <i>w</i>	..	1 <i>w</i>
97 Libya	100	100	0	(.)	0	(.)	0	(.)	0	(.)
98 Saudi Arabia	95	100	5	(.)	0	(.)	0	(.)	0	(.)
99 Kuwait	..	94	..	1	..	(.)	..	2	..	3
100 United Arab Emirates	..	..	..	..	..	..	..	..	..	..
Industrial market economies	11 <i>w</i>	10 <i>w</i>	23 <i>w</i>	15 <i>w</i>	7 <i>w</i>	5 <i>w</i>	29 <i>w</i>	36 <i>w</i>	30 <i>w</i>	34 <i>w</i>
101 Ireland	5	3	67	40	6	9	4	16	18	32
102 Spain	21	5	57	22	7	5	2	26	13	42
103 Italy	8	8	19	9	17	12	29	30	27	41
104 New Zealand	(.)	5	97	76	0	2	(.)	4	3	13
105 United Kingdom	7	14	9	9	8	5	44	35	32	37
106 Finland	3	7	50	22	1	6	13	20	33	45
107 Australia	13	27	79	47	(.)	1	3	5	5	20
108 Japan	11	2	10	2	28	4	23	54	28	38
109 Canada	33	25	37	24	1	1	8	30	21	20
110 Austria	26	5	22	12	10	9	16	27	26	47
111 United States	10	7	27	25	3	2	35	41	25	25
112 Netherlands	15	22	34	24	8	5	18	17	25	32
113 France	9	7	18	18	10	5	25	36	38	34
114 Belgium	15	12	9	11	12	7	13	23	51	47
115 Norway	22	48	34	12	2	1	10	17	32	22
116 Denmark	2	6	63	39	3	5	19	24	13	26
117 Sweden	10	8	29	13	1	2	31	41	29	36
118 Germany, Fed. Rep.	9	6	4	7	4	5	44	45	39	37
119 Switzerland	2	4	8	5	12	6	30	33	48	52
Nonmarket industrial economies	18 <i>w</i>	26 <i>w</i>	33 <i>w</i>	11 <i>w</i>	3 <i>w</i>	3 <i>w</i>	34 <i>w</i>	33 <i>w</i>	21 <i>w</i>	27 <i>w</i>
120 Poland	..	20	..	11	..	7	..	41	..	21
121 Bulgaria	3	2	75	32	12	4	6	42	4	20
122 Hungary	6	8	28	23	7	7	38	34	21	28
123 USSR	24	42	28	9	1	(.)	21	20	26	29
124 Czechoslovakia	20	7	11	6	(.)	6	45	51	25	30
125 German Dem. Rep.	..	3	..	3	..	5	..	61	..	28

a. Figures in italics are for 1961, not 1960. b. Figures in italics are for 1978, not 1979.

Table 10. Structure of merchandise imports

	Percentage share of merchandise imports									
	Food		Fuels		Other primary commodities		Machinery and transport equipment		Other manufactures	
	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b
Low-income economies	22 <i>w</i>	17 <i>w</i>	7 <i>w</i>	10 <i>w</i>	18 <i>w</i>	18 <i>w</i>	26 <i>w</i>	25 <i>w</i>	27 <i>w</i>	30 <i>w</i>
China and India	..	16 <i>w</i>	..	9 <i>w</i>	..	27 <i>w</i>	..	22 <i>w</i>	..	26 <i>w</i>
Other low-income	24 <i>w</i>	18 <i>w</i>	8 <i>w</i>	13 <i>w</i>	4 <i>w</i>	4 <i>w</i>	21 <i>w</i>	28 <i>w</i>	43 <i>w</i>	37 <i>w</i>
1 Kampuchea, Dem.	..	..	..	..	..	..	..	..	..	..
2 Lao PDR	..	..	..	..	..	..	..	..	..	..
3 Bhutan	..	..	..	..	..	..	..	..	..	..
4 Chad	19	..	12	..	4	..	19	..	46	..
5 Bangladesh	..	25	..	12	..	8	..	24	..	31
6 Ethiopia	..	7	..	20	..	3	..	34	..	36
7 Nepal	..	3	..	14	..	4	..	27	..	52
8 Somalia	27	21	4	7	0	4	18	31	51	37
9 Burma	14	9	4	3	9	2	17	40	56	46
10 Afghanistan	14	15	7	9	4	1	14	11	61	64
11 Viet Nam	..	..	..	..	..	..	..	..	..	..
12 Mali	20	13	5	18	4	2	18	30	53	37
13 Burundi	..	13	..	9	..	3	..	22	..	53
14 Rwanda	..	19	..	8	..	8	..	26	..	39
15 Upper Volta	21	22	4	11	1	3	24	29	50	35
16 Zaire	..	21	..	7	..	4	..	32	..	36
17 Malawi	..	6	..	15	..	2	..	31	..	46
18 Mozambique	..	..	..	..	..	..	..	..	..	..
19 India	21	14	6	26	28	11	30	19	15	30
20 Haiti	..	26	..	11	..	5	..	20	..	38
21 Sri Lanka	39	23	7	18	5	4	15	25	34	30
22 Sierra Leone	23	21	12	12	5	1	15	24	45	42
23 Tanzania	..	5	..	14	..	3	..	48	..	30
24 China	..	17	..	0	..	35	..	24	..	24
25 Guinea	..	..	..	..	..	..	..	..	..	..
26 Central African Rep.	15	16	9	2	2	2	26	41	48	39
27 Pakistan	22	20	10	17	2	6	27	24	39	33
28 Uganda	6	8	8	30	8	2	25	27	53	33
29 Benin	17	15	10	15	1	2	18	22	54	46
30 Niger	24	..	5	..	4	..	18	..	49	..
31 Madagascar	17	19	6	7	3	4	23	30	51	40
32 Sudan	17	19	8	2	3	1	14	38	58	40
33 Togo	16	19	6	7	3	1	32	31	43	42
Middle-income economies	15 <i>w</i>	11 <i>w</i>	9 <i>w</i>	15 <i>w</i>	13 <i>w</i>	7 <i>w</i>	28 <i>w</i>	34 <i>w</i>	35 <i>w</i>	33 <i>w</i>
Oil exporters	19 <i>w</i>	14 <i>w</i>	7 <i>w</i>	5 <i>w</i>	8 <i>w</i>	5 <i>w</i>	27 <i>w</i>	42 <i>w</i>	39 <i>w</i>	34 <i>w</i>
Oil importers	14 <i>w</i>	10 <i>w</i>	10 <i>w</i>	20 <i>w</i>	16 <i>w</i>	8 <i>w</i>	29 <i>w</i>	29 <i>w</i>	31 <i>w</i>	33 <i>w</i>
34 Ghana	19	11	5	14	4	4	26	33	46	38
35 Kenya	12	6	11	24	8	3	27	34	42	33
36 Lesotho	..	23	..	8	..	6	..	14	..	49
37 Yemen, PDR	..	17	..	47	..	1	..	23	..	12
38 Indonesia	23	16	5	11	10	6	17	32	45	35
39 Yemen Arab Rep.	..	26	..	2	..	1	..	34	..	37
40 Mauritania	5	24	3	7	3	2	39	38	50	29
41 Senegal	30	24	5	17	2	2	19	25	44	32
42 Angola	..	..	..	..	..	..	..	..	..	..
43 Liberia	16	18	4	20	7	1	34	34	39	27
44 Honduras	13	9	9	11	3	2	24	34	51	44
45 Zambia	..	8	..	18	..	2	..	36	..	36
46 Bolivia	..	10	..	1	..	1	..	44	..	44
47 Egypt	23	26	11	1	16	7	25	34	25	32
48 Zimbabwe	..	2	..	30	..	5	..	34	..	29
49 El Salvador	17	13	6	10	6	4	26	24	45	49
50 Cameroon	20	10	8	11	3	2	17	34	52	43
51 Thailand	10	4	11	23	11	10	25	26	43	37
52 Philippines	15	7	10	22	5	6	36	28	34	37
53 Nicaragua	9	14	10	21	5	2	22	14	54	49
54 Papua New Guinea	30	..	5	..	4	..	23	..	38	..
55 Congo, People's Rep.	18	27	6	7	1	1	31	26	44	39
56 Morocco	27	19	8	19	7	9	19	25	39	28
57 Mongolia	..	..	..	..	..	..	..	..	..	..
58 Albania	..	17	..	2	..	3	..	45	..	33
59 Peru	16	16	5	19	5	4	37	33	37	28
60 Nigeria	14	14	5	2	6	2	24	44	51	38
61 Jamaica	22	17	8	32	9	4	24	14	37	33
62 Guatemala	12	7	10	11	7	3	26	31	45	48
63 Ivory Coast	18	15	6	11	2	3	27	35	47	36
64 Dominican Rep.	..	17	..	27	..	4	..	19	..	33
65 Colombia	8	10	3	10	15	7	43	37	31	36
66 Ecuador	13	8	3	1	9	4	33	51	42	37

Percentage share of merchandise imports

	Food		Fuels		Other primary commodities		Machinery and transport equipment		Other manufactures	
	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b	1960 ^a	1979 ^b
	67 Paraguay	..	13	..	24	..	1	..	36	..	26
68 Tunisia	20	15	9	18	4	6	23	27	44	34
69 Korea, Dem. Rep.	..	..	..	..	..	..	..	..	..	..
70 Syrian Arab Rep.	24	14	8	25	5	4	15	23	48	34
71 Jordan	..	20	..	13	..	3	..	26	..	38
72 Lebanon	..	..	..	..	..	..	..	..	..	..
73 Turkey	7	2	11	36	16	5	42	28	24	29
74 Cuba	..	..	..	..	..	..	..	..	..	..
75 Korea, Rep. of	10	9	7	19	25	17	12	30	46	25
76 Malaysia	29	14	16	12	13	7	14	37	28	30
77 Costa Rica	13	7	6	13	6	3	26	31	49	46
78 Panama	15	10	10	28	1	1	22	21	52	40
79 Algeria	26	18	4	2	2	4	14	41	54	35
80 Brazil	14	12	19	37	13	7	36	21	18	23
81 Mexico	4	8	2	2	10	7	52	50	32	33
82 Chile	..	14	..	21	..	4	..	27	..	34
83 South Africa	6	5	7	1	9	6	37	52	41	36
84 Romania	..	..	..	..	..	..	..	..	..	..
85 Portugal	15	17	10	20	28	11	26	25	21	27
86 Argentina	3	7	13	17	11	9	44	33	29	34
87 Yugoslavia	11	8	5	16	25	10	37	36	22	30
88 Uruguay	5	10	24	24	46	9	17	26	8	31
89 Iran	14	13	1	()	1	5	23	44	61	38
90 Iraq	..	12	..	()	..	3	..	54	..	31
91 Venezuela	18	12	1	1	10	5	36	46	35	36
92 Hong Kong	27	13	3	6	16	6	10	21	44	54
93 Trinidad and Tobago	16	13	34	29	7	2	18	29	25	27
94 Greece	11	10	8	21	16	7	44	38	21	24
95 Singapore	21	10	15	25	38	9	7	29	19	27
96 Israel	20	11	7	18	18	7	28	26	27	38
High-income oil exporters	..	14 <i>w</i>	..	1 <i>w</i>	..	2 <i>w</i>	..	41 <i>w</i>	..	42 <i>w</i>
97 Libya	13	17	5	1	10	2	40	42	32	38
98 Saudi Arabia	..	13	..	1	..	2	..	41	..	43
99 Kuwait	..	16	..	1	..	3	..	35	..	45
100 United Arab Emirates	..	..	..	..	..	..	..	..	..	..
Industrial market economies	22 <i>w</i>	12 <i>w</i>	11 <i>w</i>	22 <i>w</i>	24 <i>w</i>	10 <i>w</i>	16 <i>w</i>	23 <i>w</i>	27 <i>w</i>	33 <i>w</i>
101 Ireland	18	12	12	12	11	5	21	29	38	42
102 Spain	16	15	22	30	25	13	22	19	15	23
103 Italy	20	16	14	24	31	15	13	19	22	26
104 New Zealand	8	6	8	16	16	6	29	30	39	42
105 United Kingdom	36	15	11	12	27	10	8	26	18	37
106 Finland	13	7	10	27	20	8	33	27	24	31
107 Australia	6	5	10	11	16	5	31	38	37	41
108 Japan	17	15	17	41	49	21	9	7	8	16
109 Canada	12	7	9	9	12	6	36	49	31	29
110 Austria	16	7	10	12	20	9	29	30	25	42
111 United States	24	9	10	29	25	8	10	26	31	28
112 Netherlands	18	15	13	20	14	7	22	22	33	36
113 France	25	12	17	22	25	9	14	22	19	35
114 Belgium	15	12	10	14	26	10	21	25	28	39
115 Norway	12	8	9	15	13	7	36	32	30	38
116 Denmark	18	11	12	20	11	8	23	23	36	38
117 Sweden	13	8	14	22	13	7	26	27	34	36
118 Germany, Fed. Rep.	26	13	8	20	28	10	10	19	28	38
119 Switzerland	18	9	8	12	13	6	21	25	40	48
Nonmarket industrial economies	..	..	..	..	..	..	..	..	..	..
120 Poland	..	..	..	..	..	..	..	..	..	..
121 Bulgaria	..	..	..	..	..	..	..	..	..	..
122 Hungary	8	8	12	16	28	12	28	32	24	32
123 USSR	12	..	4	..	18	..	30	..	36	..
124 Czechoslovakia	..	11	..	18	..	14	..	36	..	21
125 German Dem. Rep.	..	..	..	..	..	..	..	..	..	..

a. Figures in italics are for 1961, not 1960. b. Figures in italics are for 1978, not 1979.

Table 11. Origin and destination of merchandise exports

Origin	Destination of merchandise exports (percentage of total)							
	Industrial market economies		Nonmarket industrial economies		High-income oil exporters		Developing economies	
	1960	1980	1960	1980	1960	1980	1960	1980
Low-income economies	51 w	51 w	21 w	4 w	1 w	5 w	27 w	40 w
China and India	39 w	49 w	36 w	5 w	(.) w	5 w	25 w	41 w
Other low-income	66 w	56 w	3 w	4 w	2 w	5 w	29 w	35 w
1 Kampuchea, Dem.	..	..	..	..	..	..	..	..
2 Lao PDR	..	41	..	0	..	10	..	49
3 Bhutan	..	..	..	..	..	..	..	..
4 Chad	73	32	0	0	0	5	27	63
5 Bangladesh	..	48	..	10	..	1	..	41
6 Ethiopia	69	64	1	10	6	2	24	24
7 Nepal	..	32	..	0	..	0	..	68
8 Somalia	85	17	0	0	(.)	68	15	15
9 Burma	23	31	3	1	(.)	1	74	67
10 Afghanistan	48	42	28	21	0	2	24	35
11 Viet Nam	..	..	..	..	..	..	..	..
12 Mali	93	68	0	1	(.)	(.)	7	31
13 Burundi	..	85	..	2	..	(.)	..	13
14 Rwanda	..	93	..	0	..	(.)	..	7
15 Upper Volta	4	86	0	0	0	0	96	14
16 Zaire	89	45	(.)	(.)	(.)	(.)	11	55
17 Malawi	..	82	..	0	..	0	..	18
18 Mozambique	29	49	(.)	(.)	(.)	8	71	43
19 India	66	53	7	17	2	9	25	21
20 Haiti	98	97	(.)	0	0	0	2	3
21 Sri Lanka	75	46	3	5	0	8	22	41
22 Sierra Leone	99	100	0	0	0	0	1	(.)
23 Tanzania	74	62	1	2	0	1	25	35
24 China	14	47	61	0	(.)	3	25	50
25 Guinea	63	80	18	0	(.)	2	19	18
26 Central African Rep.	83	90	0	0	0	0	17	10
27 Pakistan	56	36	4	3	2	14	38	47
28 Uganda	62	78	0	0	0	2	38	20
29 Benin	90	87	2	0	0	0	8	13
30 Niger	74	96	0	0	0	1	26	3
31 Madagascar	79	78	1	4	(.)	0	20	18
32 Sudan	59	42	8	9	4	12	29	37
33 Togo	74	68	0	7	0	0	26	25
Middle-income economies	68 w	64 w	7 w	4 w	(.) w	2 w	25 w	30 w
Oil exporters	68 w	74 w	4 w	1 w	(.) w	(.) w	28 w	25 w
Oil importers	68 w	57 w	9 w	6 w	(.) w	3 w	23 w	34 w
34 Ghana	88	70	7	15	(.)	(.)	5	15
35 Kenya	77	51	0	1	(.)	2	23	46
36 Lesotho	..	..	..	..	..	..	..	..
37 Yemen, PDR	42	61	(.)	(.)	2	8	56	31
38 Indonesia	54	80	11	1	(.)	(.)	42	19
39 Yemen Arab Rep.	46	36	18	2	(.)	13	36	49
40 Mauritania	89	94	0	0	0	1	11	5
41 Senegal	89	70	0	0	0	(.)	11	30
42 Angola	64	51	2	0	0	1	34	48
43 Liberia	100	90	0	(.)	0	(.)	(.)	10
44 Honduras	77	85	0	0	0	(.)	23	15
45 Zambia	..	79	..	1	..	(.)	..	20
46 Bolivia	88	55	0	0	0	(.)	12	45
47 Egypt	26	73	33	7	2	1	39	19
48 Zimbabwe	..	..	..	..	..	..	..	..
49 El Salvador	88	70	0	(.)	0	0	12	30
50 Cameroon	93	92	1	1	(.)	(.)	6	7
51 Thailand	47	58	2	2	3	4	48	36
52 Philippines	94	76	0	4	(.)	1	6	19
53 Nicaragua	91	66	(.)	1	0	(.)	9	33
54 Papua New Guinea	..	92	..	1	..	0	..	7
55 Congo, People's Rep.	93	72	0	0	0	(.)	7	28
56 Morocco	74	70	3	8	(.)	2	23	20
57 Mongolia	..	..	..	..	..	..	..	..
58 Albania	1	..	93	..	0	..	6	..
59 Peru	84	72	(.)	3	0	(.)	16	25
60 Nigeria	95	95	1	(.)	0	(.)	4	5
61 Jamaica	96	82	0	4	0	(.)	4	14
62 Guatemala	94	63	0	0	0	1	6	36
63 Ivory Coast	84	81	0	3	0	(.)	16	16
64 Dominican Rep.	92	90	0	(.)	1	0	7	10
65 Colombia	94	81	1	4	0	(.)	5	15
66 Ecuador	91	64	1	2	0	0	8	34

Destination of merchandise exports (percentage of total)

Origin	Industrial market economies		Nonmarket industrial economies		High-income oil exporters		Developing economies	
	1960	1980	1960	1980	1960	1980	1960	1980
67 Paraguay	61	54	0	0	0	0	39	46
68 Tunisia	76	69	3	1	2	3	19	27
69 Korea, Dem. Rep.	..	..	..	..	..	..	..	..
70 Syrian Arab Rep.	39	30	19	15	11	7	31	48
71 Jordan	1	11	11	3	26	23	62	63
72 Lebanon	21	15	8	9	32	47	39	29
73 Turkey	71	60	12	15	(.)	4	17	21
74 Cuba	72	..	19	..	(.)	..	9	..
75 Korea, Rep. of	89	67	0	(.)	0	9	11	23
76 Malaysia	58	61	7	3	0	1	35	35
77 Costa Rica	93	63	(.)	1	(.)	(.)	7	36
78 Panama	99	75	0	(.)	0	(.)	1	25
79 Algeria	93	96	0	1	(.)	(.)	7	3
80 Brazil	81	65	6	6	(.)	1	13	28
81 Mexico	93	85	(.)	(.)	0	(.)	7	15
82 Chile	91	67	(.)	(.)	(.)	2	9	31
83 South Africa	71	81	1	0	(.)	0	28	19
84 Romania	20	27	66	42	(.)	4	14	27
85 Portugal	56	82	2	2	(.)	(.)	42	16
86 Argentina	75	44	5	17	(.)	1	20	38
87 Yugoslavia	48	34	31	43	1	3	20	20
88 Uruguay	82	48	7	4	0	1	11	47
89 Iran	62	69	3	0	1	1	34	30
90 Iraq	85	61	1	(.)	(.)	(.)	14	39
91 Venezuela	62	64	0	(.)	0	0	38	36
92 Hong Kong	54	65	(.)	(.)	1	3	45	32
93 Trinidad and Tobago	80	77	0	0	(.)	0	20	23
94 Greece	65	59	21	7	1	11	13	23
95 Singapore	38	41	4	2	1	4	57	53
96 Israel	76	80	1	(.)	0	0	23	20
High-income oil exporters	83 w	78 w	(.) w	0 w	0 w	1 w	17 w	21 w
97 Libya	67	84	7	(.)	0	(.)	26	16
98 Saudi Arabia	74	78	0	0	0	(.)	26	22
99 Kuwait	91	78	0	0	0	4	9	18
100 United Arab Emirates	..	78	..	(.)	..	2	..	20
Industrial market economies	67 w	69 w	3 w	3 w	(.) w	4 w	30 w	24 w
101 Ireland	96	88	(.)	1	(.)	2	4	9
102 Spain	80	62	2	2	(.)	5	18	31
103 Italy	65	67	4	3	2	7	29	23
104 New Zealand	95	67	1	5	(.)	1	4	27
105 United Kingdom	57	71	3	2	2	5	38	22
106 Finland	69	68	19	20	(.)	1	12	11
107 Australia	75	61	3	6	1	3	21	30
108 Japan	45	48	2	3	2	7	51	42
109 Canada	90	85	1	3	(.)	1	9	11
110 Austria	69	71	13	11	(.)	2	18	16
111 United States	61	58	1	2	1	4	37	36
112 Netherlands	78	85	1	2	1	2	20	11
113 France	53	68	3	4	(.)	3	44	25
114 Belgium	79	85	2	2	1	1	18	12
115 Norway	80	88	4	1	(.)	1	16	10
116 Denmark	83	83	4	2	(.)	2	13	13
117 Sweden	79	79	4	4	(.)	2	17	15
118 Germany, Fed. Rep.	70	75	4	4	1	3	25	18
119 Switzerland	72	72	3	3	1	3	24	22
Nonmarket industrial economies	19 w	..	59 w	..	(.) w	..	22 w	..
120 Poland	29	..	54	..	(.)	..	17	..
121 Bulgaria	13	..	80	..	(.)	..	7	..
122 Hungary	22	..	61	..	(.)	..	17	..
123 USSR	18	..	51	..	(.)	..	31	..
124 Czechoslovakia	16	..	67	..	(.)	..	17	..
125 German Dem. Rep.	19	..	68	..	(.)	..	13	..

Table 12. Origin and destination of manufactured exports

Origin	Destination of manufactured exports (percentage of total)								Value of manufactured exports (millions of dollars)	
	Industrial market economies		Nonmarket industrial economies		High-income oil exporters		Developing economies		1962 ^a	1979 ^b
	1962 ^a	1979 ^b	1962 ^a	1979 ^b	1962 ^a	1979 ^b	1962 ^a	1979 ^b		
Low-income economies	58 <i>w</i>	43 <i>w</i>	4 <i>w</i>	7 <i>w</i>	2 <i>w</i>	3 <i>w</i>	36 <i>w</i>	47 <i>w</i>		
China and India	..	40 <i>w</i>	..	6 <i>w</i>	..	2 <i>w</i>	..	52 <i>w</i>		
Other low-income	63 <i>w</i>	55 <i>w</i>	1 <i>w</i>	12 <i>w</i>	1 <i>w</i>	3 <i>w</i>	35 <i>w</i>	30 <i>w</i>		
1 Kampuchea, Dem.	30	21	1	0	0	0	69	79	1	2
2 Lao PDR	35	88	0	0	0	0	65	12	(.)	3
3 Bhutan	..	..	..	..	..	..	..	..	..	..
4 Chad	19	31	0	0	6	0	75	69	1	3
5 Bangladesh	..	49	..	13	..	(.)	..	38	..	437
6 Ethiopia	47	74	1	2	1	2	51	22	2	2
7 Nepal	..	68	..	0	..	0	..	32	..	28
8 Somalia	60	78	0	3	4	0	36	19	(.)	1
9 Burma	58	82	(.)	0	0	0	42	18	3	28
10 Afghanistan	96	82	1	7	0	1	3	10	9	43
11 Viet Nam	9	3	0	58	0	1	91	38	1	297
12 Mali	34	29	(.)	0	0	0	66	71	(.)	2
13 Burundi	..	94	..	0	..	0	..	6	..	1
14 Rwanda	..	79	..	0	..	0	..	21	(.)	(.)
15 Upper Volta	19	23	0	0	0	0	81	77	1	10
16 Zaire	93	79	0	(.)	0	0	7	21	12	63
17 Malawi	..	43	..	0	..	0	..	57	..	8
18 Mozambique	..	67	..	0	..	6	..	27	..	3
19 India	56	58	5	10	2	6	37	26	630	3,729
20 Haiti	..	96	..	0	..	0	..	4	..	62
21 Sri Lanka	63	87	2	(.)	(.)	4	35	9	6	122
22 Sierra Leone	100	100	0	0	0	0	0	0	23	72
23 Tanzania	85	68	0	0	(.)	0	15	32	20	86
24 China	..	27	..	3	..	(.)	..	70	..	5,311
25 Guinea	..	27	..	0	..	0	..	73	..	55
26 Central African Rep.	74	74	2	0	0	0	24	26	3	35
27 Pakistan	45	57	1	7	2	6	52	30	97	1,140
28 Uganda	..	100	..	0	..	0	..	0	..	2
29 Benin	19	88	3	0	0	0	78	12	1	2
30 Niger	8	89	0	0	0	0	93	11	1	76
31 Madagascar	80	75	0	5	0	0	20	20	5	29
32 Sudan	35	65	0	30	11	0	54	5	(.)	3
33 Togo	44	41	0	1	0	(.)	56	58	1	17
Middle-income economies	50 <i>w</i>	63 <i>w</i>	4 <i>w</i>	5 <i>w</i>	1 <i>w</i>	3 <i>w</i>	45 <i>w</i>	29 <i>w</i>		
Oil exporters	70 <i>w</i>	70 <i>w</i>	(.) <i>w</i>	3 <i>w</i>	2 <i>w</i>	2 <i>w</i>	28 <i>w</i>	25 <i>w</i>		
Oil importers	46 <i>w</i>	62 <i>w</i>	5 <i>w</i>	5 <i>w</i>	1 <i>w</i>	3 <i>w</i>	48 <i>w</i>	30 <i>w</i>		
34 Ghana	38	59	11	(.)	1	0	50	41	12	12
35 Kenya	..	12	..	1	..	1	..	86	12	142
36 Lesotho	..	..	..	..	..	..	..	..	..	..
37 Yemen, PDR	..	64	..	0	..	0	..	36	..	2
38 Indonesia	52	30	1	(.)	1	5	46	65	2	488
39 Yemen Arab Rep.	..	1	..	0	..	45	..	54	..	2
40 Mauritania	77	84	0	0	0	0	23	16	2	4
41 Senegal	76	31	0	0	0	0	24	69	5	41
42 Angola	..	80	..	0	..	(.)	..	20	..	60
43 Liberia	100	98	0	0	0	0	0	2	3	139
44 Honduras	3	30	0	0	0	0	97	70	2	60
45 Zambia	..	9	..	0	..	0	..	91	..	7
46 Bolivia	82	80	0	0	0	0	18	20	4	23
47 Egypt	..	36	..	48	..	4	..	12	88	373
48 Zimbabwe	..	..	..	..	..	..	..	..	..	16
49 El Salvador	1	5	0	0	0	0	99	95	18	251
50 Cameroon	25	63	0	0	0	0	75	37	4	67
51 Thailand	51	65	(.)	(.)	(.)	3	49	32	21	1,327
52 Philippines	91	80	0	(.)	(.)	1	9	19	26	1,596
53 Nicaragua	..	2	..	0	..	0	..	98	..	64
54 Papua New Guinea	..	86	..	2	..	0	..	12	2	17
55 Congo, People's Rep.	85	90	0	0	0	0	15	10	14	39
56 Morocco	49	67	2	4	(.)	4	49	25	28	460
57 Mongolia	..	(.)	..	54	..	0	..	46	..	33
58 Albania	..	33	..	0	..	0	..	67	..	44
59 Peru	53	42	0	2	0	(.)	47	56	5	205
60 Nigeria	91	94	0	(.)	0	0	9	6	34	148
61 Jamaica	72	74	0	0	0	(.)	28	26	20	422
62 Guatemala	..	6	..	0	..	0	..	94	..	268
63 Ivory Coast	58	41	0	0	0	(.)	42	59	2	212
64 Dominican Rep.	..	95	..	0	..	0	..	5	..	194
65 Columbia	57	35	0	1	0	(.)	43	64	16	715
66 Ecuador	46	23	0	0	0	0	54	77	2	39

Origin	Destination of manufactured exports (percentage of total)								Value of manufactured exports (millions of dollars)	
	Industrial market economies		Nonmarket industrial economies		High-income oil exporters		Developing economies		1962 ^a	1979 ^b
	1962 ^a	1979 ^b	1962 ^a	1979 ^b	1962 ^a	1979 ^b	1962 ^a	1979 ^b		
67 Paraguay	83	36	0	0	0	0	17	64	4	34
68 Tunisia	59	82	0	1	8	4	33	13	10	605
69 Korea, Dem. Rep.	..	5	..	45	..	9	..	41	..	242
70 Syrian Arab Rep.	..	13	..	17	..	31	..	39	21	125
71 Jordan	..	(.)	..	0	..	48	..	52	1	97
72 Lebanon	..	9	..	(.)	..	59	..	32	8	402
73 Turkey	73	71	17	4	(.)	3	10	22	4	620
74 Cuba	..	39	..	12	..	0	..	49	..	39
75 Korea, Rep. of	83	73	0	(.)	(.)	7	17	20	10	13,299
76 Malaysia	11	68	0	(.)	(.)	1	89	31	58	1,966
77 Costa Rica	..	13	..	0	..	(.)	..	87	..	228
78 Panama	24	15	0	0	0	1	76	84	1	26
79 Algeria	..	71	..	26	..	(.)	..	3	..	39
80 Brazil	54	49	2	1	0	1	44	49	39	5,876
81 Mexico	71	80	0	1	0	(.)	29	19	122	3,389
82 Chile	44	32	0	1	0	(.)	56	67	20	759
83 South Africa	..	82	..	(.)	..	(.)	..	18	318	5,166
84 Romania	..	36	..	11	..	1	..	52	..	5,712
85 Portugal	53	82	(.)	3	1	(.)	46	15	205	2,529
86 Argentina	61	39	3	6	(.)	1	36	54	39	1,888
87 Yugoslavia	31	34	28	44	1	3	40	19	344	4,841
88 Uruguay	..	56	..	1	..	0	..	43	..	375
89 Iran	64	82	1	6	7	5	28	7	33	597
90 Iraq	(.)	1	(.)	(.)	79	9	21	90	5	53
91 Venezuela	93	67	0	0	0	0	7	33	158	238
92 Hong Kong	62	83	0	(.)	1	2	37	15	642	10,804
93 Trinidad and Tobago	34	91	0	0	0	(.)	66	9	13	157
94 Greece	52	66	4	4	3	14	41	16	27	1,773
95 Singapore	5	48	0	1	(.)	3	95	48	328	7,372
96 Israel	66	78	2	1	0	0	32	21	184	3,654
High-income oil exporters	..	13 <i>w</i>	..	(.) <i>w</i>	..	31 <i>w</i>	..	56 <i>w</i>	..	..
97 Libya	68	62	0	1	0	0	32	37	(.)	69
98 Saudi Arabia	..	19	..	(.)	..	6	..	75	..	465
99 Kuwait	..	6	..	0	..	45	..	49	..	975
100 United Arab Emirates	..	..	..	..	..	..	..	..	..	..
Industrial market economies	62 <i>w</i>	67 <i>w</i>	3 <i>w</i>	4 <i>w</i>	2 <i>w</i>	4 <i>w</i>	33 <i>w</i>	25 <i>w</i>	..	..
101 Ireland	76	92	0	1	(.)	1	24	6	134	4,080
102 Spain	57	59	1	3	1	4	41	34	205	13,347
103 Italy	64	68	5	4	2	6	29	22	3,490	60,125
104 New Zealand	90	80	0	(.)	0	0	10	20	23	871
105 United Kingdom	57	69	3	2	2	4	38	25	8,947	69,884
106 Finland	55	69	31	20	1	1	13	10	608	8,034
107 Australia	61	52	(.)	(.)	(.)	1	39	47	263	4,759
108 Japan	44	49	4	4	2	6	50	41	4,340	98,964
109 Canada	89	89	(.)	1	(.)	1	11	9	1,959	28,119
110 Austria	65	69	16	14	1	1	17	16	931	12,928
111 United States	47	59	(.)	1	2	5	51	35	13,957	118,774
112 Netherlands	76	81	2	3	2	2	20	14	2,443	33,849
113 France	58	65	4	5	(.)	3	38	27	5,317	74,222
114 Belgium	82	85	2	2	1	1	15	12	3,257	43,357
115 Norway	79	72	2	3	(.)	1	19	24	442	5,428
116 Denmark	75	82	7	3	1	1	17	14	627	7,874
117 Sweden	76	77	5	4	(.)	3	19	16	1,958	22,016
118 Germany, Fed. Rep.	73	72	3	5	1	3	23	20	11,623	149,844
119 Switzerland	72	69	2	4	1	3	25	24	2,005	24,163
Nonmarket industrial economies	..	14 <i>w</i>	..	53 <i>w</i>	..	1 <i>w</i>	..	32 <i>w</i>	..	..
120 Poland	..	19	..	42	..	1	..	38	..	9,836
121 Bulgaria	..	5	..	57	..	3	..	35	..	4,926
122 Hungary	..	23	..	58	..	1	..	18	..	5,441
123 USSR	..	..	..	..	..	..	..	..	..	25,456
124 Czechoslovakia	..	14	..	71	..	1	..	14	..	11,378
125 German Dem. Rep.	..	9	..	41	..	1	..	49	..	11,412

a. Figures in italics are for 1963, not 1962. b. Figures in italics are for 1978, not 1979

Table 13. Balance of payments and debt service ratios

	Current account balance (millions of dollars)		Interest payments on external public debt (millions of dollars)		Debt service as percentage of:			
	1970	1980 ^a	1970	1980	GNP		Exports of goods and services	
					1970	1980	1970	1980 ^a
Low-income economies					1.1 <i>w</i>	1.1 <i>w</i>	13.8 <i>w</i>	9.2 <i>w</i>
China and India					..	..	..	..
Other low-income					1.5 <i>w</i>	1.9 <i>w</i>	9.9 <i>w</i>	9.5 <i>w</i>
1 Kampuchea Dem.	..	..	..	..	..	..	..	..
2 Lao PDR	..	..	..	..	..	..	..	..
3 Bhutan	..	..	..	..	..	..	..	..
4 Chad	2	..	(.)	4	1.0	3.1	3.9	..
5 Bangladesh	-60	-755	..	37	..	0.7	..	5.6
6 Ethiopia	-32	-228	6	19	1.2	1.1	11.4	7.6
7 Nepal	..	-53	(.)	2	0.3	0.2	..	1.5
8 Somalia	-5	-136	(.)	2	0.3	0.5	2.1	3.5
9 Burma	-64	-325	3	45	0.9	1.9	15.8	22.2
10 Afghanistan	..	..	9	23	2.5	..	..	..
11 Viet Nam	..	..	..	..	..	..	..	..
12 Mali	-2	-99	(.)	4	0.2	0.8	1.2	3.6
13 Burundi	2	..	(.)	2	0.3	0.6	..	..
14 Rwanda	6	-68	(.)	1	0.2	0.2	1.4	1.1
15 Upper Volta	9	..	(.)	7	0.6	1.2	4.0	..
16 Zaire	-64	..	9	153	2.1	5.8	4.4	..
17 Malawi	-35	-139	3	32	1.9	4.5	7.0	18.4
18 Mozambique	..	..	..	..	..	..	..	..
19 India	-394	-3,163	189	362	0.9	0.6	20.9	8.9
20 Haiti	2	-77	(.)	5	1.0	1.1	5.8	4.2
21 Sri Lanka	-59	-664	12	32	2.0	2.0	10.3	6.0
22 Sierra Leone	-16	-168	2	8	2.9	4.2	10.1	18.4
23 Tanzania	-35	-548	6	31	1.2	1.0	8.2	7.3
24 China	..	..	..	..	..	..	..	..
25 Guinea	..	..	4	23	2.4	6.1	..	..
26 Central African Rep.	-11	7	(.)	2	1.1	1.0	3.3	4.5
27 Pakistan	-667	-928	76	242	1.9	2.4	23.6	11.3
28 Uganda	20	-18	4	3	0.6	0.3	3.4	11.9
29 Benin	-1	..	(.)	2	0.7	0.6	2.2	..
30 Niger	(.)	..	1	16	0.6	2.2	3.8	2.3
31 Madagascar	10	-433	2	26	0.8	1.8	3.5	7.4
32 Sudan	-42	-196	13	16	1.7	1.8	10.7	14.4
33 Togo	3	..	1	54	0.9	14.4	3.0	..
Middle-income economies					1.6 <i>w</i>	2.9 <i>w</i>	9.9 <i>w</i>	13.0 <i>w</i>
Oil exporters					1.8 <i>w</i>	3.8 <i>w</i>	10.5 <i>w</i>	14.5 <i>w</i>
Oil importers					1.4 <i>w</i>	2.4 <i>w</i>	9.6 <i>w</i>	11.9 <i>w</i>
34 Ghana	-68	-91	12	28	1.1	0.6	5.2	6.0
35 Kenya	-39	-985	11	100	1.7	2.6	5.3	8.8
36 Lesotho	..	..	(.)	1	0.4	0.8	..	..
37 Yemen, PDR	-4	-35	..	7	..	1.5	..	1.5
38 Indonesia	-310	2,872	24	824	0.9	2.7	6.9	8.0
39 Yemen Arab Rep.	..	-478	..	5	..	0.6	..	1.1
40 Mauritania	-5	-116	(.)	13	2.0	5.9	3.2	32.9
41 Senegal	-16	..	2	57	0.8	6.9	2.7	..
42 Angola	..	..	..	..	..	..	..	..
43 Liberia	..	..	6	27	5.5	4.2	..	..
44 Honduras	-64	-321	3	55	0.8	3.9	2.8	9.9
45 Zambia	108	-508	23	98	3.2	9.5	5.6	24.4
46 Bolivia	-22	-115	6	157	2.3	4.7	11.0	25.9
47 Egypt	-154	-489	38	490	4.1	6.9	28.7	18.9
48 Zimbabwe	-13	-255	5	10	0.6	0.9	..	2.6
49 El Salvador	8	-86	4	24	0.9	1.2	3.6	3.5
50 Cameroon	-30	-129	4	103	0.8	3.1	3.2	7.7
51 Thailand	-250	-2,280	16	267	0.6	1.3	3.4	5.2
52 Philippines	-48	-2,046	25	342	1.4	1.6	7.5	7.0
53 Nicaragua	-39	160	7	38	3.2	3.7	11.1	14.5
54 Papua New Guinea	..	-267	1	30	0.1	2.6	..	5.9
55 Congo, People's Rep.	-65	-172	3	39	3.3	6.1	8.9	9.3
56 Morocco	-124	-1,416	23	618	1.5	6.5	7.7	27.5
57 Mongolia	..	..	..	..	..	..	..	..
58 Albania	..	..	..	..	..	..	..	..
59 Peru	240	618	44	547	2.1	8.1	11.6	31.3
60 Nigeria	-368	2,915	20	394	0.7	0.5	4.2	1.9
61 Jamaica	-153	-174	8	107	1.1	7.9	2.5	12.8
62 Guatemala	-8	-163	6	31	1.4	0.8	7.4	3.5
63 Ivory Coast	-37	-1,742	11	296	2.8	8.2	6.8	23.9
64 Dominican Rep.	-102	-341	4	97	0.8	2.3	4.5	21.5
65 Colombia	293	-25	44	282	1.7	1.7	11.6	9.6
66 Ecuador	-113	-575	7	230	1.5	3.8	9.1	14.0

	Current account balance (millions of dollars)		Interest payments on external public debt (millions of dollars)		Debt service as percentage of:			
					GNP		Exports of goods and services	
	1970	1980 ^a	1970	1980	1970	1980	1970	1980 ^a
67 Paraguay	-17	-282	4	35	1.8	1.8	11.8	11.3
68 Tunisia	-53	-324	18	191	4.5	4.7	18.5	12.2
69 Korea, Dem. Rep.	..	..	..	..	..	..	..	..
70 Syrian Arab Rep.	-69	-640	6	95	2.0	3.2	11.0	14.5
71 Jordan	-17	374	2	58	..	3.9	3.6	5.4
72 Lebanon	..	..	1	6	0.2	..	..	..
73 Turkey	-70	-2,762	42	589	1.3	1.7	16.3	15.8
74 Cuba	..	..	..	..	..	..	..	..
75 Korea, Rep. of	-623	-5,326	70	1,310	3.1	4.9	19.4	12.2
76 Malaysia	8	-470	21	208	1.7	1.4	3.6	2.3
77 Costa Rica	-74	-655	7	125	2.9	4.3	9.9	16.4
78 Panama	-64	-288	7	253	3.0	14.3	7.7	18.4
79 Algeria	-126	239	10	1,305	0.9	9.5	3.2	24.9
80 Brazil	-837	-12,871	133	4,142	0.9	3.4	12.5	34.0
81 Mexico	-1,060	-7,466	216	3,844	2.1	4.9	24.1	31.9
82 Chile	-91	-1,784	78	494	3.1	5.2	18.9	22.9
83 South Africa	-1,215	3,519	..	..	..	..	..	..
84 Romania	..	-2,420	..	..	..	..	..	..
85 Portugal	70	-1,076	29	445	1.4	4.1	..	10.1
86 Argentina	-158	-4,700	121	827	1.9	1.4	21.5	16.6
87 Yugoslavia	-348	-2,292	72	248	1.8	0.9	8.3	3.4
88 Uruguay	-45	-709	16	98	2.6	1.9	25.3	11.8
89 Iran	-507	..	85	..	3.0	..	12.2	..
90 Iraq	101	..	9	..	0.9	..	2.2	..
91 Venezuela	-104	4,240	40	1,229	0.7	4.9	2.9	13.2
92 Hong Kong	..	..	..	29	..	0.3	..	..
93 Trinidad and Tobago	-80	-39	6	45	1.9	1.5	4.4	2.2
94 Greece	-405	-2,218	41	408	1.0	2.1	7.1	9.4
95 Singapore	-572	-1,577	6	105	0.6	2.5	0.6	1.1
96 Israel	-613	-876	13	562	0.7	5.9	2.6	11.8
High-income oil exporters								
97 Libya	645	7,364	..	..	..	..	..	..
98 Saudi Arabia	71	39,799	..	..	..	..	..	..
99 Kuwait	..	15,799	..	..	..	..	..	..
100 United Arab Emirates	..	..	..	..	..	..	..	..
Industrial market economies^b								
101 Ireland	-189	-1,311	..	..	..	..	..	..
102 Spain	79	-4,635	..	..	..	..	..	..
103 Italy	902	9,958	..	..	..	..	..	..
104 New Zealand	-29	-678	..	..	..	..	..	..
105 United Kingdom	1,881	6,088	..	..	..	..	..	..
106 Finland	-239	-1,399	..	..	..	..	..	..
107 Australia	-832	-4,273	..	..	..	..	..	..
108 Japan	1,980	-10,737	..	..	..	..	..	..
109 Canada	1,078	-1,639	..	..	..	..	..	..
110 Austria	-23	-3,619	..	..	..	..	..	..
111 United States	2,357	3,722	..	..	..	..	..	..
112 Netherlands	-520	-2,760	..	..	..	..	..	..
113 France	72	-7,786	..	..	..	..	..	..
114 Belgium	715	-5,868	..	..	..	..	..	..
115 Norway	-242	1,009	..	..	..	..	..	..
116 Denmark	-544	-2,524	..	..	..	..	..	..
117 Sweden	-266	-5,242	..	..	..	..	..	..
118 Germany, Fed. Rep.	850	-15,800	..	..	..	..	..	..
119 Switzerland	70	-552	..	..	..	..	..	..
Nonmarket industrial economies^b								
120 Poland	..	..	..	..	..	..	..	..
121 Bulgaria	..	..	..	..	..	..	..	..
122 Hungary	..	..	..	..	..	..	..	..
123 USSR	..	..	..	..	..	..	..	..
124 Czechoslovakia	..	..	..	..	..	..	..	..
125 German Dem. Rep.	..	..	..	..	..	..	..	..

a. Figures in italics are for 1979, not 1980. b. See the technical notes.

Table 14. Flow of external capital

	Public and publicly guaranteed medium- and long-term loans (millions of dollars)						Net direct private investment (millions of dollars)	
	Gross inflow		Repayment of principal		Net inflow		1970	1980 ^a
	1970	1980	1970	1980	1970	1980		
Low-income economies								
China and India								
Other low-income								
1 Kampuchea, Dem.	..	..	..	..	..	..	..	..
2 Lao PDR	..	..	..	..	..	..	..	..
3 Bhutan	..	..	..	..	..	..	..	..
4 Chad	6	9	2	12	4	-3	1	..
5 Bangladesh	..	597	..	40	..	557	..	..
6 Ethiopia	27	132	15	16	12	116	4	..
7 Nepal	1	55	2	2	-1	53	..	..
8 Somalia	4	114	(.)	5	4	109	5	..
9 Burma	16	281	18	64	-2	217	..	..
10 Afghanistan	31	113	15	157	16	-44	..	..
11 Viet Nam	..	..	..	..	..	..	..	..
12 Mali	21	85	(.)	7	21	78	..	4
13 Burundi	1	43	(.)	4	1	39	..	..
14 Rwanda	(.)	34	(.)	1	(.)	33	(.)	20
15 Upper Volta	2	79	2	9	(.)	70	1	..
16 Zaire	31	198	28	155	3	43	42	..
17 Malawi	38	160	3	35	35	125	9	6
18 Mozambique	..	..	..	..	..	..	..	..
19 India	890	2,477	307	636	583	1,841	6	..
20 Haiti	4	55	4	11	(.)	44	3	13
21 Sri Lanka	61	296	27	49	34	247	(.)	43
22 Sierra Leone	8	88	10	34	-2	54	8	12
23 Tanzania	50	210	10	20	40	190	..	..
24 China	..	..	..	..	..	..	..	..
25 Guinea	90	122	10	72	80	50	..	..
26 Central African Rep.	2	43	2	6	(.)	37	1	21
27 Pakistan	484	1,199	114	363	370	832	31	57
28 Uganda	26	169	4	37	22	132	4	3
29 Benin	2	84	1	4	1	80	7	..
30 Niger	12	177	1	23	11	154	1	..
31 Madagascar	10	438	5	34	5	404	10	-6
32 Sudan	54	749	22	132	32	617	..	..
33 Togo	5	222	2	97	3	125	1	..
Middle-income economies								
Oil exporters								
Oil importers								
34 Ghana	40	129	12	48	28	81	8	10
35 Kenya	30	414	15	79	15	335	14	61
36 Lesotho	(.)	22	(.)	3	(.)	19	..	..
37 Yemen, PDR	1	101	..	6	1	95	..	..
38 Indonesia	441	2,592	59	953	382	1,639	83	184
39 Yemen Arab Rep.	..	399	..	13	..	386	..	142
40 Mauritania	4	153	3	17	1	136	1	84
41 Senegal	15	283	5	123	10	160	5	..
42 Angola	..	..	..	..	..	..	..	..
43 Liberia	7	90	12	16	-5	74	..	..
44 Honduras	29	180	3	39	26	141	8	5
45 Zambia	351	517	32	237	319	280	..	..
46 Bolivia	54	439	17	117	37	322	-76	42
47 Egypt	302	2,982	247	1,246	55	1,736	..	541
48 Zimbabwe	(.)	130	5	34	-5	96	..	2
49 El Salvador	8	124	6	17	2	107	4	6
50 Cameroon	28	571	4	79	24	492	16	65
51 Thailand	55	1,329	23	168	32	1,162	43	186
52 Philippines	132	1,390	73	220	59	1,170	-29	40
53 Nicaragua	44	269	17	39	27	230	15	3
54 Papua New Guinea	25	134	(.)	35	25	99	..	60
55 Congo, People's Rep.	35	230	6	58	29	172	..	46
56 Morocco	163	1,567	36	573	127	994	20	90
57 Mongolia	..	..	..	..	..	..	..	..
58 Albania	..	..	..	..	..	..	..	..
59 Peru	148	1,231	101	954	47	277	-70	70
60 Nigeria	62	1,526	36	84	26	1,442	205	595
61 Jamaica	15	200	6	82	9	118	161	-12
62 Guatemala	37	93	20	33	17	60	29	111
63 Ivory Coast	77	1,426	27	534	50	892	31	109
64 Dominican Rep.	38	382	7	61	31	321	72	-13
65 Colombia	235	1,005	75	264	160	741	39	233
66 Ecuador	42	749	16	179	26	570	89	81

	Public and publicly guaranteed medium- and long-term loans (millions of dollars)						Net direct private investment (millions of dollars)	
	Gross inflow		Repayment of principal		Net inflow		1970	1980 ^a
	1970	1980	1970	1980	1970	1980		
67 Paraguay	15	158	7	44	8	114	4	31
68 Tunisia	87	431	45	222	42	209	16	234
69 Korea, Dem. Rep.	..	..	..	..	..	..	..	..
70 Syrian Arab Rep.	59	509	30	297	29	212	..	..
71 Jordan	14	307	3	76	11	231	..	31
72 Lebanon	12	109	2	7	10	102	..	..
73 Turkey	328	2,222	128	399	200	1,823	58	89
74 Cuba	..	..	..	..	..	..	..	..
75 Korea, Rep. of	440	3,548	198	1,452	242	2,096	66	-5
76 Malaysia	43	358	45	118	-2	240	94	928
77 Costa Rica	30	398	21	75	9	323	26	13
78 Panama	67	387	24	210	43	177	33	40
79 Algeria	292	3,401	33	2,405	259	996	45	315
80 Brazil	883	6,039	255	3,769	628	2,270	407	1,568
81 Mexico	772	8,551	476	4,048	296	4,503	323	1,852
82 Chile	397	869	163	915	234	-46	-79	194
83 South Africa	..	..	..	..	..	..	145	-494
84 Romania	..	..	..	..	..	..	..	..
85 Portugal	18	1,371	63	538	-45	833	50	102
86 Argentina	487	2,805	342	1,160	145	1,645	11	741
87 Yugoslavia	180	1,334	168	367	12	967	..	..
88 Uruguay	38	224	47	90	-9	134	..	289
89 Iran	940	..	235	..	705	..	25	..
90 Iraq	63	..	18	..	45	..	24	..
91 Venezuela	224	2,856	42	1,733	182	1,123	-23	55
92 Hong Kong	(.)	131	(.)	36	(.)	95	..	..
93 Trinidad and Tobago	8	106	10	35	-2	71	83	94
94 Greece	164	1,587	61	483	103	1,104	50	74
95 Singapore	58	190	6	160	52	30	93	1,454
96 Israel	410	3,106	25	631	385	2,475	40	-85
High-income oil exporters								
97 Libya	..	..	..	..	..	..	139	-319
98 Saudi Arabia	..	..	..	..	..	..	20	-3,367
99 Kuwait	..	..	..	..	..	..	..	-436
100 United Arab Emirates	..	..	..	..	..	..	..	..
Industrial market economies^b								
101 Ireland	..	..	..	..	..	..	32	337
102 Spain	..	..	..	..	..	..	179	1,182
103 Italy	..	..	..	..	..	..	496	-160
104 New Zealand	..	..	..	..	..	..	22	77
105 United Kingdom	..	..	..	..	..	..	-440	-1,221
106 Finland	..	..	..	..	..	..	-34	-102
107 Australia	..	..	..	..	..	..	787	1,641
108 Japan	..	..	..	..	..	..	-261	-2,121
109 Canada	..	..	..	..	..	..	566	-2,373
110 Austria	..	..	..	..	..	..	84	139
111 United States	..	..	..	..	..	..	-6,130	-7,757
112 Netherlands	..	..	..	..	..	..	-14	-1,447
113 France	..	..	..	..	..	..	248	226
114 Belgium	..	..	..	..	..	..	-290	-3,410
115 Norway	..	..	..	..	..	..	32	-194
116 Denmark	..	..	..	..	..	..	75	89
117 Sweden	..	..	..	..	..	..	-105	-368
118 Germany, Fed. Rep.	..	..	..	..	..	..	-290	-3,410
119 Switzerland	..	..	..	..	..	..	..	..
Nonmarket industrial economies^b								
120 Poland	..	..	..	..	..	..	..	..
121 Bulgaria	..	..	..	..	..	..	..	..
122 Hungary	..	..	..	..	..	..	..	..
123 USSR	..	..	..	..	..	..	..	..
124 Czechoslovakia	..	..	..	..	..	..	..	..
125 German Dem. Rep.	..	..	..	..	..	..	..	..

a. Figures in italics are for 1979, not 1980. b. See the technical notes.

Table 15. External public debt and international reserves

	External public debt outstanding and disbursed				Gross international reserves		
	Millions of dollars		As percentage of GNP		Millions of dollars		In months of import coverage 1980 ^a
	1970	1980	1970	1980 ^a	1970	1980 ^a	
Low-income economies			15.6 <i>w</i>	19.2 <i>w</i>			5.3 <i>w</i>
China and India							7.2 <i>w</i>
Other low-income			16.5 <i>w</i>	31.4 <i>w</i>			2.1 <i>w</i>
1 Kampuchea, Dem.	..	..	..	..	..	..	..
2 Lao PDR	..	..	..	..	..	..	..
3 Bhutan	..	..	..	..	..	..	..
4 Chad	32	159	11.8	31.7	2	11	..
5 Bangladesh	..	3,495	..	30.8	..	329	1.4
6 Ethiopia	169	728	9.5	17.8	72	263	3.6
7 Nepal	3	177	0.3	8.7	95	277	7.8
8 Somalia	77	688	24.4	45.3	21	27	0.6
9 Burma	101	1,517	4.7	26.1	98	408	5.4
10 Afghanistan	454	1,094	48.2	..	50	943	..
11 Viet Nam	..	..	..	..	..	..	..
12 Mali	238	621	88.1	43.8	1	26	0.4
13 Burundi	7	137	3.1	15.6	15	105	..
14 Rwanda	2	158	0.9	15.1	8	186	5.8
15 Upper Volta	21	323	6.3	24.4	36	73	..
16 Zaïre	311	4,190	17.6	78.5	189	381	..
17 Malawi	122	634	39.1	42.6	29	75	1.6
18 Mozambique	..	..	..	..	..	..	..
19 India	7,936	17,358	14.9	10.0	1,023	12,007	8.3
20 Haiti	40	258	10.3	18.5	4	28	0.7
21 Sri Lanka	317	1,337	16.1	32.5	43	282	1.5
22 Sierra Leone	59	344	14.3	34.3	39	31	1.3
23 Tanzania	248	1,360	19.4	27.6	65	20	0.2
24 China	..	..	..	..	..	10,144	6.2
25 Guinea	314	1,074	51.7	68.6	..	..	..
26 Central African Rep.	19	155	11.2	21.3	1	61	2.5
27 Pakistan	3,059	8,775	30.5	34.7	194	1,569	2.8
28 Uganda	128	669	9.8	4.8	57	17	0.5
29 Benin	41	262	16.0	23.4	16	14	..
30 Niger	32	399	8.7	22.1	19	132	2.1
31 Madagascar	93	1,035	10.8	31.6	37	5	0.1
32 Sudan	308	3,097	15.3	37.2	22	48	0.4
33 Togo	40	907	16.0	86.7	35	84	..
Middle-income economies			11.8 <i>w</i>	17.4 <i>w</i>			4.1 <i>w</i>
Oil exporters			14.0 <i>w</i>	21.3 <i>w</i>			4.6 <i>w</i>
Oil importers			10.7 <i>w</i>	15.4 <i>w</i>			3.8 <i>w</i>
34 Ghana	489	1,011	22.6	8.0	58	344	2.9
35 Kenya	313	1,745	20.3	25.5	220	539	2.1
36 Lesotho	8	71	7.8	11.1	..	..	..
37 Yemen, PDR	1	499	..	58.6	60	257	5.6
38 Indonesia	2,443	14,940	27.1	22.5	160	6,800	4.2
39 Yemen Arab Rep.	..	836	..	27.1	..	1,289	6.8
40 Mauritania	27	714	16.8	139.7	3	146	3.2
41 Senegal	98	906	11.6	34.9	22	25	..
42 Angola	..	..	..	..	..	..	..
43 Liberia	158	537	49.6	52.8	..	4	..
44 Honduras	90	892	12.8	36.9	20	161	1.5
45 Zambia	581	1,815	34.6	51.2	515	207	1.3
46 Bolivia	479	2,124	47.1	36.4	46	554	5.4
47 Egypt	1,644	13,054	23.8	51.7	165	2,478	3.0
48 Zimbabwe	233	698	15.8	13.8	59	373	2.4
49 El Salvador	88	509	8.6	15.3	63	384	3.6
50 Cameroon	131	2,002	12.1	34.0	81	206	0.9
51 Thailand	328	4,063	5.0	12.4	911	3,028	3.3
52 Philippines	633	6,402	9.0	18.2	255	3,977	4.6
53 Nicaragua	155	1,698	20.7	83.0	50	..	..
54 Papua New Guinea	36	507	5.8	20.3	..	459	3.6
55 Congo, People's Rep.	143	898	54.4	77.4	9	91	0.9
56 Morocco	711	7,098	18.0	38.6	141	811	1.7
57 Mongolia	..	..	..	..	..	..	..
58 Albania	..	..	..	..	..	..	..
59 Peru	856	6,204	12.6	33.7	338	2,805	6.9
60 Nigeria	478	4,997	6.4	5.5	223	10,642	5.8
61 Jamaica	154	1,299	11.5	54.1	139	105	0.7
62 Guatemala	106	541	5.7	6.9	80	752	4.3
63 Ivory Coast	256	4,265	18.3	41.9	119	43	0.4
64 Dominican Rep.	212	1,186	14.5	17.5	32	278	2.2
65 Colombia	1,249	4,090	18.1	12.6	207	6,476	13.7
66 Ecuador	217	2,655	13.5	24.4	85	1,254	4.3

	External public debt outstanding and disbursed				Gross international reserves		
	Millions of dollars		As percentage of GNP		Millions of dollars		In months of import coverage 1980 ^a
	1970	1980	1970	1980 ^a	1970	1980 ^a	
67 Paraguay	112	634	19.1	14.5	18	785	9.6
68 Tunisia	541	2,955	38.2	33.9	60	703	2.2
69 Korea, Dem. Rep.	..	..	..	..	..	..	..
70 Syrian Arab Rep.	232	2,493	12.8	20.1	57	826	2.0
71 Jordan	118	1,266	..	37.4	258	1,744	6.1
72 Lebanon	64	194	4.2	..	405	7,023	..
73 Turkey	1,854	13,216	14.4	22.4	440	3,497	4.6
74 Cuba	..	..	..	..	..	..	..
75 Korea, Rep. of	1,797	16,274	20.9	28.8	610	3,101	1.3
76 Malaysia	390	3,103	10.0	13.7	667	5,755	4.7
77 Costa Rica	134	1,585	13.8	34.3	16	198	1.3
78 Panama	194	2,276	19.0	70.1	16	117	0.6
79 Algeria	937	15,073	19.3	38.7	352	7,050	5.7
80 Brazil	3,232	37,824	7.2	16.4	1,190	6,877	1.9
81 Mexico	3,206	33,490	9.7	20.6	756	4,046	1.5
82 Chile	2,066	4,885	26.2	18.0	392	4,126	6.2
83 South Africa	..	..	..	..	1,057	7,888	3.7
84 Romania	..	..	..	..	..	2,510	..
85 Portugal	485	5,610	7.2	23.6	1,565	13,865	15.2
86 Argentina	1,878	10,285	7.6	7.2	682	9,295	6.7
87 Yugoslavia	1,198	4,541	8.8	6.6	144	2,480	1.4
88 Uruguay	269	1,040	11.1	10.7	186	2,796	14.5
89 Iran	2,193	..	20.8	..	217	17,205	..
90 Iraq	274	..	8.8	..	472	..	..
91 Venezuela	728	10,867	6.6	18.0	1,047	13,360	8.9
92 Hong Kong	2	436	0.1	1.9	..	..	..
93 Trinidad and Tobago	101	492	12.5	9.0	43	2,810	11.6
94 Greece	905	4,541	8.9	10.9	318	3,394	3.5
95 Singapore	152	1,369	7.9	12.8	1,012	6,567	3.0
96 Israel	2,274	12,633	41.3	62.2	451	4,053	3.5
High-income oil exporters	..	..	..	..	..	..	5.8 <i>w</i>
97 Libya	..	..	..	..	1,596	14,906	10.2
98 Saudi Arabia	..	..	..	..	670	26,131	4.8
99 Kuwait	..	..	..	..	209	5,426	6.1
100 United Arab Emirates	..	..	..	..	..	2,357	..
Industrial market economies^b	..	..	..	..	..	..	4.8 <i>w</i>
101 Ireland	..	..	..	..	698	3,073	3.0
102 Spain	..	..	..	..	1,851	20,475	6.0
103 Italy	..	..	..	..	5,547	62,443	6.5
104 New Zealand	..	..	..	..	258	365	0.6
105 United Kingdom	..	..	..	..	2,918	31,758	2.5
106 Finland	..	..	..	..	456	2,453	1.6
107 Australia	..	..	..	..	1,709	6,365	2.6
108 Japan	..	..	..	..	4,876	38,921	2.8
109 Canada	..	..	..	..	4,732	15,461	2.3
110 Austria	..	..	..	..	1,806	17,725	6.5
111 United States	..	..	..	..	15,237	171,414	6.2
112 Netherlands	..	..	..	..	3,362	37,548	4.6
113 France	..	..	..	..	5,199	75,592	5.4
114 Belgium	..	..	..	..	2,947	27,836	3.5
115 Norway	..	..	..	..	813	6,744	3.0
116 Denmark	..	..	..	..	488	4,347	2.0
117 Sweden	..	..	..	..	775	6,996	2.0
118 Germany, Fed. Rep.	..	..	..	..	13,879	104,120	5.1
119 Switzerland	..	..	..	..	5,317	64,750	18.3
Nonmarket industrial economies^b	..	..	..	..	..	..	..
120 Poland	..	..	..	..	..	..	..
121 Bulgaria	..	..	..	..	..	..	..
122 Hungary	..	..	..	..	..	..	..
123 USSR	..	..	..	..	..	..	..
124 Czechoslovakia	..	..	..	..	..	..	..
125 German Dem. Rep.	..	..	..	..	..	..	..

a. Figures in italics are for 1979, not 1980. b. See the technical notes.

Table 16. Official development assistance from OECD and OPEC members

	Amount									
	1960	1965	1970	1975	1976	1977	1978	1979	1980	1981 ^a
OECD										
Millions of US dollars										
103 Italy	77	60	147	182	226	198	376	273	683	670
104 New Zealand	..	..	14	66	53	53	55	67	72	67
105 United Kingdom	407	472	500	904	885	1,114	1,465	2,105	1,851	2,194
106 Finland	..	2	7	48	51	49	55	86	110	135
107 Australia	59	119	212	552	377	400	588	620	667	649
108 Japan	105	244	458	1,148	1,105	1,424	2,215	2,637	3,353	3,170
109 Canada	75	96	337	880	887	991	1,060	1,026	1,075	1,187
110 Austria	..	10	11	79	50	108	154	127	178	317
111 United States	2,702	4,023	3,153	4,161	4,360	4,682	5,663	4,684	7,138	5,760
112 Netherlands	35	70	196	608	728	908	1,074	1,404	1,630	1,510
113 France	823	752	971	2,093	2,146	2,267	2,705	3,370	4,162	4,022
114 Belgium	101	102	120	378	340	371	536	631	595	574
115 Norway	5	11	37	184	218	295	355	429	486	467
116 Denmark	5	13	59	205	214	258	388	448	474	405
117 Sweden	7	38	117	566	608	779	783	956	962	916
118 Germany, Fed. Rep.	223	456	599	1,689	1,593	1,717	2,347	3,350	3,567	3,182
119 Switzerland	4	12	30	104	112	119	173	207	253	236
Total	4,628	6,478	6,967	13,847	13,953	15,733	19,992	22,420	27,256	25,461
OECD										
As percentage of donor GNP										
103 Italy	.22	.10	.16	.11	.13	.10	.14	.08	.17	.19
104 New Zealand	..	..	.23	.52	.41	.39	.34	.33	.33	.29
105 United Kingdom	.56	.47	.41	.39	.39	.45	.46	.51	.35	.43
106 Finland	..	.02	.06	.18	.17	.16	.16	.21	.23	.28
107 Australia	.37	.53	.59	.65	.41	.42	.55	.52	.48	.41
108 Japan	.24	.27	.23	.23	.20	.21	.23	.26	.32	.28
109 Canada	.19	.19	.41	.54	.46	.50	.52	.46	.43	.43
110 Austria	..	.11	.07	.21	.12	.22	.27	.19	.23	.48
111 United States	.53	.58	.32	.27	.26	.25	.27	.20	.27	.20
112 Netherlands	.31	.36	.61	.75	.83	.86	.82	.93	1.03	1.08
113 France	1.35	.76	.66	.62	.62	.60	.57	.59	.64	.71
114 Belgium	.88	.60	.46	.59	.51	.46	.55	.56	.50	.59
115 Norway	.11	.16	.32	.66	.70	.83	.90	.93	.85	.82
116 Denmark	.09	.13	.38	.58	.56	.60	.75	.75	.73	.73
117 Sweden	.05	.19	.38	.82	.82	.99	.90	.94	.79	.83
118 Germany, Fed. Rep.	.31	.40	.32	.40	.36	.33	.37	.44	.43	.46
119 Switzerland	.04	.09	.15	.19	.19	.19	.20	.21	.24	.24
OECD										
National currencies										
103 Italy (billions of lire)	48	38	92	119	188	175	319	227	575	762
104 New Zealand (millions of dollars)	..	..	13	54	53	55	53	65	74	77
105 United Kingdom (millions of pounds)	145	168	208	407	490	638	763	992	796	1,082
106 Finland (millions of markkaa)	..	6	29	177	197	197	226	335	410	583
107 Australia (millions of dollars)	53	106	189	421	308	361	514	555	585	565
108 Japan (billions of yen)	38	88	165	341	328	382	466	578	760	699
109 Canada (millions of dollars)	73	104	353	895	875	1,054	1,209	1,202	1,257	1,423
110 Austria (millions of schillings)	..	260	286	1,376	897	1,785	2,236	1,698	2,303	5,050
111 United States (millions of dollars)	2,702	4,023	3,153	4,161	4,360	4,682	5,663	4,684	7,138	5,760
112 Netherlands (millions of guilders)	133	253	710	1,538	1,925	2,229	2,324	2,816	3,241	3,768
113 France (millions of francs)	4,063	3,713	5,393	8,971	10,257	11,139	12,207	14,338	17,589	21,858
114 Belgium (millions of francs)	5,050	5,100	6,000	13,903	13,126	13,298	16,880	18,500	17,440	21,313
115 Norway (millions of kroner)	36	78	264	962	1,190	1,570	1,861	2,172	2,400	2,680
116 Denmark (millions of kroner)	35	90	443	1,178	1,294	1,549	2,140	2,357	2,671	2,885
117 Sweden (millions of kronor)	36	196	605	2,350	2,648	3,491	3,538	4,098	4,069	4,638
118 Germany, Fed. Rep. (millions of deutsche marks)	937	1,824	2,192	4,155	4,011	3,987	4,714	6,140	6,484	7,195
119 Switzerland (millions of francs)	17	52	131	268	280	286	309	344	412	463
Summary										
ODA (billions of US dollars, nominal prices)	4.6	6.5	7.0	13.8	14.0	15.7	20.0	22.4	27.3	25.5
ODA as percentage of GNP	.51	.49	.34	.36	.33	.33	.35	.35	.38	.35
ODA (billions of US dollars, constant 1978 prices)	13.1	16.7	14.9	17.9	17.4	18.0	20.0	20.4	22.7	21.2
GNP (trillions of US dollars, nominal prices)	.9	1.3	2.0	3.9	4.2	4.7	5.7	6.5	7.2	7.2
ODA deflator ^b	.35	.39	.47	.77	.80	.87	1.00	1.10	1.20	1.20

	Amount					
	1975	1976	1977	1978	1979	1980 ^c
OPEC						
Millions of US dollars						
60 Nigeria	14	83	65	38	30	42
79 Algeria	41	54	47	44	272	83
89 Iran	593	753	221	278	25	3
90 Iraq	218	232	61	172	847	829
91 Venezuela	31	103	52	109	83	130
97 Libya	261	94	115	160	105	281
98 Saudi Arabia	1,997	2,415	2,410	1,719	2,298	3,040
99 Kuwait	976	621	1,517	1,270	1,055	1,188
100 United Arab Emirates	1,046	1,059	1,238	717	1,115	1,062
Qatar	339	195	197	106	277	319
Total OAPEC ^d	4,878	4,670	5,585	4,186	5,968	6,803
Total OPEC	5,516	5,609	5,923	4,611	6,106	6,978
OPEC						
As percentage of donor GNP						
60 Nigeria	.04	.19	.13	.07	.04	.05
79 Algeria	.28	.37	.29	.22	1.08	.27
89 Iran	1.12	1.16	.29	.37	.03	.00
90 Iraq	1.65	1.45	.33	.76	2.53	2.12
91 Venezuela	.11	.33	.14	.27	.17	.22
97 Libya	2.31	.63	.65	.93	.45	.92
98 Saudi Arabia	5.62	5.15	4.10	2.64	3.01	2.60
99 Kuwait	8.11	4.56	10.02	7.37	4.09	3.88
100 United Arab Emirates	11.68	9.21	8.49	5.05	5.87	3.96
Qatar	15.62	7.95	7.91	3.57	5.89	4.80
Total OAPEC ^d	4.99	3.89	3.88	2.64	2.90	2.83
Total OPEC	2.59	2.16	1.94	1.39	1.51	1.47

	Net bilateral flow to low-income countries									
	1960	1965	1970	1975	1976	1977	1978	1979	1980	
OECD										
As percentage of donor GNP										
103 Italy	.03	.04	.06	.01	.01	.02	.01	.01	.01	
104 New Zealand	..	..	..	.14	.06	.04	.03	.02	.02
105 United Kingdom	.22	.23	.15	.11	.14	.11	.15	.16	.11	
106 Finland	..	..	..	.06	.07	.06	.04	.06	.08
107 Australia	..	.08	.09	.10	.07	.07	.08	.09	.07	
108 Japan	.12	.13	.11	.08	.08	.06	.07	.11	.11	
109 Canada	.11	.10	.22	.24	.14	.13	.17	.13	.11	
110 Austria	..	.06	.05	.02	.02	.01	.01	.02	.11	
111 United States	.22	.26	.14	.08	.05	.03	.04	.03	.03	
112 Netherlands	.19	.08	.24	.24	.26	.33	.34	.30	.35	
113 France	.01	.12	.09	.10	.10	.07	.08	.08	.09	
114 Belgium	.27	.56	.30	.31	.26	.24	.23	.28	.26	
115 Norway	.02	.04	.12	.25	.22	.30	.39	.34	.28	
116 Denmark	..	.02	.10	.20	.21	.24	.21	.26	.27	
117 Sweden	.01	.07	.12	.41	.40	.44	.37	.40	.33	
118 Germany, Fed. Rep.	.13	.14	.10	.12	.09	.07	.10	.10	.09	
119 Switzerland	..	.02	.05	.10	.07	.05	.08	.06	.08	
Total	.18	.20	.13	.11	.09	.07	.09	.09	.09	

a. Preliminary estimates. b. See the technical notes. c. Provisional. d. Organization of Arab Petroleum Exporting Countries.

Table 17. Population growth, past and projected, and hypothetical stationary population^a

	Average annual growth of population (percent)			Projected population (millions)		Hypothetical size of stationary population (millions)	Assumed year of reaching reproduction rate of 1	Year of reaching stationary population
	1960-70	1970-80	1980-2000	1990	2000			
Low-income economies	2.1 <i>w</i>	2.1 <i>w</i>	1.8 <i>w</i>	2,607 <i>t</i>	3,090 <i>t</i>			
China and India	2.1 <i>w</i>	1.9 <i>w</i>	1.5 <i>w</i>	1,943 <i>t</i>	2,239 <i>t</i>			
Other low-income	2.4 <i>w</i>	2.6 <i>w</i>	2.6 <i>w</i>	664 <i>t</i>	851 <i>t</i>			
1 Kampuchea, Dem.	2.6	-0.2	1.9	9	10	21	2045	2130
2 Lao PDR	1.9	1.8	2.0	4	5	13	2045	2135
3 Bhutan	1.8	2.0	1.8	2	2	4	2040	2135
4 Chad	1.8	2.0	2.3	6	7	21	2045	2140
5 Bangladesh	2.4	2.6	2.3	113	141	321	2035	2125
6 Ethiopia	2.4	2.0	2.8	41	54	160	2045	2135
7 Nepal	1.8	2.5	2.1	18	22	54	2045	2135
8 Somalia	2.4	2.3	2.6	5	7	19	2040	2130
9 Burma	2.3	2.4	2.2	44	54	109	2030	2090
10 Afghanistan	2.2	2.5	2.0	19	24	58	2045	2160
11 Viet Nam	3.1	2.8	2.4	71	88	153	2015	2075
12 Mali	2.4	2.7	3.0	9	13	41	2040	2135
13 Burundi	1.6	2.0	2.5	5	7	18	2040	2130
14 Rwanda	2.6	3.4	3.5	7	10	38	2045	2110
15 Upper Volta	2.0	1.8	2.6	8	10	29	2040	2140
16 Zaire	2.0	2.7	2.9	38	51	156	2040	2110
17 Malawi	2.8	2.9	3.4	8	12	43	2040	2130
18 Mozambique	2.1	4.0	2.9	16	22	66	2040	2130
19 India	2.3	2.1	1.9	833	994	1,694	2020	2115
20 Haiti	1.5	1.7	2.0	6	7	14	2030	2090
21 Sri Lanka	2.4	1.6	1.8	18	21	31	2010	2070
22 Sierra Leone	2.2	2.6	2.9	5	6	19	2040	2110
23 Tanzania	2.7	3.4	3.3	26	36	111	2035	2100
24 China	1.9	1.8	1.2	1,110	1,245	1,570	2005	2070
25 Guinea	2.8	2.9	2.8	7	9	28	2040	2130
26 Central African Rep.	1.9	2.1	2.7	3	4	11	2040	2130
27 Pakistan	2.8	3.1	2.5	107	134	308	2035	2125
28 Uganda	2.9	2.6	3.3	17	24	73	2035	2100
29 Benin	2.5	2.6	3.1	5	6	21	2040	2110
30 Niger	3.3	2.8	3.2	7	10	34	2040	2130
31 Madagascar	2.1	2.5	3.1	12	16	51	2040	2110
32 Sudan	2.1	3.0	3.0	25	34	101	2040	2105
33 Togo	2.7	2.5	3.1	3	5	15	2040	2110
Middle-income economies	2.5 <i>w</i>	2.4 <i>w</i>	2.3 <i>w</i>	1,441 <i>t</i>	1,789 <i>t</i>			
Oil exporters	2.5 <i>w</i>	2.6 <i>w</i>	2.5 <i>w</i>	642 <i>t</i>	815 <i>t</i>			
Oil importers	2.4 <i>w</i>	2.3 <i>w</i>	2.1 <i>w</i>	799 <i>t</i>	974 <i>t</i>			
34 Ghana	2.4	3.0	3.4	16	23	70	2035	2105
35 Kenya	3.2	3.4	4.1	24	36	128	2035	2100
36 Lesotho	2.0	2.3	2.8	2	2	6	2035	2105
37 Yemen PDR	2.1	2.4	2.5	2	3	8	2040	2130
38 Indonesia	2.0	2.3	2.0	180	216	376	2020	2110
39 Yemen Arab Rep.	2.3	2.9	2.2	9	11	26	2040	2130
40 Mauritania	2.5	2.5	3.1	2	3	10	2045	2135
41 Senegal	3.3	2.8	2.9	8	10	34	2045	2135
42 Angola	1.5	2.4	2.7	9	12	40	2045	2135
43 Liberia	3.1	3.4	3.7	3	4	13	2035	2100
44 Honduras	3.1	3.4	3.0	5	7	16	2030	2090
45 Zambia	2.8	3.1	3.4	8	11	36	2035	2105
46 Bolivia	2.3	2.5	2.4	7	9	20	2035	2095
47 Egypt	2.2	2.1	2.1	50	60	104	2020	2080
48 Zimbabwe	3.9	3.3	4.3	11	17	64	2035	2100
49 El Salvador	2.9	2.9	2.7	6	8	15	2020	2080
50 Cameroon	1.8	2.2	2.6	11	14	41	2040	2110
51 Thailand	3.0	2.5	1.9	58	68	100	2005	2070
52 Philippines	3.0	2.7	2.3	63	77	127	2015	2075
53 Nicaragua	2.6	3.4	2.9	4	5	11	2030	2090
54 Papua New Guinea	2.1	2.3	2.0	4	5	9	2035	2125
55 Congo, People's Rep.	2.4	2.8	3.4	2	3	10	2040	2100
56 Morocco	2.5	3.0	2.8	27	36	81	2030	2090
57 Mongolia	2.9	2.9	2.4	2	3	5	2020	2080
58 Albania	2.8	2.5	1.9	3	4	6	2005	2060
59 Peru	2.8	2.6	2.3	22	27	49	2020	2080
60 Nigeria	2.5	2.5	3.4	119	169	528	2035	2105
61 Jamaica	1.4	1.5	2.0	3	3	5	2005	2065
62 Guatemala	3.0	3.0	2.6	10	12	24	2025	2085
63 Ivory Coast	3.7	5.0	2.9	11	15	47	2040	2110
64 Dominican Rep.	2.7	3.0	2.5	7	9	17	2015	2075
65 Colombia	3.0	2.3	2.0	33	39	60	2010	2070
66 Ecuador	3.0	3.0	2.7	11	14	27	2025	2085

	Average annual growth of population (percent)			Projected population (millions)		Hypothetical size of stationary population (millions)	Assumed year of reaching reproduction rate of 1	Year of reaching stationary population
	1960-70	1970-80	1980-2000	1990	2000			
67 Paraguay	2.5	3.2	2.4	4	5	9	2015	2075
68 Tunisia	1.9	2.1	1.9	8	10	18	2020	2080
69 Korea, Dem. Rep.	2.9	2.6	2.2	23	28	45	2015	2075
70 Syrian Arab Rep.	3.2	3.6	3.0	12	16	33	2020	2080
71 Jordan	3.0	3.4	2.9	4	6	13	2025	2085
72 Lebanon	2.8	0.7	2.0	3	4	6	2010	2070
73 Turkey	2.5	2.4	2.0	56	67	108	2015	2075
74 Cuba	2.0	1.3	1.2	11	12	15	2000	2045
75 Korea, Rep. of	2.5	1.7	1.6	45	52	70	2005	2065
76 Malaysia	2.8	2.4	2.0	17	21	32	2005	2120
77 Costa Rica	3.4	2.5	2.0	3	3	5	2005	2065
78 Panama	2.9	2.3	2.1	2	3	4	2010	2070
79 Algeria	2.4	3.2	2.9	26	34	79	2030	2090
80 Brazil	2.9	2.2	2.0	147	177	281	2015	2075
81 Mexico	3.3	3.1	2.5	92	115	203	2015	2075
82 Chile	2.1	1.7	1.4	13	15	19	2005	2070
83 South Africa	2.6	2.7	2.9	39	52	118	2025	2090
84 Romania	1.0	0.9	0.7	24	25	29	2000	2075
85 Portugal	-0.2	1.3	0.8	11	11	14	2000	2070
86 Argentina	1.4	1.6	1.1	31	34	43	2010	2075
87 Yugoslavia	1.0	0.9	0.7	24	26	29	2005	2065
88 Uruguay	1.1	0.3	1.0	3	4	4	2010	2075
89 Iran	2.9	3.1	2.3	51	61	119	2025	2080
90 Iraq	3.1	3.3	2.8	18	23	52	2030	2090
91 Venezuela	3.4	3.3	2.3	19	24	39	2010	2070
92 Hong Kong	2.6	2.5	1.2	6	6	7	2000	2030
93 Trinidad and Tobago	2.0	1.3	1.5	1	2	2	2000	2065
94 Greece	0.5	0.9	0.5	10	11	11	2000	2065
95 Singapore	2.4	1.5	1.3	3	3	4	2000	2030
96 Israel	3.4	2.6	1.5	5	5	7	2010	2080
High-income oil exporters	4.1 <i>w</i>	5.0 <i>w</i>	2.6 <i>w</i>	19 <i>t</i>	23 <i>t</i>			
97 Libya	3.8	4.1	2.8	4	5	12	2030	2090
98 Saudi Arabia	3.4	4.4	2.6	12	15	37	2035	2095
99 Kuwait	9.8	6.0	2.7	2	2	4	2015	2075
100 United Arab Emirates	10.8	13.2	1.7	1	1	2	2020	2080
Industrial market economies	1.0 <i>w</i>	0.8 <i>w</i>	0.5 <i>w</i>	755 <i>t</i>	787 <i>t</i>			
101 Ireland	0.4	1.1	1.0	4	4	5	2000	2060
102 Spain	1.1	1.0	0.7	41	43	50	2000	2065
103 Italy	0.6	0.6	0.3	59	61	63	2000	2030
104 New Zealand	1.7	1.5	0.9	4	4	5	2000	2070
105 United Kingdom	0.5	0.1	0.2	57	58	60	2000	2025
106 Finland	0.4	0.5	0.4	5	5	5	2000	2020
107 Australia	2.0	1.4	0.8	16	17	19	2000	2055
108 Japan	1.0	1.1	0.6	124	130	134	2000	2015
109 Canada	1.8	1.1	0.8	26	28	31	2000	2030
110 Austria	0.6	0.0	0.2	8	8	8	2000	2025
111 United States	1.3	1.0	0.7	245	259	284	2000	2030
112 Netherlands	1.3	0.8	0.5	15	16	16	2000	2025
113 France	1.0	0.5	0.4	56	58	61	2000	2030
114 Belgium	0.5	0.2	0.2	10	10	10	2000	2025
115 Norway	0.8	0.5	0.3	4	4	5	2000	2030
116 Denmark	0.7	0.4	0.2	5	5	5	2000	2020
117 Sweden	0.7	0.3	(.)	8	8	8	2000	2000
118 Germany, Fed. Rep.	0.9	(.)	0.1	61	62	62	2000	2000
119 Switzerland	1.6	0.3	0.2	7	7	7	2000	2005
Nonmarket industrial economies	1.0 <i>w</i>	0.8 <i>w</i>	0.7 <i>w</i>	383 <i>t</i>	409 <i>t</i>			
120 Poland	1.0	0.9	0.7	39	42	47	2000	2060
121 Bulgaria	0.8	0.6	0.4	9	10	10	2000	2055
122 Hungary	0.4	0.4	0.2	11	11	12	2000	2030
123 USSR	1.2	0.9	0.8	291	312	353	2000	2060
124 Czechoslovakia	0.5	0.7	0.5	16	17	19	2000	2085
125 German Dem. Rep.	-0.1	-0.1	0.2	17	17	18	2000	2015
Total^a				5,025	6,098			

a. For the assumptions used in the projections, see the technical notes. b. Excludes countries with populations of less than one million.

Table 18. Demographic and fertility-related indicators

	Crude birth rate per thousand population		Crude death rate per thousand population		Percentage change in:		Total fertility rate 1980	Percentage of married women using contraceptives ^c	
	1960 ^a	1980	1960 ^a	1980	Crude birth rate 1960-80 ^b	Crude death rate 1960-80 ^b		1970	1979
Low-income economies	43 w	31 w	18 w	12 w	-28.3 w	-36.0 w	4.2 w	..	..
China and India	42 w	27 w	17 w	10 w	-34.9 w	-39.6 w	3.7 w	..	..
Other low-income	49 w	45 w	25 w	18 w	-8.2 w	-28.2 w	6.1 w	..	..
1 Kampuchea, Dem.	45	..	19	..	..	..	..	..	..
2 Lao PDR	42	42	19	21	-1.0	8.9	6.1	..	..
3 Bhutan	43	39	26	19	-9.8	-24.9	5.5	..	..
4 Chad	45	44	29	23	-2.4	-19.6	5.9	..	..
5 Bangladesh	54	45	28	18	-15.3	-35.2	6.0	..	9
6 Ethiopia	51	49	28	24	-2.8	-14.8	6.7	..	..
7 Nepal	44	42	27	20	-3.4	-25.3	6.1	1	4
8 Somalia	47	46	28	20	-1.3	-27.1	6.1	..	..
9 Burma	43	37	21	14	-12.8	-35.7	5.3	..	..
10 Afghanistan	50	47	31	26	-6.5	-16.0	6.6	..	..
11 Viet Nam	47	36	21	9	-21.9	-59.4	5.2	..	..
12 Mali	50	50	27	21	-0.8	-20.1	6.7	..	..
13 Burundi	47	46	27	22	-3.0	-16.9	6.4	..	..
14 Rwanda	51	53	27	20	4.1	-26.1	8.3	..	..
15 Upper Volta	49	48	27	24	-1.2	-9.7	6.5	..	..
16 Zaire	48	46	24	18	-4.6	-26.3	6.1	..	..
17 Malawi	53	56	27	22	5.8	-17.6	7.8	..	..
18 Mozambique	46	45	26	18	-2.0	-30.4	6.1	..	..
19 India	44	36	22	14	-18.5	-37.6	4.9	12	23
20 Haiti	39	36	20	14	-8.5	-29.2	4.8	..	..
21 Sri Lanka	36	28	9	7	-22.7	-19.6	3.6	8	41
22 Sierra Leone	47	46	27	18	-3.0	-31.6	6.1	..	..
23 Tanzania	47	46	22	15	-0.6	-32.6	6.5	..	..
24 China	40	21	14	8	-47.4	-42.6	2.9	..	..
25 Guinea	47	46	30	20	-2.1	-34.0	6.2	..	..
26 Central African Rep.	43	44	28	21	4.2	-25.2	5.9	..	..
27 Pakistan	51	44	24	16	-15.0	-34.2	6.1	..	6
28 Uganda	45	45	20	14	-0.9	-32.5	6.1	..	..
29 Benin	51	49	27	18	-3.8	-31.7	6.7	..	..
30 Niger	52	52	27	22	-0.6	-19.4	7.1	..	..
31 Madagascar	47	47	27	18	-0.2	-32.7	6.5	..	..
32 Sudan	47	47	25	19	0.9	-23.3	6.7	..	..
33 Togo	51	48	27	18	-5.5	-32.5	6.5	..	..
Middle-income economies	43 w	35 w	17 w	11 w	-18.3 w	-36.4 w	4.8 w	..	..
Oil exporters	47 w	40 w	20 w	12 w	-15.7 w	-39.4 w	5.4 w	..	..
Oil importers	40 w	31 w	14 w	10 w	-20.9 w	-33.5 w	4.3 w	..	..
34 Ghana	49	48	24	17	-1.0	-31.0	6.7	2	4
35 Kenya	52	51	24	13	-0.8	-43.6	7.8	1	7
36 Lesotho	41	43	23	16	4.9	-31.2	5.8	..	..
37 Yemen, PDR	50	46	29	20	-8.5	-31.3	6.7	..	..
38 Indonesia	46	35	23	13	-22.7	-40.9	4.5	(.)	27
39 Yemen Arab Rep.	50	47	29	23	-6.0	-21.1	6.5	..	..
40 Mauritania	51	50	27	22	-0.8	-20.7	6.9	..	..
41 Senegal	48	48	27	21	-0.2	-19.6	6.5	..	..
42 Angola	50	48	31	22	-4.0	-28.3	6.4	..	..
43 Liberia	50	49	21	14	-2.6	-34.0	6.9	..	..
44 Honduras	51	45	19	11	-11.5	-41.0	6.8	..	..
45 Zambia	51	49	24	17	-3.0	-32.4	6.9	..	..
46 Bolivia	46	43	22	16	-7.3	-26.7	6.1	..	..
47 Egypt	44	37	19	12	-15.9	-36.3	4.9	9	17
48 Zimbabwe	55	54	17	13	-2.2	-21.2	8.0	..	14
49 El Salvador	49	41	17	9	-16.6	-47.6	5.7	..	..
50 Cameroon	43	42	27	19	-1.4	-31.4	5.7	..	..
51 Thailand	44	30	15	8	-31.2	-47.0	4.0	8	39
52 Philippines	46	34	15	7	-25.1	-50.0	4.6	2	37
53 Nicaragua	51	45	19	12	-11.2	-38.6	6.3	..	..
54 Papua New Guinea	44	37	23	15	-16.4	-34.9	5.2	..	..
55 Congo, People's Rep.	40	42	18	10	5.5	-42.9	6.0	..	..
56 Morocco	52	44	23	13	-15.3	-45.7	6.5	1	..
57 Mongolia	41	35	15	8	-14.8	-48.7	5.2	..	..
58 Albania	41	30	11	6	-27.7	-45.5	3.9	..	..
59 Peru	47	36	20	11	-22.8	-45.5	5.0	..	..
60 Nigeria	52	50	25	17	-4.4	-32.8	6.9	..	..
61 Jamaica	39	29	10	6	-27.2	-32.6	3.9	..	..
62 Guatemala	48	40	19	11	-17.8	-43.2	5.4	..	..
63 Ivory Coast	50	47	26	18	-7.3	-33.2	6.7	..	..
64 Dominican Rep.	50	36	16	9	-28.2	-46.6	4.8	..	31
65 Colombia	46	30	14	8	-34.4	-41.9	3.8	..	46
66 Ecuador	47	40	17	10	-13.9	-41.0	6.0	..	..

	Crude birth rate per thousand population		Crude death rate per thousand population		Percentage change in:		Total fertility rate 1980	Percentage of married women using contraceptives ^c	
	1960 ^a	1980	1960 ^a	1980	Crude birth rate 1960–80 ^b	Crude death rate 1960–80 ^b		1970	1979
67 Paraguay	43	36	13	7	-17.2	-42.5	4.9	..	16
68 Tunisia	49	35	21	9	-28.6	-56.2	5.4	10	21
69 Korea, Dem. Rep.	42	31	13	7	-25.7	-48.4	4.3	..	..
70 Syrian Arab Rep.	47	45	18	8	-5.1	-53.1	7.0	..	(.)
71 Jordan	47	44	20	10	-6.3	-51.3	6.9	..	..
72 Lebanon	43	30	14	8	-30.6	-42.0	4.1	..	..
73 Turkey	43	32	16	10	-24.5	-38.5	4.4	3	..
74 Cuba	32	18	9	6	-43.8	-33.7	2.2	..	..
75 Korea, Rep. of	43	24	13	7	-44.0	-47.0	3.0	32	49
76 Malaysia	45	31	16	7	-30.6	-52.9	4.2	7	36
77 Costa Rica	47	29	10	5	-37.6	-42.5	3.4	..	64
78 Panama	41	31	10	6	-25.2	-44.1	3.9	..	..
79 Algeria	50	46	23	13	-9.3	-41.5	6.9	..	..
80 Brazil	43	30	13	9	-30.8	-33.6	4.1	..	..
81 Mexico	45	37	12	7	-18.1	-36.8	5.1	..	40
82 Chile	37	22	12	7	-40.7	-42.7	2.8	..	..
83 South Africa	39	38	15	10	-2.8	-34.0	5.1	..	..
84 Romania	20	18	9	10	-8.1	3.3	2.5	..	..
85 Portugal	24	18	8	10	-24.5	28.0	2.4	..	..
86 Argentina	24	21	9	8	-12.7	-2.3	2.8	..	..
87 Yugoslavia	24	17	10	9	-27.7	-10.0	2.2	59	..
88 Uruguay	22	20	9	10	-16.2	14.0	2.8	..	..
89 Iran	46	41	17	11	-10.8	-37.4	5.8	3	23
90 Iraq	49	45	20	12	-9.1	-38.7	6.6	..	23
91 Venezuela	46	35	11	6	-22.3	-46.4	4.5	..	..
92 Hong Kong	35	17	8	5	-51.3	-32.9	2.2	50	79
93 Trinidad and Tobago	38	23	9	5	-33.2	-29.4	2.6	44	..
94 Greece	19	16	8	10	-16.6	31.6	2.3	..	..
95 Singapore	38	17	8	5	-54.2	-34.2	1.8	45	71
96 Israel	27	24	6	7	-9.7	14.8	3.4	..	..
High-income oil exporters	49^w	42^w	21^w	12^w	-12.9^w	-43.8^w	6.8^w	..	..
97 Libya	49	45	19	12	-8.2	-38.3	7.0	..	..
98 Saudi Arabia	49	44	23	14	-11.0	-4.0	6.9	..	..
99 Kuwait	44	39	10	5	-11.3	-53.1	6.1	..	..
100 United Arab Emirates	46	28	19	7	-37.9	-62.1	6.4	..	..
Industrial market economies	20^w	15^w	10^w	9^w	-27.9^w	-4.1^w	1.9^w	..	..
101 Ireland	22	22	12	10	-2.8	-17.6	3.3	..	..
102 Spain	21	15	9	8	-29.4	-15.4	2.5	..	..
103 Italy	18	14	10	10	-26.6	5.2	1.9	..	..
104 New Zealand	26	18	9	8	-31.0	-12.2	2.2	..	..
105 United Kingdom	17	14	12	12	-22.0	0.0	1.8	72	..
106 Finland	19	14	9	9	-27.4	3.3	1.7	77	..
107 Australia	22	17	9	8	-25.1	-11.4	2.1	66	..
108 Japan	18	14	8	6	-22.6	-17.3	1.8	..	..
109 Canada	27	17	8	7	-37.2	-5.1	1.9	..	..
110 Austria	18	12	13	13	-30.5	0.8	1.7	..	..
111 United States	24	16	9	9	-33.3	-7.4	1.9	65	..
112 Netherlands	21	13	8	8	-39.3	5.2	1.6	59	..
113 France	18	14	12	11	-22.5	-6.1	1.9	64	79
114 Belgium	17	13	12	12	-25.7	-4.1	1.8	..	..
115 Norway	18	13	9	10	-29.8	8.7	1.9	..	..
116 Denmark	17	13	9	11	-24.3	14.9	1.8	67	..
117 Sweden	15	12	10	11	-19.3	12.2	1.7	..	..
118 Germany, Fed. Rep.	17	11	11	12	-38.7	9.7	1.5	..	..
119 Switzerland	18	12	10	9	-35.6	-4.1	1.6	..	..
Nonmarket industrial economies	23^w	18^w	8^w	11^w	-20.5^w	-29.6^w	2.3^w	..	..
120 Poland	24	20	8	10	-17.7	18.1	2.3	..	..
121 Bulgaria	18	16	9	10	-11.8	16.3	2.2	..	..
122 Hungary	16	15	10	12	-2.5	16.7	2.1	..	73
123 USSR	24	18	8	10	-23.1	38.7	2.3	..	..
124 Czechoslovakia	17	18	10	11	0.6	13.5	2.3	66	..
125 German Dem. Rep.	17	14	13	13	-19.0	0.0	1.8	..	..

a. Figures in italics are for 1957, not 1960 b. Figures in italics are for 1957–80, not 1960–80 c. Figures in italics are for years other than those specified See the technical notes.

Table 19. Labor force

	Percentage of population of working age (15–64 years)		Percentage of labor force in:						Average annual growth of labor force (percent)		
	1960	1980	Agriculture		Industry		Services		1960–70	1970–80	1980–2000
			1960	1980	1960	1980	1960	1980			
Low-income economies	54 <i>w</i>	59 <i>w</i>	77 <i>w</i>	71 <i>w</i>	10 <i>w</i>	15 <i>w</i>	14 <i>w</i>	15 <i>w</i>	1.6 <i>w</i>	2.2 <i>w</i>	1.9 <i>w</i>
China and India		61 <i>w</i>	70 <i>w</i>	73 <i>w</i>	8 <i>w</i>	11 <i>w</i>	12 <i>w</i>	19 <i>w</i>	1.8 <i>w</i>	2.1 <i>w</i>	1.7 <i>w</i>
Other low-income	54 <i>w</i>	53 <i>w</i>	81 <i>w</i>	73 <i>w</i>	8 <i>w</i>	11 <i>w</i>	12 <i>w</i>	19 <i>w</i>	1.8 <i>w</i>	2.3 <i>w</i>	2.7 <i>w</i>
1 Kampuchea, Dem.	53	..	82	..	4	..	14	..	2.1	..	..
2 Lao PDR	56	51	83	75	4	6	13	19	1.4	0.3	2.0
3 Bhutan	56	55	95	93	2	2	3	5	1.7	2.0	1.9
4 Chad	57	54	95	85	2	7	3	8	1.5	2.0	2.3
5 Bangladesh	53	55	87	74	3	11	10	15	2.1	2.4	2.7
6 Ethiopia	54	52	88	80	5	7	7	13	2.0	1.8	2.2
7 Nepal	57	55	95	93	2	2	3	5	1.5	2.0	2.1
8 Somalia	54	54	88	82	4	8	8	10	1.7	2.3	2.4
9 Burma	59	55	..	67	..	10	..	23	1.1	1.5	2.0
10 Afghanistan	55	52	85	79	6	8	9	13	2.0	1.8	2.5
11 Viet Nam	..	54	..	71	..	10	14	19	..	1.9	2.6
12 Mali	54	52	94	73	3	12	3	15	2.0	2.2	2.5
13 Burundi	55	53	90	84	3	5	7	11	1.2	1.6	2.3
14 Rwanda	53	51	95	91	1	2	4	7	2.4	2.5	2.8
15 Upper Volta	54	53	92	82	5	13	3	5	1.2	1.4	2.3
16 Zaire	53	53	83	75	9	13	8	12	1.4	2.1	2.4
17 Malawi	52	49	92	86	3	5	5	9	2.3	2.4	2.8
18 Mozambique	56	53	81	66	8	18	11	16	1.9	1.7	2.2
19 India	55	57	74	69	11	13	15	18	1.5	1.7	2.0
20 Haiti	55	53	80	74	6	7	14	19	0.7	1.4	2.4
21 Sri Lanka	54	60	56	54	14	14	30	32	2.1	2.1	2.1
22 Sierra Leone	55	53	78	65	12	19	10	16	1.5	1.8	2.3
23 Tanzania	54	51	89	83	4	6	7	11	2.1	2.3	2.7
24 China	..	64	..	71	..	17	..	12	..	1.9	1.4
25 Guinea	55	53	88	82	6	11	6	7	2.5	2.2	2.1
26 Central African Rep.	58	55	94	88	2	4	4	8	1.7	1.6	2.3
27 Pakistan	52	51	61	57	18	20	21	23	1.9	2.5	2.9
28 Uganda	54	52	89	83	4	6	7	11	3.3	2.5	2.5
29 Benin	53	51	54	46	9	16	37	38	2.1	2.2	2.1
30 Niger	53	51	95	91	1	3	4	6	3.0	2.6	2.9
31 Madagascar	55	53	93	90	2	3	5	7	1.7	2.0	2.3
32 Sudan	53	53	86	72	6	10	8	18	2.2	2.3	2.7
33 Togo	53	51	80	67	8	15	12	18	2.2	2.1	2.6
Middle-income economies	55 <i>w</i>	55 <i>w</i>	61 <i>w</i>	44 <i>w</i>	15 <i>w</i>	22 <i>w</i>	24 <i>w</i>	34 <i>w</i>	2.0 <i>w</i>	2.3 <i>w</i>	2.6 <i>w</i>
Oil exporters	54 <i>w</i>	54 <i>w</i>	65 <i>w</i>	47 <i>w</i>	13 <i>w</i>	21 <i>w</i>	22 <i>w</i>	32 <i>w</i>	2.0 <i>w</i>	2.5 <i>w</i>	2.9 <i>w</i>
Oil importers	56 <i>w</i>	57 <i>w</i>	59 <i>w</i>	42 <i>w</i>	16 <i>w</i>	22 <i>w</i>	25 <i>w</i>	36 <i>w</i>	2.0 <i>w</i>	2.2 <i>w</i>	2.4 <i>w</i>
34 Ghana	53	51	64	53	14	20	22	27	1.6	2.4	2.9
35 Kenya	50	48	86	78	5	10	9	12	2.7	2.8	3.3
36 Lesotho	57	55	93	87	2	4	5	9	1.6	1.9	2.1
37 Yemen, PDR	52	51	70	45	15	15	15	40	1.4	1.3	2.8
38 Indonesia	56	57	75	58	8	12	17	30	1.7	2.1	1.8
39 Yemen Arab Rep.	54	52	83	75	7	11	10	14	1.1	1.4	2.3
40 Mauritania	53	52	91	85	3	5	6	10	2.2	2.3	2.7
41 Senegal	54	53	84	76	5	10	11	14	1.9	1.9	2.2
42 Angola	55	53	69	59	12	16	19	25	1.0	1.9	2.4
43 Liberia	52	50	80	70	10	14	10	16	2.4	2.6	2.9
44 Honduras	52	50	70	63	11	15	19	22	2.5	3.0	3.3
45 Zambia	53	50	79	67	7	11	14	22	2.3	2.4	2.8
46 Bolivia	55	53	61	50	18	24	21	26	1.7	2.4	2.9
47 Egypt	55	57	58	50	12	30	30	20	1.9	2.2	2.3
48 Zimbabwe	52	50	69	60	11	15	20	25	3.2	2.6	3.0
49 El Salvador	52	51	62	50	17	22	21	27	2.6	2.8	3.3
50 Cameroon	57	54	87	83	5	7	8	10	1.3	1.3	1.7
51 Thailand	53	55	84	76	4	9	12	15	2.0	2.9	2.3
52 Philippines	52	53	61	46	15	17	24	37	2.2	2.4	2.7
53 Nicaragua	50	50	62	39	16	14	22	47	2.6	3.3	3.6
54 Papua New Guinea	57	55	89	82	4	8	7	10	1.6	1.9	2.0
55 Congo, People's Rep.	56	53	52	34	17	26	31	40	1.5	2.0	2.7
56 Morocco	53	51	62	52	14	21	24	27	1.6	2.9	3.3
57 Mongolia	54	53	70	55	13	22	17	23	2.1	2.4	2.7
58 Albania	54	57	71	61	18	25	11	14	2.3	2.7	2.4
59 Peru	52	54	52	40	20	19	28	41	2.0	3.0	3.1
60 Nigeria	52	50	71	54	10	19	19	27	1.8	2.0	2.9
61 Jamaica	54	53	39	21	25	25	36	54	0.4	2.4	3.3
62 Guatemala	51	54	67	55	14	21	19	24	2.5	3.0	2.8
63 Ivory Coast	54	53	89	79	2	4	9	17	3.6	4.5	2.4
64 Dominican Rep.	49	52	67	49	12	18	21	33	2.3	3.4	3.3
65 Colombia	50	60	51	26	19	21	30	53	3.0	3.2	2.6
66 Ecuador	52	52	58	52	19	17	23	31	3.0	3.2	3.2

	Percentage of population of working age (15-64 years)		Percentage of labor force in:						Average annual growth of labor force (percent)		
			Agriculture		Industry		Services				
	1960	1980	1960	1980	1960	1980	1960	1980	1960-70	1970-80	1980-2000
67 Paraguay	51	52	56	49	19	19	25	32	2.4	3.1	3.4
68 Tunisia	53	55	56	34	18	33	26	33	0.7	2.9	2.6
69 Korea, Dem. Rep.	53	56	62	49	23	33	15	18	2.3	2.9	2.7
70 Syrian Arab Rep.	52	48	54	33	19	31	27	36	2.1	2.9	3.5
71 Jordan	52	51	44	20	26	20	30	60	2.8	2.9	3.2
72 Lebanon	53	55	38	11	23	27	39	62	2.1	3.0	2.8
73 Turkey	55	56	78	54	11	13	11	33	1.4	2.2	2.1
74 Cuba	61	60	39	23	22	31	39	46	0.8	2.0	2.0
75 Korea, Rep. of	54	62	66	34	9	29	25	37	3.0	2.8	2.0
76 Malaysia	51	56	63	50	12	16	25	34	2.8	3.0	2.8
77 Costa Rica	50	58	51	29	19	23	30	48	3.5	3.6	2.7
78 Panama	52	56	51	27	14	18	35	55	3.4	2.8	2.6
79 Algeria	52	49	67	25	12	25	21	50	1.0	3.5	3.5
80 Brazil	54	57	52	30	15	24	33	46	2.5	3.9	2.5
81 Mexico	51	51	55	36	20	26	25	38	2.8	3.3	3.5
82 Chile	57	62	30	19	20	19	50	62	1.4	2.6	2.1
83 South Africa	55	54	32	30	30	29	38	41	3.2	2.6	3.0
84 Romania	64	64	65	29	15	36	20	35	0.9	0.6	0.7
85 Portugal	63	63	44	24	29	36	27	40	(.)	0.8	0.9
86 Argentina	64	63	20	13	36	28	44	59	1.3	1.2	1.2
87 Yugoslavia	63	67	63	29	18	35	19	36	0.6	1.1	0.7
88 Uruguay	64	63	21	11	29	32	50	57	0.9	0.2	1.1
89 Iran	51	52	54	39	23	34	23	27	2.5	2.6	2.9
90 Iraq	51	51	53	42	18	26	29	32	2.9	2.9	3.2
91 Venezuela	51	55	35	18	22	27	43	55	2.8	3.9	3.2
92 Hong Kong	56	66	8	3	52	57	40	40	3.2	3.0	1.3
93 Trinidad and Tobago	53	62	22	16	34	36	44	48	2.4	2.6	2.2
94 Greece	65	64	56	37	20	28	24	35	(.)	0.6	0.5
95 Singapore	55	66	8	2	23	39	69	59	2.8	2.7	1.4
96 Israel	59	59	14	7	35	36	51	57	3.6	2.4	2.1
High-income oil exporters	<i>54 w</i>	<i>52 w</i>	<i>63 w</i>	<i>46 w</i>	<i>13 w</i>	<i>19 w</i>	<i>24 w</i>	<i>35 w</i>	<i>2.4 w</i>	<i>3.5 w</i>	<i>3.6 w</i>
97 Libya	53	51	53	19	17	28	30	53	3.6	3.5	3.0
98 Saudi Arabia	54	52	71	61	10	14	19	25	3.1	3.5	2.7
99 Kuwait	63	52	1	2	34	34	65	64	7.5	4.1	3.1
100 United Arab Emirates	...	53	...	...	...	...	...	...	...	...	...
Industrial market economies	<i>63 w</i>	<i>66 w</i>	<i>18 w</i>	<i>6 w</i>	<i>38 w</i>	<i>38 w</i>	<i>44 w</i>	<i>56 w</i>	<i>1.2 w</i>	<i>1.3 w</i>	<i>0.7 w</i>
101 Ireland	58	58	36	19	25	37	39	44	(.)	1.0	1.6
102 Spain	64	63	42	15	31	40	27	45	0.2	1.2	0.9
103 Italy	66	65	31	11	40	45	29	44	-0.1	0.7	0.4
104 New Zealand	59	63	15	9	37	35	48	56	2.2	2.1	1.2
105 United Kingdom	65	64	4	2	48	42	48	56	0.6	0.3	0.4
106 Finland	62	68	36	11	31	35	33	54	0.4	0.1	0.4
107 Australia	61	65	11	6	40	33	49	61	2.6	1.8	0.9
108 Japan	64	68	33	12	30	39	37	49	1.9	1.3	0.7
109 Canada	59	67	13	5	35	29	52	66	2.6	2.0	0.9
110 Austria	66	64	24	9	46	37	30	54	-0.6	0.8	0.4
111 United States	60	66	7	2	36	32	57	66	1.8	1.5	0.9
112 Netherlands	61	66	11	6	42	45	47	49	1.6	1.3	0.5
113 France	62	64	22	8	39	39	39	53	0.6	1.1	0.6
114 Belgium	65	65	8	3	48	41	44	56	0.3	0.7	0.3
115 Norway	63	63	20	7	37	37	43	56	0.5	0.7	0.6
116 Denmark	64	65	18	7	37	35	45	58	1.1	0.6	0.4
117 Sweden	66	64	14	5	45	34	41	61	1.0	0.3	0.2
118 Germany, Fed. Rep.	68	66	14	4	48	46	38	50	0.2	0.7	(.)
119 Switzerland	66	67	11	5	50	46	39	49	2.0	0.4	0.2
Nonmarket industrial economies	<i>63 w</i>	<i>66 w</i>	<i>41 w</i>	<i>16 w</i>	<i>31 w</i>	<i>45 w</i>	<i>28 w</i>	<i>39 w</i>	<i>0.7 w</i>	<i>1.2 w</i>	<i>0.6 w</i>
120 Poland	61	66	48	31	29	39	23	30	1.8	1.4	0.8
121 Bulgaria	66	66	57	37	25	39	18	24	0.7	0.3	0.3
122 Hungary	66	66	38	15	35	53	27	32	0.5	0.4	0.2
123 USSR	63	66	42	14	29	45	29	41	0.7	1.2	0.7
124 Czechoslovakia	64	64	26	11	46	48	28	41	0.9	0.8	0.7
125 German Dem. Rep.	65	64	18	10	48	50	34	40	-0.2	0.5	0.3

Table 20. Urbanization

	Urban population				Percentage of urban population				Number of cities of over 500,000 persons	
	As percentage of total population		Average annual growth rate (percent)		In largest city		In cities of over 500,000 persons		1960	1980
	1960	1980	1960-70	1970-80	1960	1980	1960	1980	1960	1980
Low-income economies	13 <i>w</i>	17 <i>w</i>	3.8 <i>w</i>	4.1 <i>w</i>	10 <i>w</i>	12 <i>w</i>	31 <i>w</i>	41 <i>w</i>	55 <i>t</i>	135 <i>t</i>
China and India	13 <i>w</i>	17 <i>w</i>	3.3 <i>w</i>	3.3 <i>w</i>	7 <i>w</i>	6 <i>w</i>	33 <i>w</i>	42 <i>w</i>	49 <i>t</i>	106 <i>t</i>
Other low-income	11 <i>w</i>	19 <i>w</i>	5.0 <i>w</i>	5.4 <i>w</i>	25 <i>w</i>	28 <i>w</i>	19 <i>w</i>	40 <i>w</i>	6 <i>t</i>	29 <i>t</i>
1 Kampuchea, Dem.	11	..	3.5	..	..	..	..	..	..	..
2 Lao PDR	8	14	3.8	5.2	69	48	0	0	0	0
3 Bhutan	3	4	4.0	4.4	..	..	0	0	0	0
4 Chad	7	18	6.7	6.5	..	39	0	0	0	0
5 Bangladesh	5	11	6.3	6.5	20	30	20	51	1	3
6 Ethiopia	6	14	6.5	5.4	30	37	0	37	0	1
7 Nepal	3	5	4.2	4.9	41	27	0	0	0	0
8 Somalia	17	30	5.3	5.0	..	34	0	0	0	0
9 Burma	19	27	4.0	4.2	23	23	23	23	1	2
10 Afghanistan	8	15	5.4	5.8	33	17	0	17	0	1
11 Viet Nam	15	19	5.3	3.3	32	21	32	50	1	4
12 Mali	11	20	5.4	5.6	32	34	0	0	0	0
13 Burundi	2	2	1.6	2.5	..	..	0	0	0	0
14 Rwanda	2	4	5.4	6.3	..	..	0	0	0	0
15 Upper Volta	5	10	5.7	5.9	..	41	0	0	0	0
16 Zaire	16	34	5.2	7.2	14	28	14	38	1	2
17 Malawi	4	10	6.6	7.0	..	19	0	0	0	0
18 Mozambique	4	9	6.5	8.3	75	83	0	83	0	1
19 India	18	22	3.3	3.3	7	6	26	39	11	36
20 Haiti	16	28	4.0	4.9	42	56	0	56	0	1
21 Sri Lanka	18	27	4.3	3.6	28	16	0	16	0	1
22 Sierra Leone	13	22	5.5	4.3	37	47	0	0	0	0
23 Tanzania	5	12	6.3	8.7	34	50	0	50	0	1
24 China	..	13	..	..	6	6	42	45	38	70
25 Guinea	10	19	6.2	6.1	37	80	0	80	0	1
26 Central African Rep.	23	41	5.1	4.8	40	36	0	0	0	0
27 Pakistan	22	28	4.0	4.3	20	21	33	51	2	7
28 Uganda	5	9	7.1	3.4	38	52	0	52	0	1
29 Benin	10	14	5.3	3.7	..	63	0	63	0	1
30 Niger	6	13	7.0	6.8	..	31	0	0	0	0
31 Madagascar	11	18	5.4	4.3	44	36	0	36	0	1
32 Sudan	10	25	6.7	7.1	30	31	0	31	0	1
33 Togo	10	20	5.6	6.7	..	60	0	0	0	0
Middle-income economies	33 <i>w</i>	45 <i>w</i>	4.3 <i>w</i>	4.0 <i>w</i>	28 <i>w</i>	29 <i>w</i>	35 <i>w</i>	48 <i>w</i>	55 <i>t</i>	131 <i>t</i>
Oil exporters	27 <i>w</i>	39 <i>w</i>	4.5 <i>w</i>	4.4 <i>w</i>	27 <i>w</i>	30 <i>w</i>	32 <i>w</i>	48 <i>w</i>	17 <i>t</i>	51 <i>t</i>
Oil importers	37 <i>w</i>	50 <i>w</i>	4.2 <i>w</i>	3.8 <i>w</i>	28 <i>w</i>	28 <i>w</i>	36 <i>w</i>	48 <i>w</i>	38 <i>t</i>	80 <i>t</i>
34 Ghana	23	36	4.6	5.1	25	35	0	48	0	2
35 Kenya	7	14	6.4	6.8	40	57	0	57	0	1
36 Lesotho	2	12	7.5	17.0	..	..	0	0	0	0
37 Yemen, PDR	28	37	3.5	3.8	61	49	0	0	0	0
38 Indonesia	15	20	3.6	4.0	20	23	34	50	3	9
39 Yemen Arab Rep.	3	10	8.0	8.3	..	25	0	0	0	0
40 Mauritania	3	23	15.8	8.4	..	39	0	0	0	0
41 Senegal	23	25	3.7	3.5	53	65	0	65	0	1
42 Angola	10	21	5.1	5.7	44	64	0	64	0	1
43 Liberia	20	33	5.6	5.7	..	..	0	0	0	0
44 Honduras	23	36	5.4	5.5	31	33	0	0	0	0
45 Zambia	23	43	5.4	6.7	..	35	0	35	0	1
46 Bolivia	24	33	3.9	4.1	47	44	0	44	0	1
47 Egypt	38	45	3.3	2.8	38	39	53	53	2	2
48 Zimbabwe	13	23	6.8	6.4	40	50	0	50	0	1
49 El Salvador	38	41	3.2	3.3	26	22	0	0	0	0
50 Cameroon	14	35	5.6	7.5	26	21	0	21	0	1
51 Thailand	13	14	3.5	3.4	65	69	65	69	1	1
52 Philippines	30	36	3.8	3.6	27	30	27	34	1	2
53 Nicaragua	41	53	4.0	4.7	41	47	0	47	0	1
54 Papua New Guinea	3	18	15.1	8.3	..	25	0	0	0	0
55 Congo, People's Rep.	30	45	5.0	4.5	77	56	0	0	0	0
56 Morocco	29	41	4.2	4.6	16	26	16	50	1	4
57 Mongolia	36	51	5.2	4.1	53	52	0	0	0	0
58 Albania	31	37	3.7	3.4	27	25	0	0	0	0
59 Peru	46	67	4.9	4.2	38	39	38	44	1	2
60 Nigeria	13	20	4.7	4.7	13	17	22	58	2	9
61 Jamaica	34	41	2.4	2.5	77	66	0	66	0	1
62 Guatemala	33	39	3.8	3.9	41	36	41	36	1	1
63 Ivory Coast	19	40	7.3	8.6	27	34	0	34	0	1
64 Dominican Rep.	30	51	5.6	5.4	50	54	0	54	0	1
65 Colombia	48	70	5.2	3.9	17	26	28	51	3	4
66 Ecuador	34	45	4.4	4.2	31	29	0	51	0	2

	Urban population				Percentage of urban population				Number of cities of over 500,000 persons	
	As percentage of total population		Average annual growth rate (percent)		In largest city		In cities of over 500,000 persons		1960	1980
	1960	1980	1960-70	1970-80	1960	1980	1960	1980		
67 Paraguay	36	39	2.9	3.8	44	44	0	44	0	1
68 Tunisia	36	52	3.8	3.9	40	30	40	30	1	1
69 Korea, Dem. Rep.	40	60	5.1	4.4	15	12	15	19	1	2
70 Syrian Arab Rep.	37	50	4.8	5.1	35	33	35	55	1	2
71 Jordan	43	56	4.5	4.7	31	37	0	37	0	1
72 Lebanon	44	76	6.2	2.8	64	79	64	79	1	1
73 Turkey	30	47	5.1	4.5	18	24	32	42	3	4
74 Cuba	55	65	2.9	2.1	38	32	38	32	1	1
75 Korea, Rep. of	28	55	6.4	4.7	35	41	61	77	3	7
76 Malaysia	25	29	3.5	3.3	19	27	0	27	0	1
77 Costa Rica	37	43	4.2	3.3	67	64	0	64	0	1
78 Panama	41	54	4.4	3.6	61	66	0	66	0	1
79 Algeria	30	44	3.5	5.7	27	12	27	12	1	1
80 Brazil	46	68	4.8	4.1	14	16	35	52	6	14
81 Mexico	51	67	4.8	4.3	28	32	36	48	3	7
82 Chile	68	80	3.1	2.3	38	44	38	44	1	1
83 South Africa	47	50	2.8	3.1	16	13	44	53	4	7
84 Romania	32	50	3.4	2.9	22	17	22	17	1	1
85 Portugal	23	31	1.3	2.9	47	44	47	44	1	1
86 Argentina	74	82	2.0	2.1	46	45	54	60	3	5
87 Yugoslavia	28	42	3.2	2.9	11	10	11	23	1	3
88 Uruguay	80	84	1.3	0.6	56	52	56	52	1	1
89 Iran	34	50	4.9	5.0	26	28	26	47	1	6
90 Iraq	43	72	6.2	5.4	35	55	35	70	1	3
91 Venezuela	67	83	4.7	4.2	26	26	26	44	1	4
92 Hong Kong	89	90	2.6	2.5	100	100	100	100	1	1
93 Trinidad and Tobago	22	21	1.7	1.2	...	...	0	0	0	0
94 Greece	43	62	2.6	2.6	51	57	51	70	1	2
95 Singapore	100	100	2.4	1.5	100	100	100	100	1	1
96 Israel	77	89	4.3	3.2	46	35	46	35	1	1
High-income oil exporters	30 w	66 w	9.1 w	8.5 w	29 w	28 w	0 w	34 w	0 t	3 t
97 Libya	23	52	8.0	8.3	57	64	0	64	0	1
98 Saudi Arabia	30	67	8.4	7.6	15	18	0	33	0	2
99 Kuwait	72	88	10.4	7.4	75	30	0	0	0	0
100 United Arab Emirates	40	72	14.4	15.5	...	...	...	...	...	...
Industrial market economies	68 w	78 w	1.8 w	1.4 w	18 w	18 w	48 w	55 w	104 t	152 t
101 Ireland	46	58	1.6	2.2	51	48	51	48	1	1
102 Spain	57	74	2.6	2.2	13	17	37	44	5	6
103 Italy	59	69	1.5	1.3	13	17	46	52	7	9
104 New Zealand	76	85	2.4	1.9	25	30	0	30	0	1
105 United Kingdom	86	91	0.9	0.3	24	20	61	55	15	17
106 Finland	38	62	3.2	2.7	28	27	0	27	0	1
107 Australia	81	89	2.5	1.9	26	24	62	68	4	5
108 Japan	62	78	2.4	2.1	18	22	35	42	5	9
109 Canada	69	80	2.7	1.7	14	18	31	62	2	9
110 Austria	50	54	0.9	0.5	51	39	51	39	1	1
111 United States	70	77	1.8	1.5	13	12	61	77	40	65
112 Netherlands	80	76	1.0	0.6	9	9	27	24	3	3
113 France	62	78	2.4	1.4	25	23	34	34	4	6
114 Belgium	66	72	1.2	0.4	17	14	28	24	2	2
115 Norway	32	53	3.5	2.8	50	32	50	32	1	1
116 Denmark	74	84	1.5	0.9	40	32	40	32	1	1
117 Sweden	73	87	1.8	1.0	15	15	15	35	1	3
118 Germany, Fed. Rep.	77	85	1.4	0.4	20	18	48	45	11	11
119 Switzerland	51	58	2.2	1.0	19	22	19	22	1	1
Nonmarket industrial economies	49 w	62 w	2.4 w	1.8 w	9 w	7 w	23 w	32 w	35 t	64 t
120 Poland	48	57	1.8	1.7	17	15	41	47	5	8
121 Bulgaria	39	64	3.8	2.6	23	18	23	18	1	1
122 Hungary	40	54	1.7	2.1	45	37	45	37	1	1
123 USSR	49	62	2.7	1.8	6	4	21	33	25	50
124 Czechoslovakia	47	63	2.1	2.0	17	12	17	12	1	1
125 German Dem. Rep.	72	77	0.1	0.3	9	9	14	17	2	3

Table 21. Indicators related to life expectancy

	Life expectancy at birth (years)		Infant mortality rate (aged 0–1)		Child death rate (aged 1–4)	
	1960	1980	1960	1980	1960	1980
Low-income economies	42 <i>w</i>	57 <i>w</i>	165 <i>w</i>	94 <i>w</i>	28 <i>w</i>	12 <i>w</i>
China and India	..	59 <i>w</i>	..	84 <i>w</i>	..	10 <i>w</i>
Other low-income	40 <i>w</i>	48 <i>w</i>	164 <i>w</i>	130 <i>w</i>	31 <i>w</i>	22 <i>w</i>
1 Kampuchea, Dem.	46	..	146	..	22	..
2 Lao PDR	44	43	155	129	24	19
3 Bhutan	38	44	195	150	33	23
4 Chad	35	41	195	149	46	32
5 Bangladesh	37	46	159	136	25	20
6 Ethiopia	36	40	175	146	40	32
7 Nepal	38	44	195	150	33	23
8 Somalia	36	44	175	146	40	32
9 Burma	44	54	158	101	25	13
10 Afghanistan	33	37	233	205	41	35
11 Viet Nam	43	63	157	62	25	6
12 Mali	37	43	195	154	46	34
13 Burundi	37	42	150	122	33	25
14 Rwanda	37	45	147	137	32	29
15 Upper Volta	36	39	252	211	63	51
16 Zaire	40	47	150	112	33	22
17 Malawi	37	44	207	172	49	39
18 Mozambique	37	47	160	115	36	23
19 India	43	52	165	123	26	17
20 Haiti	44	53	182	115	47	18
21 Sri Lanka	62	66	71	44	7	3
22 Sierra Leone	37	47	234	208	57	50
23 Tanzania	42	52	152	103	33	19
24 China	..	64	..	56	..	5
25 Guinea	35	45	208	165	50	37
26 Central African Rep.	36	44	195	149	46	32
27 Pakistan	43	50	162	126	25	18
28 Uganda	44	54	139	97	29	18
29 Benin	37	47	206	154	49	34
30 Niger	37	43	191	146	45	31
31 Madagascar	37	47	109	71	21	11
32 Sudan	40	46	168	124	40	22
33 Togo	37	47	182	109	42	21
Middle-income economies	51 <i>w</i>	60 <i>w</i>	125 <i>w</i>	80 <i>w</i>	23 <i>w</i>	11 <i>w</i>
Oil exporters	46 <i>w</i>	56 <i>w</i>	145 <i>w</i>	94 <i>w</i>	27 <i>w</i>	14 <i>w</i>
Oil importers	54 <i>w</i>	63 <i>w</i>	111 <i>w</i>	69 <i>w</i>	19 <i>w</i>	9 <i>w</i>
34 Ghana	40	49	143	103	31	19
35 Kenya	41	55	138	87	29	15
36 Lesotho	42	51	144	115	31	23
37 Yemen, PDR	36	45	209	146	59	31
38 Indonesia	41	53	150	93	23	11
39 Yemen Arab Rep.	36	42	212	190	60	50
40 Mauritania	37	43	185	143	43	31
41 Senegal	37	43	182	147	42	32
42 Angola	33	42	208	154	50	34
43 Liberia	44	54	194	154	46	34
44 Honduras	46	58	145	88	30	10
45 Zambia	40	49	151	106	33	20
46 Bolivia	43	50	167	131	40	25
47 Egypt	46	57	128	103	34	14
48 Zimbabwe	49	55	118	74	23	12
49 El Salvador	51	63	136	78	26	7
50 Cameroon	37	47	162	109	36	21
51 Thailand	52	63	103	55	13	4
52 Philippines	53	64	106	55	14	4
53 Nicaragua	47	56	144	91	30	10
54 Papua New Guinea	41	51	165	105	26	14
55 Congo, People's Rep.	48	59	171	129	39	27
56 Morocco	47	56	161	107	37	15
57 Mongolia	52	64	109	55	14	4
58 Albania	62	70	83	48	10	4
59 Peru	47	58	163	88	38	9
60 Nigeria	39	49	183	135	42	28
61 Jamaica	64	71	52	16	3	(.)
62 Guatemala	47	59	92	70	10	6
63 Ivory Coast	37	47	173	127	39	26
64 Dominican Rep.	51	61	119	68	20	6
65 Colombia	53	63	93	56	11	4
66 Ecuador	51	61	140	82	28	8

	Life expectancy at birth (years)		Infant mortality rate (aged 0-1)		Child death rate (aged 1-4)	
	1960	1980	1960	1980	1960	1980
67 Paraguay	56	65	86	47	9	3
68 Tunisia	48	60	159	90	36	10
69 Korea, Dem. Rep.	54	65	78	34	9	2
70 Syrian Arab Rep.	50	65	132	62	25	5
71 Jordan	47	61	136	69	26	6
72 Lebanon	58	66	68	41	5	2
73 Turkey	51	62	190	123	50	21
74 Cuba	63	73	66	21	5	1
75 Korea, Rep. of	54	65	78	34	9	2
76 Malaysia	53	64	72	31	7	2
77 Costa Rica	62	70	71	24	6	1
78 Panama	62	70	68	22	5	1
79 Algeria	47	56	165	118	39	19
80 Brazil	55	63	118	77	19	7
81 Mexico	58	65	91	56	10	4
82 Chile	57	67	114	43	18	2
83 South Africa	53	61	135	96	28	18
84 Romania	65	71	69	29	7	2
85 Portugal	63	71	81	35	9	2
86 Argentina	65	70	61	45	4	2
87 Yugoslavia	63	70	92	33	11	2
88 Uruguay	68	71	50	40	3	2
89 Iran	50	59	163	108	26	14
90 Iraq	46	56	139	78	28	7
91 Venezuela	57	67	85	42	9	2
92 Hong Kong	67	74	42	13	3	(.)
93 Trinidad and Tobago	64	72	45	24	2	1
94 Greece	69	74	40	19	3	1
95 Singapore	64	72	36	12	2	1
96 Israel	69	72	32	14	1	(.)
High-income oil exporters	45 w	57 w	173 w	99 w	43 w	14 w
97 Libya	47	56	158	100	36	13
98 Saudi Arabia	43	54	185	114	48	18
99 Kuwait	60	70	89	34	10	1
100 United Arab Emirates	47	63	135	53	26	3
Industrial market economies	70 w	74 w	30 w	11 w	2 w	1 w
101 Ireland	70	73	29	12	2	(.)
102 Spain	69	73	46	11	3	(.)
103 Italy	69	73	44	14	3	1
104 New Zealand	72	73	23	13	1	1
105 United Kingdom	71	73	23	12	1	1
106 Finland	68	73	21	8	1	(.)
107 Australia	71	74	20	11	1	(.)
108 Japan	68	76	31	7	2	(.)
109 Canada	71	74	27	11	1	(.)
110 Austria	69	72	38	14	2	1
111 United States	70	74	26	13	1	1
112 Netherlands	73	75	18	9	1	(.)
113 France	70	74	27	10	1	(.)
114 Belgium	70	73	31	11	2	(.)
115 Norway	73	75	19	9	1	(.)
116 Denmark	72	75	22	9	1	(.)
117 Sweden	73	75	17	7	1	(.)
118 Germany, Fed. Rep.	70	73	34	14	2	1
119 Switzerland	71	75	21	9	1	(.)
Nonmarket industrial economies	68 w	71 w	36 w	25 w	2 w	1 w
120 Poland	67	72	56	21	2	1
121 Bulgaria	68	73	45	20	3	1
122 Hungary	68	71	48	23	4	1
123 USSR	68	71	35	27	2	1
124 Czechoslovakia	70	71	24	17	1	1
125 German Dem. Rep.	69	72	39	12	3	(.)

Table 22. Health-related indicators

	Population per:				Percentage of population with access to safe water ^a 1975	Daily per capita calorie supply	
	Physician ^a		Nursing person ^a			Total 1977	As percentage of requirement 1977
	1960	1977	1960	1977			
Low-income economies	8,960 <i>w</i>	5,810 <i>w</i>	6,650 <i>w</i>	4,840 <i>w</i>	31 <i>w</i>	2,238 <i>w</i>	97 <i>w</i>
China and India	3,730 <i>w</i>	2,130 <i>w</i>	6,040 <i>w</i>	2,610 <i>w</i>	..	2,270 <i>w</i>	97 <i>w</i>
Other low-income	34,880 <i>w</i>	19,460 <i>w</i>	9,850 <i>w</i>	13,200 <i>w</i>	29 <i>w</i>	2,113 <i>w</i>	94 <i>w</i>
1 Kampuchea, Dem.	35,440	..	4,010	..	..	1,926	78
2 Lao PDR	53,520	20,060	4,950	3,040	..	2,082	94
3 Bhutan	..	..	..	..	..	2,028	90
4 Chad	72,190	41,940	5,780	3,820	26	1,762	72
5 Bangladesh	..	12,690	..	40,490	53	..	..
6 Ethiopia	100,470	74,910	14,920	5,320	6	1,754	78
7 Nepal	73,800	35,900	..	13,510	9	2,002	89
8 Somalia	36,570	18,480	4,810	..	33	2,033	88
9 Burma	15,560	5,260	8,550	4,400	17	2,286	103
10 Afghanistan	28,700	20,550	19,590	25,920	6	2,695	107
11 Viet Nam	..	5,620	..	2,470	..	1,801	96
12 Mali	67,050	25,560	4,920	2,380	9	2,117	83
13 Burundi	96,570	45,020	4,530	6,180	..	2,254	99
14 Rwanda	143,290	38,790	11,620	10,460	35	2,264	94
15 Upper Volta	81,650	50,000	4,090	3,650	25	1,875	93
16 Zaire	37,620	15,530	3,510	1,620	16	2,271	102
17 Malawi	35,250	41,010	12,920	3,830	33	2,066	97
18 Mozambique	20,390	35,820	4,720	4,290	..	1,906	78
19 India	4,850	3,630	10,980	5,700	33	2,021	89
20 Haiti	9,230	5,940	4,020	2,940	14	2,100	92
21 Sri Lanka	4,490	6,700	4,170	2,040	20	2,126	97
22 Sierra Leone	20,420	..	2,960	..	..	2,150	85
23 Tanzania	18,220	17,550	11,890	2,390	39	2,063	87
24 China	3,010	1,100	2,850	480	..	2,441	103
25 Guinea	26,900	16,630	3,260	2,490	10	1,943	78
26 Central African Rep.	49,610	20,280	3,280	1,540	16	2,242	92
27 Pakistan	5,400	3,780	16,960	10,030	29	2,281	99
28 Uganda	15,050	26,810	10,030	4,180	35	2,110	93
29 Benin	23,030	26,570	2,690	2,360	21	2,249	100
30 Niger	82,170	42,720	8,460	2,380	27	2,139	91
31 Madagascar	8,900	10,240	3,110	2,300	25	2,486	111
32 Sudan	33,420	8,780	3,030	850	46	2,184	96
33 Togo	35,760	18,160	5,340	1,740	16	2,069	92
Middle-income economies	16,920 <i>w</i>	5,840 <i>w</i>	3,440 <i>w</i>	2,510 <i>w</i>	50 <i>w</i>	2,561 <i>w</i>	107 <i>w</i>
Oil exporters	29,650 <i>w</i>	8,020 <i>w</i>	4,110 <i>w</i>	3,950 <i>w</i>	42 <i>w</i>	2,444 <i>w</i>	103 <i>w</i>
Oil importers	6,500 <i>w</i>	4,010 <i>w</i>	2,870 <i>w</i>	1,210 <i>w</i>	57 <i>w</i>	2,653 <i>w</i>	110 <i>w</i>
34 Ghana	21,600	9,920	5,430	610	35	1,983	85
35 Kenya	10,690	11,630	2,270	1,090	17	2,032	96
36 Lesotho	23,490	18,640	..	14,900	17	2,245	95
37 Yemen, PDR	13,290	5,970	..	1,330	24	1,945	81
38 Indonesia	46,780	13,670	4,520	8,870	12	2,272	102
39 Yemen Arab Rep.	130,010	11,670	..	4,580	4	2,192	82
40 Mauritania	37,040	13,700	4,990	1,980	..	1,976	94
41 Senegal	21,970	15,710	2,840	1,390	37	2,261	95
42 Angola	14,910	..	6,570	..	..	2,133	93
43 Liberia	12,600	9,280	1,410	1,810	20	2,404	101
44 Honduras	12,610	3,290	..	870	46	2,015	93
45 Zambia	9,540	10,410	9,920	1,970	42	2,002	90
46 Bolivia	3,830	1,850	..	3,070	34	1,974	87
47 Egypt	2,560	1,050	1,930	1,100	66	2,760	118
48 Zimbabwe	4,790	7,030	1,010	1,170	..	2,576	109
49 El Salvador	5,260	3,600	..	950	53	2,051	94
50 Cameroon	48,110	16,500	3,280	1,150	26	2,069	106
51 Thailand	7,950	8,220	4,860	1,170	22	1,929	97
52 Philippines	..	2,810	..	3,170	43	2,189	107
53 Nicaragua	2,690	1,590	1,250	800	70	2,446	116
54 Papua New Guinea	14,390	14,040	2,450	1,590	20	2,268	87
55 Congo, People's Rep.	16,100	7,470	1,300	600	17	2,284	99
56 Morocco	9,410	11,040	..	1,830	..	2,534	107
57 Mongolia	1,070	480	300	250	..	2,523	106
58 Albania	3,630	960	530	320	..	2,730	113
59 Peru	2,010	1,530	2,210	680	48	2,274	98
60 Nigeria	73,710	15,740	4,040	2,880	..	1,951	83
61 Jamaica	2,590	3,520	1,990	550	86	2,660	118
62 Guatemala	4,420	2,560	9,040	..	40	2,156	92
63 Ivory Coast	29,190	21,040	2,920	1,590	19	2,517	107
64 Dominican Republic	8,220	..	..	..	55	2,094	102
65 Colombia	2,640	1,970	4,220	1,250	64	2,364	98
66 Ecuador	2,670	1,570	2,360	..	42	2,104	90

	Population per:				Percentage of population with access to safe water ^a 1975	Daily per capita calorie supply	
	Physician ^a		Nursing person ^a			Total 1977	As percentage of requirement 1977
	1960	1977	1960	1977			
67 Paraguay	1,810	2,190	..	2,290	13	2,824	119
68 Tunisia	10,030	3,580	..	1,070	70	2,674	115
69 Korea, Dem. Rep.	..	..	..	..	..	2,837	119
70 Syrian Arab Rep.	4,630	2,570	6,660	3,900	75	2,684	104
71 Jordan	5,800	1,960	1,930	820	61	2,107	62
72 Lebanon	1,210	..	2,080	..	..	2,495	112
73 Turkey	3,000	1,760	..	920	75	2,907	116
74 Cuba	1,060	1,100	950	..	..	2,720	118
75 Korea, Rep. of	3,540	1,980	3,250	490	71	2,785	117
76 Malaysia	7,020	7,640	1,790	870	62	2,610	116
77 Costa Rica	2,700	1,390	710	450	77	2,550	113
78 Panama	2,730	1,220	3,460	1,410	79	2,341	104
79 Algeria	5,530	5,330	..	1,480	77	2,372	97
80 Brazil	2,560	1,700	2,770	822	77	2,562	111
81 Mexico	1,820	1,260	3,630	1,420	62	2,654	113
82 Chile	1,780	1,930	640	420	84	2,656	110
83 South Africa	2,180	..	480	..	..	2,831	116
84 Romania	790	740	620	470	..	3,444	130
85 Portugal	1,250	700	1,420	470	65	3,076	127
86 Argentina	740	530	750	..	66	3,347	124
87 Yugoslavia	1,620	760	630	360	..	3,445	136
88 Uruguay	970	540	..	3,700	84	3,036	105
89 Iran	4,060	2,560	8,090	1,900	51	3,138	122
90 Iraq	5,270	2,190	3,030	1,890	62	2,134	90
91 Venezuela	1,510	930	2,840	370	..	2,435	102
92 Hong Kong	3,060	1,180	2,880	430	..	2,883	119
93 Trinidad and Tobago	2,390	1,970	750	580	..	2,694	103
94 Greece	800	460	800	600	..	3,400	135
95 Singapore	2,360	1,250	650	380	100	3,074	135
96 Israel	400	310	360	..	..	3,141	123
High-income oil exporters	<i>13,310 w</i>	<i>1,380 w</i>	<i>4,500 w</i>	<i>3,010 w</i>	<i>88 w</i>	..	..
97 Libya	6,580	900	1,320	350	100	2,985	122
98 Saudi Arabia	16,370	1,700	5,850	860	84	2,624	87
99 Kuwait	1,150	790	260	230	89	..	..
100 United Arab Emirates	..	780	..	430	..	..	..
Industrial market economies	<i>820 w</i>	<i>620 w</i>	<i>470 w</i>	<i>250 w</i>	..	<i>3,377 w</i>	<i>131 w</i>
101 Ireland	950	830	190	200	..	3,541	141
102 Spain	850	560	1,290	900	..	3,149	127
103 Italy	640	490	1,330	330	..	3,428	136
104 New Zealand	850	740	..	170	..	3,345	124
105 United Kingdom	1,020	750	210	230	..	3,336	133
106 Finland	1,570	630	170	110	..	3,100	116
107 Australia	760	650	..	120	..	3,428	127
108 Japan	930	850	310	290	..	2,949	126
109 Canada	910	560	290	130	..	3,374	127
110 Austria	550	430	440	250	..	3,535	135
111 United States	750	580	340	150	..	3,576	133
112 Netherlands	900	580	..	270	..	3,338	125
113 France	930	610	530	170	..	3,434	136
114 Belgium	780	440	450	..	..	3,583	141
115 Norway	850	540	330	100	..	3,175	119
116 Denmark	810	510	220	150	..	3,418	127
117 Sweden	1,050	560	100	130	..	3,221	120
118 Germany, Fed. Rep.	670	490	370	260	..	3,381	127
119 Switzerland	740	510	340	210	..	3,485	127
Nonmarket industrial economies	<i>660 w</i>	<i>340 w</i>	<i>350 w</i>	<i>200 w</i>	..	<i>3,489 w</i>	<i>137 w</i>
120 Poland	1,070	610	460	230	..	3,656	140
121 Bulgaria	710	440	550	190	..	3,611	143
122 Hungary	720	430	330	190	..	3,521	133
123 USSR	560	290	340	210	..	3,460	136
124 Czechoslovakia	620	390	230	150	..	3,340	139
125 German Dem. Rep.	1,180	530	..	..	..	3,641	139

a. Figures in italics are for years other than those specified. See the technical notes.

Table 23. Education^a

	Number enrolled in primary school as percentage of age group						Number enrolled in secondary school as percentage of age group		Number enrolled in higher education as percentage of population aged 20-24		Adult literacy rate (percent)	
	Total		Male		Female		1960	1979	1960	1978	1960	1977
	1960	1979	1960	1979	1960	1979						
Low-income economies	76 <i>w</i>	94 <i>w</i>	68 <i>w</i>	98 <i>w</i>	34 <i>w</i>	84 <i>w</i>	15 <i>w</i>	49 <i>w</i>	2 <i>w</i>	3 <i>w</i>	26 <i>w</i>	50 <i>w</i>
China and India	86 <i>w</i>	102 <i>w</i>	..	103 <i>w</i>	..	93 <i>w</i>	..	58 <i>w</i>	..	4 <i>w</i>	..	54 <i>w</i>
Other low-income	37 <i>w</i>	64 <i>w</i>	50 <i>w</i>	77 <i>w</i>	24 <i>w</i>	47 <i>w</i>	6 <i>w</i>	17 <i>w</i>	1 <i>w</i>	2 <i>w</i>	23 <i>w</i>	34 <i>w</i>
1 Kampuchea, Dem.	64	..	82	..	46	..	3	..	(.)	..	36	..
2 Lao PDR	25	93	34	101	16	85	1	16	(.)	..	28	41
3 Bhutan	3	11	5	15	(.)	7	..	1	(.)	..	..	..
4 Chad	17	35	29	51	4	19	(.)	3	(.)	..	6	15
5 Bangladesh	47	65	66	79	26	49	8	25	1	2	22	26
6 Ethiopia	7	36	11	48	3	24	(.)	9	(.)	(.)	..	15
7 Nepal	10	88	19	124	1	49	6	19	1	3	9	19
8 Somalia	9	50	13	64	5	36	1	7	(.)	1	2	60
9 Burma	56	84	61	87	52	81	10	20	1	4	60	70
10 Afghanistan	9	22	15	36	2	7	1	7	(.)	1	8	12
11 Viet Nam	..	120	..	124	..	115	..	56	..	3	..	87
12 Mali	10	28	14	36	6	20	1	9	..	1	3	9
13 Burundi	18	23	27	28	9	18	1	2	(.)	1	14	23
14 Rwanda	49	70	68	74	30	67	2	2	..	(.)	16	50
15 Upper Volta	8	21	12	26	5	15	(.)	3	..	(.)	2	5
16 Zaire	60	90	88	103	32	77	3	19	(.)	1	31	58
17 Malawi	..	59	..	70	..	48	1	4	..	(.)	..	25
18 Mozambique	48	107	60	125	36	90	2	9	..	(.)	11	28
19 India	61	78	80	92	40	63	20	27	3	8	28	36
20 Haiti	46	62	50	..	42	..	4	15	(.)	1	15	23
21 Sri Lanka	95	98	100	..	90	..	27	53	1	1	75	85
22 Sierra Leone	23	37	30	45	15	30	2	12	(.)	1	7	..
23 Tanzania	25	104	33	113	18	94	2	4	..	(.)	10	66
24 China	102	118	..	111	..	114	..	79	..	1	..	66
25 Guinea	30	34	44	45	16	24	2	15	..	5	7	20
26 Central African Rep.	32	77	53	100	12	54	1	10	..	1	7	39
27 Pakistan	30	56	46	81	13	31	11	16	1	2	15	24
28 Uganda	49	50	65	58	32	42	3	5	(.)	1	35	48
29 Benin	27	60	38	78	15	42	2	12	..	1	5	25
30 Niger	5	23	7	29	3	17	(.)	4	..	(.)	1	5
31 Madagascar	52	100	58	100	45	87	4	12	(.)	3	..	50
32 Sudan	25	51	35	60	14	43	3	16	(.)	2	13	20
33 Togo	44	110	63	136	24	85	2	32	..	2	10	18
Middle-income economies	76 <i>w</i>	97 <i>w</i>	84 <i>w</i>	104 <i>w</i>	68 <i>w</i>	93 <i>w</i>	15 <i>w</i>	39 <i>w</i>	4 <i>w</i>	11 <i>w</i>	49 <i>w</i>	65 <i>w</i>
Oil exporters	63 <i>w</i>	97 <i>w</i>	75 <i>w</i>	109 <i>w</i>	52 <i>w</i>	93 <i>w</i>	9 <i>w</i>	32 <i>w</i>	3 <i>w</i>	8 <i>w</i>	36 <i>w</i>	57 <i>w</i>
Oil Importers	85 <i>w</i>	96 <i>w</i>	91 <i>w</i>	100 <i>w</i>	80 <i>w</i>	92 <i>w</i>	18 <i>w</i>	44 <i>w</i>	5 <i>w</i>	13 <i>w</i>	60 <i>w</i>	73 <i>w</i>
34 Ghana	38	71	52	80	25	62	5	36	(.)	..	27	..
35 Kenya	47	99	64	105	30	94	2	18	(.)	1	20	50
36 Lesotho	83	104	63	84	102	123	3	17	(.)	2	..	52
37 Yemen, PDR	13	70	20	99	5	42	5	31	..	2	..	40
38 Indonesia	71	94	86	100	58	89	6	22	1	3	39	62
39 Yemen Arab Rep.	8	34	14	59	(.)	9	(.)	4	..	2	3	21
40 Mauritania	8	28	13	36	3	20	(.)	6	..	(.)	5	17
41 Senegal	27	42	36	51	17	34	3	10	1	2	6	10
42 Angola	21	..	28	..	13	..	2	..	(.)	..	..	..
43 Liberia	31	67	45	83	18	51	2	22	(.)	..	9	25
44 Honduras	67	89	68	92	67	85	8	21	1	8	45	60
45 Zambia	42	95	51	101	34	89	2	17	..	2	29	44
46 Bolivia	64	82	78	87	50	76	12	35	4	13	39	63
47 Egypt	66	75	80	88	52	61	16	48	5	15	26	44
48 Zimbabwe	96	104	107	110	86	96	6	15	(.)	..	39	74
49 El Salvador	80	82	82	83	77	81	13	26	1	8	49	62
50 Cameroon	65	103	87	113	43	93	2	17	..	1	19	..
51 Thailand	83	82	88	85	79	78	13	29	2	7	68	84
52 Philippines	95	98	98	..	93	..	26	63	13	27	72	75
53 Nicaragua	66	85	65	83	66	88	7	27	1	..	..	90
54 Papua New Guinea	32	64	59	73	7	55	1	12	..	..	29	32
55 Congo, People's Rep.	78	156	103	163	53	148	4	69	1	4	16	..
56 Morocco	47	75	67	93	27	56	5	22	1	4	14	28
57 Mongolia	79	108	79	111	78	105	51	81	8	..	..	..
58 Albania	94	..	102	..	86	..	20	..	5	..	..	..
59 Peru	83	112	95	115	71	108	15	50	4	17	61	80
60 Nigeria	36	79	46	..	27	..	4	10	(.)	1	15	30
61 Jamaica	92	99	92	99	93	100	45	58	2	..	82	90
62 Guatemala	45	69	50	74	39	63	7	15	2	6	32	..
63 Ivory Coast	46	74	68	91	24	58	2	15	(.)	2	5	41
64 Dominican Rep.	98	96	99	95	98	96	7	28	1	..	65	67
65 Colombia	77	128	77	127	77	129	12	46	2	10	63	..
66 Ecuador	83	107	87	109	79	105	12	49	3	35	68	81

	Number enrolled in primary school as percentage of age group						Number enrolled in secondary school as percentage of age group		Number enrolled in higher education as percentage of population aged 20-24		Adult literacy rate (percent)	
	Total		Male		Female		1960	1979	1960	1978	1960	1977
	1960	1979	1960	1979	1960	1979						
67 Paraguay	98	102	105	106	90	98	11	25	2	8	75	84
68 Tunisia	66	102	88	119	43	85	12	25	1	5	16	62
69 Korea, Dem. Rep.	..	113	..	115	..	112	..	..	..	..	..	..
70 Syrian Arab Rep.	65	96	89	107	39	84	16	47	4	18	30	58
71 Jordan	77	102	94	106	59	99	25	74	1	..	32	70
72 Lebanon	102	97	105	..	99	..	19	50	6	28	..	..
73 Turkey	75	105	90	115	58	96	14	34	3	8	38	60
74 Cuba	109	112	109	116	109	108	14	71	3	19	..	96
75 Korea, Rep. of	94	111	99	112	89	111	27	76	5	12	71	93
76 Malaysia	96	93	108	94	83	92	19	52	1	3	53	..
77 Costa Rica	96	107	97	108	95	106	21	48	5	24	..	90
78 Panama	96	115	98	118	94	113	29	66	5	20	73	..
79 Algeria	46	98	55	113	37	83	8	31	(.)	4	10	35
80 Brazil	95	89	97	90	93	87	11	32	2	11	61	76
81 Mexico	80	124	82	127	77	122	11	45	3	12	65	81
82 Chile	109	119	111	120	107	118	24	55	4	12	84	..
83 South Africa	89	..	94	..	85	..	15	..	3	..	57	..
84 Romania	98	98	101	98	95	98	24	83	5	11	89	98
85 Portugal	..	117	..	119	..	115	..	55	4	11	62	..
86 Argentina	98	110	98	110	99	111	23	56	11	22	91	93
87 Yugoslavia	111	99	113	99	108	98	58	82	9	23	77	85
88 Uruguay	111	105	111	107	111	102	37	59	8	18	..	94
89 Iran	41	101	56	121	27	80	12	44	1	5	16	50
90 Iraq	65	120	94	129	36	110	19	56	2	9	18	..
91 Venezuela	100	110	100	110	100	110	21	40	4	21	63	82
92 Hong Kong	87	109	93	110	79	108	20	63	4	11	70	90
93 Trinidad and Tobago	88	96	89	96	87	97	24	56	1	..	93	95
94 Greece	102	103	104	104	101	103	37	81	4	18	81	..
95 Singapore	111	107	121	109	101	106	32	59	6	9	..	..
96 Israel	98	96	99	95	97	97	48	68	10	26	84	..
High-income oil exporters	<i>28 w</i>	<i>81 w</i>	<i>44 w</i>	<i>92 w</i>	<i>12 w</i>	<i>70 w</i>	<i>5 w</i>	<i>44 w</i>	..	<i>7 w</i>	<i>9 w</i>	<i>25 w</i>
97 Libya	59	123	92	128	24	119	9	67	1	6	22	..
98 Saudi Arabia	12	64	22	78	2	49	2	31	(.)	7	3	16
99 Kuwait	117	99	131	102	102	96	37	74	..	12	47	60
100 United Arab Emirates	..	..	..	..	..	..	..	..	..	..	..	56
Industrial market economies	<i>114 w</i>	<i>102 w</i>	<i>107 w</i>	<i>104 w</i>	<i>112 w</i>	<i>104 w</i>	<i>64 w</i>	<i>88 w</i>	<i>17 w</i>	<i>37 w</i>	..	<i>99 w</i>
101 Ireland	110	105	107	105	112	104	35	92	9	19	..	98
102 Spain	110	109	106	110	116	109	23	78	4	24	87	..
103 Italy	111	102	112	103	109	102	34	73	7	27	91	98
104 New Zealand	108	107	110	108	106	106	73	81	13	29	..	99
105 United Kingdom	92	105	92	104	92	105	66	83	9	20	..	99
106 Finland	97	85	100	85	95	85	74	90	7	21	99	100
107 Australia	103	111	103	111	103	111	51	86	13	26	..	100
108 Japan	103	101	103	101	102	101	74	90	10	29	98	99
109 Canada	107	102	108	102	105	101	46	89	16	37	..	99
110 Austria	105	99	106	99	104	98	50	72	8	22	99	99
111 United States	118	98	..	..	..	..	86	97	32	56	98	99
112 Netherlands	105	101	105	100	104	102	58	93	13	28	..	99
113 France	144	112	144	113	143	111	46	84	10	24	..	99
114 Belgium	109	101	111	101	108	101	69	86	9	26	..	99
115 Norway	100	100	100	99	100	100	57	94	7	25	..	99
116 Denmark	103	98	103	..	103	..	65	83	10	29	..	99
117 Sweden	96	98	95	98	96	98	55	86	9	37	..	99
118 Germany, Fed. Rep.	133	..	132	..	134	..	53	..	6	26	..	99
119 Switzerland	118	86	118	86	118	87	26	55	7	17	..	99
Nonmarket industrial economies	<i>101 w</i>	<i>100 w</i>	<i>101 w</i>	<i>95 w</i>	<i>101 w</i>	<i>96 w</i>	<i>48 w</i>	<i>93 w</i>	<i>11 w</i>	<i>20 w</i>	<i>98 w</i>	<i>100 w</i>
120 Poland	109	99	110	..	107	..	50	54	9	18	95	98
121 Bulgaria	93	96	94	97	92	95	55	87	11	18	91	..
122 Hungary	101	96	103	96	100	96	46	69	7	12	97	99
123 USSR	100	101	100	..	100	..	49	104	11	21	99	100
124 Czechoslovakia	93	92	93	92	93	93	25	43	11	16	95	..
125 German Dem. Rep.	112	97	111	95	113	98	39	88	16	29	..	..

a. Figures in italics are for years other than those specified. See the technical notes.

Table 24. Defense and social expenditure

	Defense expenditure as percentage of:				Central government expenditure per capita (1975 dollars)					
	GNP		Central government expenditure		Defense		Education		Health	
	1972 ^a	1979 ^b	1972 ^a	1979 ^b	1972 ^a	1979 ^b	1972 ^a	1979 ^b	1972 ^a	1979 ^b
Low-income economies	3.8 <i>w</i>	4.5 <i>w</i>	19.0 <i>w</i>	18.1 <i>w</i>	6 <i>w</i>	9 <i>w</i>	3 <i>w</i>	4 <i>w</i>	2 <i>w</i>	1 <i>w</i>
China and India		4.4 <i>w</i>	..	17.7 <i>w</i>	..	9 <i>w</i>	7 <i>w</i>	4 <i>w</i>	..	..
Other low-income	3.8 <i>w</i>	5.0 <i>w</i>	19.0 <i>w</i>	19.2 <i>w</i>	6 <i>w</i>	7 <i>w</i>	3 <i>w</i>	3 <i>w</i>	2 <i>w</i>	1 <i>w</i>
1 Kampuchea, Dem.	..	..	..	..	..	..	..	..	..	..
2 Lao PDR	..	..	..	..	..	..	..	..	..	..
3 Bhutan	..	..	..	..	..	..	..	..	..	..
4 Chad	4.5	..	24.6	..	6	..	3	..	1	..
5 Bangladesh	0.5	..	5.1	..	(.)	..	1	..	(.)	..
6 Ethiopia	2.0	..	14.3	..	2	..	2	..	1	..
7 Nepal	0.6	0.9	7.1	6.6	1	1	1	2	(.)	1
8 Somalia	6.2	6.8	23.3	25.0	7	16	2	5	2	2
9 Burma	6.3	3.7	31.6	24.2	7	5	3	2	1	1
10 Afghanistan	..	..	..	..	..	..	..	..	..	..
11 Viet Nam	..	..	..	..	..	..	..	..	..	..
12 Mali	..	2.9	..	17.2	..	4	..	5	..	1
13 Burundi	2.0	..	10.3	..	2	..	6	..	1	..
14 Rwanda	3.0	1.5	25.6	12.4	4	2	3	3	1	1
15 Upper Volta	1.3	3.2	11.5	16.9	1	4	3	3	1	1
16 Zaire	..	..	..	..	..	..	..	..	..	..
17 Malawi	0.6	3.8	3.2	13.9	1	5	4	3	1	2
18 Mozambique	..	..	..	..	..	..	..	..	..	..
19 India	..	2.8	..	18.1	..	4	..	(.)	..	(.)
20 Haiti	..	..	..	..	..	..	..	..	..	..
21 Sri Lanka	1.3	0.7	4.1	1.9	4	2	12	8	6	5
22 Sierra Leone	..	1.7	..	7.8	..	3	..	5	..	3
23 Tanzania	2.3	9.4	11.9	23.7	4	15	5	7	2	3
24 China	..	5.7	..	17.5	..	12	..	7	..	..
25 Guinea	..	..	..	..	..	..	..	..	..	..
26 Central African Rep.	..	..	..	..	..	..	..	..	..	..
27 Pakistan	6.6	5.0	39.9	28.8	10	9	(.)	1	(.)	(.)
28 Uganda	..	..	..	..	..	..	..	..	..	..
29 Benin	..	..	..	..	..	..	..	..	..	..
30 Niger	..	..	..	..	..	..	..	..	..	..
31 Madagascar	0.8	..	3.6	..	2	..	5	..	2	..
32 Sudan	3.5	2.6	23.0	13.6	8	10	3	4	2	1
33 Togo	..	..	..	..	..	..	..	..	..	..
Middle-income economies	2.9 <i>w</i>	3.3 <i>w</i>	13.6 <i>w</i>	13.0 <i>w</i>	26 <i>w</i>	39 <i>w</i>	21 <i>w</i>	35 <i>w</i>	9 <i>w</i>	15 <i>w</i>
Oil exporters	3.0 <i>w</i>	4.1 <i>w</i>	16.4 <i>w</i>	14.7 <i>w</i>	31 <i>w</i>	48 <i>w</i>	25 <i>w</i>	49 <i>w</i>	10 <i>w</i>	16 <i>w</i>
Oil importers	2.8 <i>w</i>	3.0 <i>w</i>	12.7 <i>w</i>	12.3 <i>w</i>	24 <i>w</i>	35 <i>w</i>	19 <i>w</i>	29 <i>w</i>	9 <i>w</i>	14 <i>w</i>
34 Ghana	1.6	0.7	8.0	4.4	8	3	20	10	6	4
35 Kenya	1.3	4.8	6.0	17.7	3	13	11	13	4	5
36 Lesotho	..	..	..	..	..	..	5	..	2	..
37 Yemen, PDR	..	..	..	..	..	..	..	..	..	..
38 Indonesia	..	..	..	..	..	..	..	..	..	..
39 Yemen Arab Rep.	..	..	..	..	..	..	..	..	..	..
40 Mauritania	..	14.4	..	29.4	..	35	..	12	..	3
41 Senegal	..	..	..	..	..	..	..	..	..	..
42 Angola	..	..	..	..	..	..	..	..	..	..
43 Liberia	..	1.0	..	2.7	..	3	..	13	..	7
44 Honduras	1.9	2.4	12.4	11.4	7	9	13	15	6	7
45 Zambia	..	..	..	..	..	..	33	24	13	11
46 Bolivia	1.5	2.0	16.1	16.6	7	10	13	19	4	5
47 Egypt	..	3.3	..	8.2	..	17	..	24	..	8
48 Zimbabwe	..	..	..	..	..	..	..	..	..	..
49 El Salvador	0.8	1.4	6.6	9.3	4	6	11	13	6	6
50 Cameroon	..	1.6	..	9.2	..	7	..	10	..	3
51 Thailand	3.5	3.5	19.5	19.4	11	15	11	16	2	3
52 Philippines	1.5	2.2	10.1	18.7	5	9	7	8	1	2
53 Nicaragua	1.9	..	12.3	..	12	..	16	..	4	..
54 Papua New Guinea	..	1.4	..	4.3	..	7	..	27	..	13
55 Congo, People's Rep.	..	..	..	..	..	..	..	..	..	..
56 Morocco	2.8	5.8	12.3	16.0	13	35	21	39	5	7
57 Mongolia	..	..	..	..	..	..	..	..	..	..
58 Albania	..	..	..	..	..	..	..	..	..	..
59 Peru	2.5	1.9	14.8	12.3	23	17	35	19	10	8
60 Nigeria	5.2	..	40.2	..	20	..	2	..	2	..
61 Jamaica	..	..	..	..	..	..	..	..	..	..
62 Guatemala	1.1	1.2	11.0	10.8	3	8	5	10	2	6
63 Ivory Coast	..	..	..	..	..	..	..	..	..	..
64 Dominican Rep.	1.5	..	8.5	..	11	..	18	..	15	..
65 Colombia	..	..	..	..	..	..	..	..	..	..
66 Ecuador	2.0	2.1	16.9	18.8	11	14	20	21	3	6

	Defense expenditure as percentage of:				Central government expenditure per capita (1975 dollars)					
	GNP		Central government expenditure		Defense		Education		Health	
	1972 ^a	1979 ^b	1972 ^a	1979 ^b	1972 ^a	1979 ^b	1972 ^a	1979 ^b	1972 ^a	1979 ^b
67 Paraguay	1.8	1.2	13.8	11.7	9	9	8	10	2	3
68 Tunisia	1.1	1.5	4.8	4.3	7	13	46	63	11	22
69 Korea, Dem. Rep.										
70 Syrian Arab Rep.	10.9	14.4	37.2	34.9	64	115	19	21	2	3
71 Jordan		14.2		27.9		78		30		13
72 Lebanon										
73 Turkey	3.4	3.3	15.4	12.0	27	31	32	49	6	8
74 Cuba										
75 Korea, Rep. of	4.9	5.5	25.8	30.6	22	44	14	24	1	2
76 Malaysia	5.1	4.0	18.5	16.4	33	38	42	50	12	15
77 Costa Rica	0.5	0.7	2.6	2.7	5	8	48	70	6	7
78 Panama								60		58
79 Algeria										
80 Brazil	1.4	0.8	8.3	4.3	13	11	11	15	10	21
81 Mexico	0.6	0.5	4.9	2.9	8	8	27	50	8	10
82 Chile	2.6	4.2	6.1	12.0	4	37	9	40	5	20
83 South Africa										
84 Romania		2.0	6.2	3.7						
85 Portugal										
86 Argentina	1.0	2.5	9.0	14.0	18	37	19	22	7	5
87 Yugoslavia	4.1	4.3	20.5	19.3	54	77			66	101
88 Uruguay	1.4	2.5	5.6	11.7	16	37	28	30	5	15
89 Iran	7.4	11.2	24.1	25.9	104	169	45	80	16	23
90 Iraq										
91 Venezuela	2.1	2.3	9.7	7.8	41	55	73	101	27	35
92 Hong Kong										
93 Trinidad and Tobago		0.9		2.5		24		111		60
94 Greece	7.8	6.2	14.6	19.9	90	167	54	88	44	76
95 Singapore	6.0	5.1	35.3	24.4	126	164	56	100	28	47
96 Israel	17.6	29.8	39.8	39.2	620	1,083	141	246	55	141
High-income oil exporters										
97 Libya										
98 Saudi Arabia										
99 Kuwait	2.7	3.4	8.4	13.8	314	432	559	311	206	196
100 United Arab Emirates			24.5	55.1						
Industrial market economies	5.1 <i>w</i>	3.8 <i>w</i>	21.6 <i>w</i>	13.5 <i>w</i>	301 <i>w</i>	283 <i>w</i>	80 <i>w</i>	109 <i>w</i>	152 <i>w</i>	235 <i>w</i>
101 Ireland										
102 Spain	1.3	1.3	6.5	5.2	34	42	43	65	5	7
103 Italy	2.0		6.3		70		178		150	
104 New Zealand	1.7	1.7	5.8	4.6	70	72	203	216	180	241
105 United Kingdom	5.5	5.4	16.7	14.5	217	249	34	45	158	219
106 Finland	1.5	1.5	6.1	4.9	80	92	203	281	140	197
107 Australia	2.8	2.3	14.5	8.9	188	164	55	164	108	187
108 Japan										
109 Canada		1.7		7.9		131		72		126
110 Austria	1.0	1.2	3.0	3.2	47	71	160	223	156	290
111 United States	6.3	4.6	32.2	21.5	453	376	45	51	120	183
112 Netherlands		3.5		6.4		234		540		19
113 France		2.6		6.9		190		255		406
114 Belgium	2.6	3.0	6.6	5.8	157	212	364	527	34	65
115 Norway	3.4		9.4		201		206		255	
116 Denmark	2.3		7.0		169		377		231	
117 Sweden	3.6	3.4	12.2	7.7	283	292	335	412	81	92
118 Germany, Fed. Rep.	3.0	2.8	12.4	9.6	200	222	24	21	281	437
119 Switzerland	2.0	2.1	15.1	10.3	184	187	51	65	122	208
Nonmarket industrial economies										
120 Poland										
121 Bulgaria										
122 Hungary										
123 USSR										
124 Czechoslovakia										
125 German Dem. Rep.										

a. Figures in italics are for 1973, not 1972. b. Figures in italics are for 1978, not 1979.

Table 25. Income distribution

Percentage share of household income, by percentile groups of households^a

	Year	Lowest 20 percent	Second quintile	Third quintile	Fourth quintile	Highest 20 percent	Highest 10 percent
Low-income economies							
China and India							
Other low-income							
1	Kampuchea, Dem.	..	..	..	..	..	..
2	Lao PDR	..	..	..	..	..	..
3	Bhutan	..	..	..	..	..	..
4	Chad	..	..	..	..	..	..
5	Bangladesh	1973-74	6.9	11.3	16.1	23.5	42.2
6	Ethiopia	..	..	..	..	..	..
7	Nepal	1976-77	4.6	8.0	11.7	16.5	59.2
8	Somalia	..	..	..	..	..	..
9	Burma	..	..	..	..	..	..
10	Afghanistan	..	..	..	..	..	..
11	Viet Nam	..	..	..	..	..	..
12	Mali	..	..	..	..	..	..
13	Burundi	..	..	..	..	..	..
14	Rwanda	..	..	..	..	..	..
15	Upper Volta	..	..	..	..	..	..
16	Zaire	..	..	..	..	..	..
17	Malawi	1967-68	10.4	11.1	13.1	14.8	50.6
18	Mozambique	..	..	..	..	..	..
19	India	1975-76	7.0	9.2	13.9	20.5	49.4
20	Haiti	..	..	..	..	..	..
21	Sri Lanka	1969-70	7.5	11.7	15.7	21.7	43.4
22	Sierra Leone	..	..	..	..	..	..
23	Tanzania	1969	5.8	10.2	13.9	19.7	50.4
24	China	..	..	..	..	..	..
25	Guinea	..	..	..	..	..	..
26	Central African Rep.	..	..	..	..	..	..
27	Pakistan	..	..	..	..	..	..
28	Uganda	..	..	..	..	..	..
29	Benin	..	..	..	..	..	..
30	Niger	..	..	..	..	..	..
31	Madagascar	..	..	..	..	..	..
32	Sudan	..	..	..	..	..	..
33	Togo	..	..	..	..	..	..
Middle-income economies							
Oil exporters							
Oil importers							
34	Ghana	..	..	..	..	..	..
35	Kenya	1974	2.6	6.3	11.5	19.2	60.4
36	Lesotho	..	..	..	..	..	..
37	Yemen, PDR	..	..	..	..	..	..
38	Indonesia	1976	6.6	7.8	12.6	23.6	49.4
39	Yemen Arab Rep.	..	..	..	..	..	..
40	Mauritania	..	..	..	..	..	..
41	Senegal	..	..	..	..	..	..
42	Angola	..	..	..	..	..	..
43	Liberia	..	..	..	..	..	..
44	Honduras	..	..	..	..	..	..
45	Zambia	..	..	..	..	..	..
46	Bolivia	..	..	..	..	..	..
47	Egypt	..	..	..	..	..	..
48	Zimbabwe	..	..	..	..	..	..
49	El Salvador	..	..	..	..	..	..
50	Cameroon	..	..	..	..	..	..
51	Thailand	..	..	..	..	..	..
52	Philippines	1970-71	5.2	9.0	12.8	19.0	54.0
53	Nicaragua	..	..	..	..	..	..
54	Papua New Guinea	..	..	..	..	..	..
55	Congo, People's Rep.	..	..	..	..	..	..
56	Morocco	..	..	..	..	..	..
57	Mongolia	..	..	..	..	..	..
58	Albania	..	..	..	..	..	..
59	Peru	1972	1.9	5.1	11.0	21.0	61.0
60	Nigeria	..	..	..	..	..	..
61	Jamaica	..	..	..	..	..	..
62	Guatemala	..	..	..	..	..	..
63	Ivory Coast	..	..	..	..	..	..
64	Dominican Rep.	..	..	..	..	..	..
65	Colombia	..	..	..	..	..	..
66	Ecuador	..	..	..	..	..	..

Percentage share of household income, by percentile groups of households^a

	Year	Lowest 20 percent	Second quintile	Third quintile	Fourth quintile	Highest 20 percent	Highest 10 percent
67 Paraguay		..	..	..	..	..	..
68 Tunisia		..	..	..	..	..	..
69 Korea, Dem. Rep.		..	..	..	..	..	..
70 Syrian Arab Rep.		..	..	..	..	..	..
71 Jordan		..	..	..	..	..	..
72 Lebanon		..	..	..	..	..	..
73 Turkey	1973	3.5	8.0	12.5	19.5	56.5	40.7
74 Cuba		..	..	..	..	..	..
75 Korea, Rep. of	1976	5.7	11.2	15.4	22.4	45.3	27.5
76 Malaysia	1973	3.5	7.7	12.4	20.3	56.1	39.8
77 Costa Rica	1971	3.3	8.7	13.3	19.9	54.8	39.5
78 Panama	1970	2.0	5.2	11.0	20.0	61.8	44.2
79 Algeria		..	..	..	..	..	..
80 Brazil	1972	2.0	5.0	9.4	17.0	66.6	50.6
81 Mexico	1977	2.9	7.0	12.0	20.4	57.7	40.6
82 Chile	1968	4.4	9.0	13.8	21.4	51.4	34.8
83 South Africa		..	..	..	..	..	..
84 Romania		..	..	..	..	..	..
85 Portugal		..	..	..	..	..	..
86 Argentina	1970	4.4	9.7	14.1	21.5	50.3	35.2
87 Yugoslavia	1978	6.6	12.1	18.7	23.9	38.7	22.9
88 Uruguay		..	..	..	..	..	..
89 Iran		..	..	..	..	..	..
90 Iraq		..	..	..	..	..	..
91 Venezuela	1970	3.0	7.3	12.9	22.8	54.0	35.7
92 Hong Kong	1980	5.4	10.8	15.2	21.6	47.0	31.3
93 Trinidad and Tobago	1975-76	4.2	9.1	13.9	22.8	50.0	31.8
94 Greece		..	..	..	..	..	..
95 Singapore		..	..	..	..	..	..
96 Israel		..	..	..	..	..	..
High-income oil exporters							
97 Libya		..	..	..	..	..	..
98 Saudi Arabia		..	..	..	..	..	..
99 Kuwait		..	..	..	..	..	..
100 United Arab Emirates		..	..	..	..	..	..
Industrial market economies							
101 Ireland		..	..	..	..	..	..
102 Spain	1974	6.0	11.8	16.9	23.1	42.2	26.7
103 Italy	1977	6.2	11.3	15.9	22.7	43.9	28.1
104 New Zealand		..	..	..	..	..	..
105 United Kingdom	1979	7.3	12.4	17.7	23.4	39.2	23.8
106 Finland	1977	6.8	12.8	18.7	24.9	26.8	21.2
107 Australia	1966-67	6.6	13.5	17.8	23.4	38.8	23.7
108 Japan	1969	7.9	13.1	16.8	21.2	41.0	27.2
109 Canada	1977	3.8	10.7	17.9	25.6	42.0	26.9
110 Austria		..	..	..	..	..	..
111 United States	1972	4.5	10.7	17.3	24.7	42.8	26.6
112 Netherlands	1977	8.1	13.7	17.9	23.3	37.0	22.1
113 France	1975	5.3	11.1	16.0	21.8	45.8	30.5
114 Belgium		..	..	..	..	..	..
115 Norway	1970	6.3	12.9	18.8	24.7	37.3	22.2
116 Denmark	1976	7.4	12.6	18.3	24.2	37.5	22.4
117 Sweden	1979	7.2	12.8	17.4	25.4	37.2	21.2
118 Germany, Fed. Rep.	1974	6.9	11.0	15.4	21.9	44.8	28.8
119 Switzerland		..	..	..	..	..	..
Nonmarket industrial economies							
120 Poland		..	..	..	..	..	..
121 Bulgaria		..	..	..	..	..	..
122 Hungary		..	..	..	..	..	..
123 USSR		..	..	..	..	..	..
124 Czechoslovakia		..	..	..	..	..	..
125 German Dem. Rep.		..	..	..	..	..	..

a. These estimates should be treated with caution. See the technical notes.

Technical notes

This edition of the World Development Indicators provides economic data for periods of years and social data for selected years in a form suitable for comparing economies and groups of economies. Although the statistics and measures have been carefully selected to provide a comprehensive picture of development, readers are urged to exercise care in interpreting them. This is particularly true of comparing indicators across economies, because statistical methods, coverage, practices, and definitions differ widely. The statistical systems in many developing economies still are weak, and this affects the availability and reliability of data.

All growth rates shown are in real terms and, unless otherwise noted, have been computed by using the least-squares method. The least-squares growth rate, r , is calculated by regressing the annual values of the variable in the relevant period using the logarithmic form: $\log X_t = a + bt + e_t$, where X_t is the variable, t is time, e_t is the error term, and b is the slope coefficient. Then r is equal to $[\text{antilog } b] - 1$, the least-squares estimate of the growth rate.

Table 1. Basic indicators

The estimates of *population* for mid-1980 are primarily from the UN Population Division. In many cases the data take into account

the results of recent population censuses. The data on *area* are from the FAO *Production Yearbook*, 1979.

Gross national product (GNP) measures the total domestic and foreign output claimed by residents. It comprises gross domestic product (see the technical notes for Table 2) and factor incomes (such as investment receipts and workers' remittances) accruing to residents from abroad, less the income earned in the domestic economy accruing to persons abroad. It is calculated without making deductions for depreciation. For some economies the estimates of GNP are adjusted from data on net material product.

The *GNP per capita* figures were calculated according to the *World Bank Atlas* method, under which the conversion of GNP proceeds in the following manner. The first step is to convert the GNP series in constant market prices and national currency units to one measured in constant average 1978–80 prices. This is done by multiplying the original constant price series by the weighted-average domestic GNP deflator for the base period (that is, by the ratio of total GNP in current prices to total GNP in constant prices for the 1978–80 period). The second step is to convert the series measured in constant average 1978–80 prices in national currency to one in US dollars by dividing that series by the weighted-average exchange rate for the base period. The weighted-average exchange rate

is the ratio of the sum of GNP in current prices to the sum of the GNP divided by the annual average exchange rate in national currency per US dollar for 1978, 1979, and 1980. The third step is to convert the series measured in constant average 1978–80 US dollars to one measured in current US dollars by multiplying that series by the implicit US GNP deflator for 1978–80. This procedure was followed for most economies.

The *GNP per capita* figures were obtained by dividing GNP at market prices in US dollars by the population in mid-1980. The use of the three-year base period is intended to smooth the impact of fluctuations in prices and exchange rates. Because the base period is changed every year, the data presented in the various editions of the World Development Indicators are not comparable.

The figures on GNP and GNP per capita for six nonmarket industrial economies—Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Poland, and USSR—have been derived from official data on net material product (NMP). Two relationships were estimated by using the national accounts data of 12 Western European countries: the first between NMP per capita and GNP per capita for the benchmark year 1970; the second between the average annual growth rates of NMP per capita and of GNP per capita. For each of the six nonmarket industrial economies, the GNP per

capita for 1970 was obtained by entering its NMP per capita for 1970 (converted to US dollars by the noncommercial exchange rate) in the first equation. The 1970 benchmark GNP per capita obtained from the first equation was then extrapolated to 1980 by using the growth rates estimated from the second equation. The 1980 estimates of GNP per capita in 1970 US dollars were then con-

verted to current dollars by multiplying them by the US implicit GNP deflator for 1970.

The estimates of GNP per capita and of GNP per capita growth rates for the nonmarket industrial economies must thus be treated as tentative. Furthermore, because these estimates are not based on average exchange rates for 1978-80, they are not comparable with estimates for market

economies. This different treatment, and the known differences between the concepts used for national accounts of market and nonmarket economies, limit the comparability of the data presented for the two sets of economies. For example, the figures shown in Table 1 for nonmarket industrial economies differ considerably from other estimates derived from official GDP estimates converted at the annual average official exchange rates: compare \$2,300 for Bulgaria in 1978, \$2,060 for Hungary in 1980, and \$2,150 for Poland in 1979. The World Bank is undertaking research to develop more comparable estimates of GNP per capita for nonmarket industrial economies.

The use of official exchange rates to convert national currency figures to US dollars does not accurately measure the relative purchasing power of currencies. In particular, the differences in the real income between developing and industrial economies are likely to be exaggerated. The reason is that exchange rates are based on prices of internationally traded goods and services and may bear little relation to the prices of goods and services that do not enter international trade but that make up the bulk of the national product of most developing economies.

Exchange-rate-based GNP figures are inadequate measures of relative well-being. This has been demonstrated by the UN International Comparison Project, which has developed reliable measures of real GNP on an internationally comparable scale (see Irving Kravis and others, *A System of International Comparisons of Gross Product and Purchasing Power* [Baltimore: Johns Hopkins University Press, 1975]; Kravis and others, *International Comparisons of Real Product and Purchasing Power*

Gross product per capita computed conventionally and computed by using the ICP method, selected countries, 1975

Country	Index of GDP per capita (United States = 100)		GDP per capita at purchasing-power-parity exchange rate as percentage of that at official rate
	US dollars converted at official exchange rate	International dollars converted at purchasing- power-parity exchange rate ^a	
<i>Africa</i>			
Kenya	3.4	6.6	195
Malawi	1.9	4.9	255
Zambia	6.9	10.3	149
<i>Asia</i>			
India	2.0	6.6	322
Iran	22.1	37.7	171
Japan	62.3	68.4	110
Korea, Rep. of	8.1	20.7	254
Malaysia	10.9	21.5	198
Pakistan	2.6	8.2	312
Philippines	5.2	13.2	251
Sri Lanka	2.6	9.3	365
Syrian Arab Rep.	10.0	25.0	250
Thailand	5.0	13.0	261
<i>Europe</i>			
Austria	69.8	69.6	100
Belgium	87.8	77.7	88
Denmark	104.5	82.4	79
France	89.6	81.9	91
Germany, Fed. Rep.	94.7	83.0	88
Hungary	29.6	49.6	168
Ireland	37.2	42.5	114
Italy	47.9	53.8	112
Luxembourg	90.2	82.0	91
Netherlands	84.5	75.2	89
Poland	36.0	50.1	139
Romania	24.3	33.3	137
Spain	41.0	55.9	136
United Kingdom	57.6	63.9	111
Yugoslavia	23.2	36.1	156
<i>Latin America and Caribbean</i>			
Brazil	16.0	25.2	158
Colombia	7.9	22.4	283
Jamaica	19.6	24.0	123
Mexico	20.4	34.7	170
Uruguay	18.2	39.6	217

a. An international dollar has the same purchasing power over total GDP as a US dollar.

Source: Kravis and others, *World Product and Income: International Comparisons of Real Gross Product* (Baltimore: Johns Hopkins University Press, 1982).

[1978]; and Kravis and others, *World Product and Income: International Comparisons of Real GDP* [1982]). This project has already covered 34 countries and in the next phase will cover about 75. The World Bank, the United Nations, and such other international agencies as the European Economic Community and the

Economic Commission for Latin America are engaged in research on appropriate ways of extending purchasing power comparisons to all the countries of the world. Until such coverage is complete, however, exchange rates remain the only available means of converting GNP from national currencies to US dollars.

The table on the preceding page gives examples of the differences between gross product per capita as conventionally computed and as computed using the ICP method.

The *average annual rate of inflation* was calculated from the implicit gross domestic product (GDP) deflator, which is calcu-

Basic indicators for UN/World Bank members with a population of less than 1 million

UN/World Bank member	Population (millions) Mid-1980	Area (thousands of square kilometers)	GNP per capita		Average annual rate of inflation (percent)		Adult literacy rate (percent) 1977 ^c	Life expectancy at birth (years) 1980 ^c	Average index of food production per capita (1969-71 = 100) 1978-80
			Dollars 1980	Average annual growth (percent) 1960-80 ^a	1960-70	1970-80 ^b			
Guinea-Bissau	0.8	36	160	..	..	7.5	28	42	91
Gambia, The	0.6	11	250	1.7	2.2	11.0	15	42	71
Maldives	0.2	(.)	260	1.3	..	..	82	47	..
Cape Verde	0.3	4	300	..	..	10.6	..	61	..
Comoros	0.4	2	300	-0.1	..	..	..	47	..
Equatorial Guinea	0.3	28	..	..	3.7	11.6	..	47	..
Western Samoa	0.2	3	..	..	..	..	..	68	..
Solomon Islands	0.2	28	460	1.0	3.0	8.5	..	..	126
Djibouti	0.4	22	480	-5.3	..	..	14	45	..
Sao Tome and Principe	0.1	1	490	0.3	..	22.1	..	..	..
St. Vincent and the Grenadines	0.1	(.)	520	0.2	..	..	..	..	..
Vanuatu	0.1	15	530	2.1	..	..	..	..	99
Dominica	0.1	1	620	-0.6	..	..	..	..	..
Swaziland	0.6	17	680	6.2	2.2	10.8	65	47	114
Grenada	0.1	(.)	690	1.6	..	..	..	69	..
Guyana	0.8	215	690	0.9	2.3	10.8	..	70	94
St. Lucia	0.1	1	900	3.4	..	..	..	..	..
Botswana	0.8	600	910	9.2	2.4	10.5	35	50	89
Mauritius	0.9	2	1,060	2.3	2.2	15.4	85	65	91
Belize	0.1	23	1,080	3.1	..	9.4	..	..	..
Antigua and Barbuda	0.1	(.)	1,270	-0.4	..	..	..	..	..
Seychelles	0.1	(.)	1,770	3.1	..	..	..	66	..
Fiji	0.6	18	1,850	3.3	2.5	12.7	75	72	99
Suriname	0.4	163	2,840	4.9	..	10.0	65	68	182
Barbados	0.2	(.)	3,040	4.5	2.3	13.9	99	71	84
Malta	0.3	(.)	3,470	8.2	1.5	4.1	..	72	133
Cyprus	0.6	9	3,560	..	1.3	5.2	89	73	99
Bahamas	0.2	14	3,790	-0.8	..	..	93	69	..
Oman	0.9	300	4,380	+8.8	2.4	27.9	..	48	..
Gabon	0.7	268	4,440	5.5	5.4	19.6	..	45	97
Bahrain	0.4	1	5,560	..	..	..	..	67	..
Iceland	0.2	103	11,330	3.2	12.2	35.4	..	76	109
Luxembourg	0.4	3	14,510	-8.0	3.6	6.8	100	72	107
Qatar	0.2	11	26,080	2.7	2.6	..	..	58	..

a. Because data for the early 1960s are not available, figures in italics are for periods other than that specified. b. Figures in italics are for 1970-79, not 1970-80. c. Figures in italics are for years other than that specified. See the technical notes.

lated by dividing, for each year of the period, the value of GDP in current market prices by the value of GDP in constant market prices, both in national currency. This measure of inflation has limitations, especially for the oil-producing countries in the light of sharp increases in oil prices.

The *adult literacy rate* is the percentage of persons aged 15 and over who can read and write. These rates are based primarily on information from the UN Educational, Scientific, and Cultural Organization (UNESCO), supplemented by World Bank data. Because such data are normally gathered in large-scale demographic surveys and censuses, they often are not available for the most recent year. For some countries the estimates are for years other than, but generally not more than two years distant from, those specified. Thus the series are not comparable for all countries.

Life expectancy at birth indicates the number of years newborn children would live if subject to the mortality risks prevailing for the cross-section of population at the time of their birth. Data are from the UN Population Division, supplemented by World Bank estimates.

The *index of food production per capita* shows the average annual quantity of food produced per capita in 1978–80 in relation to that in 1969–71. The estimates were derived from those of the Food and Agriculture Organization (FAO), which are calculated by dividing indices of the quantity of food production by indices of total population. Food is defined as comprising cereals, starchy roots, sugar cane, sugar beet, pulses, sugar cane, sugar beet, pulses, edible oils, nuts, fruits, vegetables, livestock, and livestock products. Quantities of food production are measured net of

animal feed, seeds for use in agriculture, and food lost in processing and distribution.

The table on the preceding page shows basic indicators for 34 countries that have a population of less than a million and are members of the United Nations, the World Bank, or both. For most of these countries, comprehensive data are not available. The table in this year's edition nevertheless contains three more indicators: adult literacy, the rate of inflation, and the growth of GNP per capita.

The weighted averages in Table 1 are weighted by population.

Tables 2 and 3. Growth and structure of production

Most of the definitions used are those of the UN *System of National Accounts*.

Gross domestic product (GDP) measures the total final output of goods and services produced by an economy—that is, by residents and nonresidents, regardless of the allocation to domestic and foreign claims. It is calculated without making deductions for depreciation. For most countries, GDP by industrial origin is measured at factor cost, but for some countries without complete national accounts series at factor cost, market price series were used. GDP at factor cost is equal to GDP at market prices, less indirect taxes net of subsidies. The figures for GDP are dollar values converted from domestic currency by using the average annual exchange rate for the year in question: that is, they were not calculated by using the *World Bank Atlas* method described in the technical notes for Table 1 and thus are not comparable with the figures in that table.

The *agricultural sector* comprises agriculture, forestry, hunting, and fishing. The *industrial sector* com-

prises mining, *manufacturing*, construction, and electricity, water, and gas. All other branches of economic activity are categorized as *services*.

National accounts series in domestic currency units were used to compute the indicators in these tables. Whereas the growth rates in Table 2 were calculated from constant price series, the shares of GDP in Table 3 were calculated from current price series.

The average growth rates for the summary measures in Table 2 are weighted by GDP in 1970 in dollars. The average sectoral shares in Table 3 are weighted by GDP in current dollars for the years in question.

Tables 4 and 5. Growth of consumption and investment; structure of demand

GDP is defined in the technical notes for Table 2.

Public consumption (or general government consumption) includes all current expenditure for purchases of goods and services by all levels of government. Capital expenditure on national defense and security is regarded as consumption expenditure.

Private consumption is the market value of all goods and services purchased or received as income in kind by households and non-profit institutions. It includes imputed rent for owner-occupied dwellings.

Gross domestic investment consists of the outlays for additions to the fixed assets of the economy, plus changes in the net value of inventories.

Gross domestic saving shows the amount of gross domestic investment financed from domestic output. Comprising public and private saving, it is gross domestic investment plus the net ex-

ports of goods and nonfactor services.

Exports of goods and nonfactor services represent the value of all goods and nonfactor services sold to the rest of the world; they include merchandise, freight, insurance, travel, and other nonfactor services. The value of factor services, such as investment receipts and workers' remittances from abroad, is excluded.

The *resource balance* is the difference between exports and imports of goods and nonfactor services.

National accounts series in domestic currency units were used to compute the indicators in these tables. Whereas the growth rates in Table 4 were calculated from constant price series, the shares of GDP in Table 5 were calculated from current price series.

The summary measures in Table 5 are weighted by GDP in current dollars for the years in question.

Table 6. Industrialization

The percentage *distribution of value added* among manufacturing industries was calculated from data obtained from the UN Industrial Development Organization (UNIDO), with the base values expressed in 1975 dollars.

The classification of manufacturing industries is in accord with the UN International Standard Industrial Classification of All Economic Activities (ISIC). *Food and agriculture* comprise ISIC Major Groups 311, 313, and 314; *textiles and clothing* 321–24; *machinery and transport equipment* 382–84; and *chemicals* 351 and 352. *Other manufacturing* comprises ISIC Major Division 3, less all of the above.

The figures for *value added in manufacturing* are from the World Bank's national accounts series in

national currencies, converted to 1975 dollars.

To calculate *gross manufacturing output per capita*, ratios of gross output to value added in manufacturing, derived from various issues of the UN *Yearbook of Industrial Statistics*, were applied to the World Bank's data on value added in manufacturing. Per capita values were then calculated by using midyear estimates of population.

Table 7. Commercial energy

The data on energy generally are from UN sources. They refer to commercial forms of primary energy: coal and lignite, petroleum, natural gas and natural gas liquids, and hydroelectric and nuclear power—all converted into coal equivalents. The use of firewood and other traditional fuels, though substantial in some developing countries, is not taken into account because reliable and comprehensive data are not available.

The summary measures of growth rates of *energy production* are weighted by volumes of production in 1974; those of growth rates of *energy consumption*, by volumes of consumption in 1974; those of *energy consumption per capita*, by population.

Energy imports refer to the dollar value of energy imports—Revised Standard International Trade Classification (SITC) Section 3—and are expressed as a percentage of earnings from merchandise exports. The summary measures are weighted by merchandise exports in current dollars.

Because data on energy imports do not permit a distinction between petroleum imports for fuel and for use in the petrochemicals industry, these percentages

may be overestimates of the dependence on imported energy.

Table 8. Growth of merchandise trade

The statistics on merchandise trade are from UN publications and the UN trade data system, supplemented by statistics from the UN Conference on Trade and Development (UNCTAD), the International Monetary Fund (IMF), and in a few cases World Bank country documentation.

Merchandise exports and imports cover, with some exceptions, all international changes in ownership of merchandise passing across customs borders. Exports are valued f.o.b. (free on board), imports c.i.f. (cost, insurance, and freight), unless otherwise specified in the foregoing sources. These values are in current dollars.

The *growth rates of merchandise exports and imports* are in real terms and calculated from quantum (volume) indices of exports and imports. For most developing economies these indices are from the UNCTAD *Handbook of International Trade and Development Statistics* and supplementary data that show revisions. For industrial economies the indices are from the UN *Yearbook of International Trade Statistics* and the UN *Monthly Bulletin of Statistics*.

The *terms of trade*, or the net barter terms of trade, are calculated as the ratio of a country's index of export unit values to that of import unit values. The terms-of-trade index numbers shown for 1960 and 1980, with 1975 = 100, thus indicate changes in export prices in relation to import prices. The unit value indices are from the same sources cited above for the growth rates of exports and imports.

Tables 9 and 10. Structure of merchandise trade

The shares in these tables are derived from trade values in current dollars reported in UN trade tapes and the UN *Yearbook of International Trade Statistics*, supplemented by regular statistical publications of the UN and the IMF.

Merchandise exports and imports are defined in the technical notes for Table 8.

In the categorization of exports in Table 9, *fuels, minerals, and metals* are the commodities in SITC (Revised) Section 3, Divisions 27 and 28, and the nonferrous metals of Division 68. *Other primary commodities* comprise SITC Sections 0, 1, 2, and 4 (food and live animals, beverages and tobacco, inedible crude materials, oils, fats, and waxes) less Divisions 27 and 28 (minerals, crude fertilizer, and metalliferous ores). *Textiles and clothing* represent SITC Divisions 65 and 84 (textiles, yarns, fabrics, and clothing). *Machinery and transport equipment* are the commodities in SITC Section 7. *Other manufactures*, calculated as the residual from the total value of manufactured exports, represent SITC Sections 5 to 9 less Section 7 and Divisions 65, 68, and 84.

In the categorization of imports in Table 10, *food* commodities are those in SITC (Revised) Sections 0, 1, and 4 and in Division 22 (food and live animals, beverages and tobacco, oils, and fats). *Fuels* are the commodities in SITC Section 3 (mineral fuels, lubricants, and related materials). *Other primary commodities* comprise SITC Section 2 (crude materials excluding fuels), less Division 22 (oilseeds and nuts) plus Division 68 (nonferrous metals). *Machinery and transport equipment* are the commodities in SITC Section 7. *Other manufactures*, calculated as the re-

sidual from the total value of manufactured imports, represent SITC Sections 5 to 9 less Section 7 and Division 68.

The summary measures in Table 9 are weighted by merchandise exports in current dollars; those in Table 10, by merchandise imports in current dollars.

Table 11. Origin and destination of merchandise exports

Merchandise exports are defined in the technical notes for Table 8. All trade shares in this table are based on statistics on the value of trade in current dollars from the UN and the IMF. Unallocated exports are distributed among the economy groups in proportion to their respective shares of allocable trade. *Industrial market economies* also include Gibraltar, Iceland, and Luxembourg; *high-income oil exporters* also include Qatar.

The summary measures are weighted by merchandise exports in current dollars.

Table 12. Origin and destination of manufactured exports

The data in this table are from the United Nations and are among those used to compute special Table B in the UN *Yearbook of International Trade Statistics*. *Manufactured goods* are the commodities in SITC (Revised) Sections 5 through 9 (chemicals and related products, manufactured articles, machinery, and transport equipment) excluding Division 68 (nonferrous metals).

The economy groups are the same as those in Table 11. The summary measures are weighted by manufactured exports in current dollars.

Table 13. Balance of payments and debt service ratios

The *current account balance* is the difference between (i) exports of goods and services plus inflows of unrequited official and private transfers and (ii) imports of goods and services plus unrequited transfers to the rest of the world. *Interest payments on external public and publicly guaranteed debt* are those on the disbursed portion of outstanding public and publicly guaranteed medium- and long-term debt plus commitment charges on undisbursed debt. The current account estimates are from IMF data files; estimates of interest payments are from the World Bank Debt Reporting System.

Debt service is the sum of interest payments and repayments of principal on external public and publicly guaranteed medium- and long-term debt. Debt service data are from the World Bank Debt Reporting System. The ratio of debt service to exports of goods and services is one of several rules of thumb commonly used to assess the ability to service debt. The debt service ratios in the table do not cover unguaranteed private debt, which for some borrowers is substantial; the debt contracted for purchases of military equipment is also excluded because it usually is not reported. The average ratios of debt service to GNP for the economy groups are weighted by GNP in current dollars. The average ratios of debt service to exports of goods and services are weighted by exports of goods and services in current dollars.

The World Bank Debt Reporting System is concerned solely with developing economies and does not collect data on external debt for other groups of borrowers. Nor are comprehensive comparable data available from other sources.

Table 14. Flow of external capital

Data on the *gross inflow and repayment of principal* (amortization) of public and publicly guaranteed medium- and long-term loans are from the World Bank Debt Reporting System. The *net inflow* is the gross inflow less the repayment of principal.

Net direct private investment is the net amount invested or reinvested by nonresidents in enterprises in which they or other nonresidents exercise significant managerial control. These net figures also take into account the value of direct investment abroad by residents. IMF data files were used in compiling these estimates.

Table 15. External public debt and international reserves

External public debt outstanding represents the amount of public and publicly guaranteed loans that have been disbursed, net of canceled loan commitments and repayments of principal. The data refer to the end of the year indicated and are from the World Bank Debt Reporting System. In estimating external public debt as a percentage of GNP, GNP was converted from national currencies to dollars at the average official exchange rate for the year in question. The summary measures are weighted by GNP in current dollars.

Gross international reserves comprise holdings of gold, special drawing rights (SDRs), the reserve position of IMF members in the Fund, and holdings of foreign exchange under the control of monetary authorities. The gold component of these reserves is valued throughout at year-end London prices: that is, \$37.37 an

ounce in 1970 and \$589.50 an ounce in 1980. The data on holdings of international reserves are from IMF data files. The reserve levels for 1970 and 1980 refer to the end of the year indicated and are in current dollars. The reserve holdings at the end of 1980 are also expressed in the number of months of imports of goods and services they could pay for, with imports at the average level for 1979 or 1980. The summary measures are weighted by imports of goods and services in current dollars.

Table 16. Official development assistance from OECD and OPEC members

Official development assistance (ODA) consists of net disbursements of loans and grants made at concessional financial terms by official agencies of the members of the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) and members of the Organization of Petroleum Exporting Countries (OPEC) with the objective of promoting economic development and welfare. It includes the value of technical cooperation and assistance. All data shown were supplied by the OECD.

Amounts shown are net disbursements to developing countries and multilateral institutions. The disbursements to multilateral institutions are now reported for all DAC members on the basis of the date of issues of notes; some DAC members previously reported on the basis of the date of encashment. *Net bilateral flows to low-income countries* exclude unallocated bilateral flows and all disbursements to multilateral institutions.

The nominal values shown in

the summary for ODA from OECD countries were converted to 1978 prices using the dollar GNP deflator. This deflator is based on price increases in OECD countries (excluding Greece, Portugal, Spain, and Turkey) measured in dollars. It takes into account the parity changes between the dollar and national currencies. For example, when the dollar depreciates, price increases measured in national currencies have to be adjusted upward by the amount of the depreciation to obtain price increases in dollars.

The table, in addition to showing totals for OPEC, shows totals for the Organization of Arab Petroleum Exporting Countries (OAPEC). The donor members of OAPEC are Algeria, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and United Arab Emirates. ODA data for OPEC and OAPEC were also obtained from the OECD.

Table 17. Population growth, past and projected, and hypothetical stationary population

The *growth rates of population* are period averages calculated from midyear populations. The summary measures are weighted by population in 1970.

The *projections of population* for 1990 and 2000, and to the year in which it will eventually become stationary, were made for each economy separately. Starting with information on total population by age and sex, fertility rates, and mortality rates in the base year 1980, these parameters were projected at five-year intervals on the basis of generalized assumptions until the population became stationary. The base-year estimates are from updated computer printouts of UN, *World Population Trends and Prospects by Country, 1950-2025*, and from the World Bank, the

Population Council, the US Bureau of the Census, and recent national censuses.

The *net reproduction rate* (NRR) indicates the number of daughters that a newborn girl will bear during her lifetime, assuming fixed age-specific fertility rates and a fixed set of mortality rates.

The NRR thus measures the extent to which a cohort of newborn girls will reproduce themselves under given schedules of fertility and mortality. An NRR of 1 indicates that fertility is at replacement level: at this rate child-bearing women, on the average, bear only enough daughters to replace themselves in the population. A population continues to grow after replacement-level fertility has been reached because its past higher birth rates will have produced an age distribution with a relatively high proportion of women in, or still to enter, the reproductive ages. The time taken for a country's population to become stationary after reaching replacement-level fertility thus depends on its age structure and previous fertility patterns.

A *stationary population* is one in which age- and sex-specific mortality rates have not changed over a long period, while age-specific fertility rates have simultaneously remained at replacement level (NRR = 1). In such a population, the birth rate is constant and equal to the death rate, the age structure also is constant, and the growth rate is zero.

To make the projections, assumptions about future mortality rates were made in terms of female life expectancy at birth (that is, about the number of years a newborn girl would live if subject to the mortality risks prevailing for the cross-section of population at the time of her birth). Economies were first divided according to whether their primary-school en-

rollment ratio for females was above or below 70 percent. In each group a set of annual increments in female life expectancy was assumed, depending on the female life expectancy in 1975–80. For a given life expectancy at birth, the annual increments during the projection period are larger in economies having a higher primary-school enrollment ratio in 1975–80 and a life expectancy of up to 60 years. At higher life expectancies, the increments are the same.

To project the fertility rates, the first step was to estimate the year in which fertility would reach replacement level. These estimates are speculative and are based on information on trends in crude birth rates (defined in the notes for Table 18), total fertility rates (also defined in the notes for Table 18), female life expectancy at birth, and the performance of family planning programs. For most economies it was assumed that the total fertility rate would decline between 1980 and the year of reaching a net reproduction rate of 1, after which fertility would remain at replacement level. For Sub-Saharan Africa, total fertility rates were assumed to remain constant until 1990–95 and then to decline until replacement level was reached. In several industrial economies, fertility is already below replacement level. Because a population will not remain stationary if its net reproduction rate is other than 1, it was necessary to assume that fertility rates in these economies would regain replacement levels in order to make estimates of the hypothetical stationary population for them. For the sake of consistency with the other estimates, the total fertility rates in the industrial economies were assumed to increase to replacement level by 2000 and then to remain constant.

For all the projections, it was assumed that international migration would have no effect.

The estimates of the hypothetical size of the stationary population, the assumed year of reaching replacement-level fertility, and the year of reaching a stationary population are speculative. *They should not be regarded as predictions.* They are included to provide a summary indication of the long-run implications of recent trends on the basis of highly stylized assumptions. A fuller description of the methods and assumptions used to calculate the estimates is available from the Population, Health, and Nutrition Department of the World Bank.

Table 18. Demographic and fertility-related indicators

The *crude birth and death rates* indicate the number of live births and deaths per thousand population in a year. They are from the same sources mentioned in the technical notes for Table 17. Percentage changes are computed from unrounded data.

The *total fertility rate* represents the number of children that would be born per woman, if she were to live to the end of her child-bearing years and bear children at each age in accord with prevailing age-specific fertility rates. The rates given are from the same sources mentioned in the technical notes for Table 17.

The *percentage of married women using contraceptives* refers only to married women of child-bearing age (15–44 years). These data are mainly derived from Dorothy Nortman and Ellen Hofstatter, *Population and Family Planning Programs: A Factbook* (New York: Population Council, various issues); Dorothy Nortman, "Changing

Contraceptive Patterns: A Global Perspective," *Population Bulletin*, vol. 32, no. 3 (Washington, D.C.: Population Reference Bureau, August 1977); and Office of Population, *Family Planning Service Statistics, Annual Report 1976* (Washington, D.C.: US Agency for International Development). The data refer to a variety of years, generally not more than two years distant from those specified.

All summary measures are weighted by population.

Table 19. Labor force

The *population of working age* refers to the population aged 15–64. The estimates are based on the population estimates of the World Bank for 1980 and previous years. The summary measures are weighted by population.

The *labor force* comprises economically active persons, including the armed forces and the unemployed, but excluding housewives, students, and other economically inactive groups. *Agriculture, industry, and services* are defined in the same manner as in Table 2. The estimates of the sectoral distribution of the labor force in 1960 are from International Labour Office (ILO), *Labour Force Estimates and Projections, 1950–2000*; most of those for 1980 are geometric extrapolations of ILO estimates for 1960 and 1970 in the same source. The summary measures are weighted by labor force.

The *labor force growth rates* were derived from the Bank's population projections and ILO data on activity rates, again from the source cited above. The summary measures for 1960–70 and 1970–80 are weighted by labor force in 1970; those for 1980–2000, by projections of labor force in 1980.

The application of ILO activity rates to the Bank's latest popu-

lation estimates may be inappropriate for some economies in which there have been important changes in unemployment and underemployment, in international and internal migration, or in both. The labor force projections for 1980–2000 should thus be treated with caution.

Table 20. Urbanization

The data on *urban population as a percentage of total population* are from the UN (*Patterns of Urban and Rural Population Growth*, Population Studies, no. 68, 1980), supplemented by data from the World Bank and from various issues of the UN *Demographic Yearbook*.

The *growth rates of urban population* were calculated from the World Bank's population estimates; the estimates of urban population shares were calculated from the sources cited above.

Data on urban agglomeration are also from the United Nations.

Because the estimates in this table are based on different national definitions of what is "urban," cross-country comparisons should be interpreted with caution.

The summary measures for urban population as a percentage of total population are weighted by total population; the other summary measures in this table are weighted by urban population.

Table 21. Indicators related to life expectancy

Life expectancy at birth is defined in the technical notes for Table 1.

The *infant mortality rate* is the number of infants who die before reaching one year of age, per 1,000 live births in a given year. The data are from a variety of sources—including different is-

issues of the UN *Demographic Yearbook* and UN, "Infant Mortality: World Estimates and Projections, 1950–2025," *Population Bulletin of the United Nations*, no. 14 (forthcoming 1982)—and from the World Bank.

The *child death rate* is the number of deaths of children aged 1–4 per 1,000 children in the same age group in a given year. Estimates were based on the data on infant mortality and on the relation between the infant mortality rate and the child death rate implicit in the appropriate Coale-Demeny Model life tables; see Ansley J. Coale and Paul Demeny, *Regional Model Life Tables and Stable Populations* (Princeton, N.J.: Princeton University Press, 1966).

The summary measures in this table are weighted by population.

Table 22. Health-related indicators

The estimates of *population per physician and nursing person* were derived from World Health Organization (WHO) data, some of which have been revised to reflect new information. They also take into account revised estimates of population. Nursing persons include graduate, practical, assistant, and auxiliary nurses; this is the first year auxiliary nurses have been included, thus better estimating the availability of nursing care. Because definitions of nursing personnel vary—and because the data shown are for a variety of years, generally not more than two years distant from those specified—the data for these two indicators are not strictly comparable.

The *percentage of total population with access to safe water*, estimated by the WHO, is the proportion of persons with reasonable access to

safe water, which is defined as including treated surface water and such untreated but uncontaminated water as that from boreholes, springs, and sanitary wells.

The *daily calorie supply per capita* was calculated by dividing the calorie equivalent of the food supplies in an economy by the population. Food supplies comprise domestic production, imports less exports, and changes in stocks; they exclude animal feed, seeds for use in agriculture, and food lost in processing and distribution. The *daily calorie requirement per capita* refers to the calories needed to sustain a person at normal levels of activity and health, taking into account age and sex distributions, average body weights, and environmental temperatures. Both sets of estimates are from the Food and Agriculture Organization.

The summary measures in this table are weighted by population.

Table 23. Education

The data in this table refer to a variety of years, generally not more than two years distant from those specified, and are mostly from UNESCO.

The data on *number enrolled in primary school* refer to estimates of total, male, and female enrollment of students of all ages in primary school; they are expressed as percentages of the total, male, or female populations of primary-school age to give gross primary enrollment ratios. Although primary-school age is generally considered to be 6–11 years, the differences in country practices in the ages and duration of schooling are reflected in the ratios given. For countries with universal primary education, the gross enrollment ratios may ex-

ceed 100 percent because some pupils may be below or above the official primary-school age.

The data on *number enrolled in secondary school* were calculated in the same manner, with secondary-school age generally considered to be 12–17 years.

The data on *number enrolled in higher education* are from UNESCO.

The *adult literacy rate* is defined in the technical notes for Table 1.

The summary measures in this table are weighted by population.

Table 24. Defense and social expenditure

All data on central government transactions are from the IMF *Government Finance Statistics Yearbook* and IMF data files. These transactions include current and capital (development) expenditure. The inadequate statistical coverage of state, provincial, and local governments and the non-availability of data for these lower levels of government has dictated the use of only central government data. This may seriously understate or distort the statistical portrayal of the allocation of resources for various purposes, especially in large countries where lower levels of government have considerable autonomy and are responsible for a large number of social functions.

Central government expenditure covers that by all government departments, offices, establishments, and other bodies that are agencies or instruments of the central authority of a country. It does not necessarily comprise all public expenditure.

Defense expenditure covers all expenditure, whether by defense or other departments, for the maintenance of military forces, including the purchase of military supplies and equipment, con-

struction, recruiting, and training. Also falling under this category is expenditure for strengthening the public services to meet wartime emergencies, for training civil defense personnel, and for foreign military aid and contributions to military organizations and alliances.

Education expenditure comprises expenditure for the provision, management, inspection, and support of preprimary, primary, and secondary schools; of universities and colleges; and of vocational, technical, and other training institutions by central governments. Also included is expenditure on the general administration and regulation of the education system; on research into its objectives, organization, administration; and methods; and on such subsidiary services as transport, school meals, and medical and dental services in schools.

Health expenditure covers public expenditure on hospitals, medical and dental centers, and clinics with a major medical component; on national health and medical insurance schemes; and on family planning and preventive care. Also included is expenditure on the general administration and regulation of relevant government departments, hospitals and clinics, health and sanitation, and national health and medical insurance schemes.

It must be emphasized that the data presented, especially those for education and health, are not comparable for a number of reasons. In many economies private health and education services are substantial; in others public services represent the major component of total expenditure but may be financed by lower levels of government. Great caution should therefore be exercised in using the data for cross-economy comparisons.

The summary measures for defense expenditure as a percentage of GNP are weighted by GNP in current dollars; those for defense expenditure as a percentage of central government expenditure, by central government expenditure in current dollars. The other summary measures in this table are weighted by population.

Table 25. Income distribution

The data in this table refer to the distribution of total disposable household income accruing to percentile groups of households ranked by total household income. The distributions cover rural and urban areas and refer to different years between 1966 and 1980.

The estimates for developing economies in Asia and Africa are from the results of a joint project of the World Bank and the International Labour Office (ILO). Those for Turkey, Hong Kong, Malaysia, and the Republic of Korea are from data gathered by the World Bank from national sources but not adjusted. The estimates for Sri Lanka are from the results

of a joint project of the World Bank and the Economic and Social Commission for Asia and the Pacific. The estimates for Latin American countries other than Mexico come from the results of two joint projects of the World Bank, one with the ILO, the other with the Economic Commission for Latin America. Those for Mexico are the results from the 1977 Household Budget Survey.

Data for industrial market economies other than the Netherlands are from Malcolm Sawyer, *Income Distribution in OECD Countries* (OECD Occasional Studies, July 1976); the joint project of the ILO and the World Bank; and the UN Statistical Office, *A Survey of National Sources of Income Distribution Statistics* (Statistical Papers, Series M, no. 72, 1981). Data for the Netherlands are from that country's statistical office.

Because the collection of data on income distribution has not been systematically organized and integrated with the official statistical system in many countries, estimates were typically derived from surveys designed for other purposes, most often consumer expenditure surveys, which also collect some information on in-

come. These surveys use a variety of income concepts and sample designs. Furthermore, the coverage of many of these surveys is too limited to provide reliable nationwide estimates of income distribution. Thus, although the estimates shown are considered the best available, they do not avoid all these problems and should be interpreted with extreme caution.

The scope of the indicator is similarly limited. Because households vary in size, a distribution in which households are ranked according to per capita household income, not according to their total household income, is superior for many purposes. The distinction is important because households with low per capita incomes frequently are large households, whose total income may be relatively high. Information on the distribution of per capita household income exists, however, for only a few countries. The World Bank has launched the Living Standards Measurement Study to develop procedures and applications that can assist countries in improving their collection and analysis of data on income distribution.

Bibliography of data sources

- National accounts and economic indicators** *A System of National Accounts*. New York: UN Department of International Economic and Social Affairs, 1968.
Yearbook of National Accounts Statistics. New York: UN Department of International Economic and Social Affairs, various issues.
Statistical Yearbook. New York: UN Department of International Economic and Social Affairs, various issues.
Monthly Bulletin of Statistics. New York: UN Department of International Economic and Social Affairs, various issues.
Production Yearbook. Rome: FAO, various issues.
World Bank Atlas, 1981. Washington, D.C.: World Bank, 1982.
World Bank data files.
-
- Energy** *World Energy Supplies, 1950-74, 1972-76, and 1973-78*. UN Statistical Papers, Series J, nos. 19, 21, and 22. New York: UN Department of International Economic and Social Affairs, 1974, 1978, and 1979.
Yearbook of World Energy Statistics, 1979. New York: UN Department of International Economic and Social Affairs, 1981.
-
- Trade** *Direction of Trade*. Washington, D.C.: IMF, various issues.
International Financial Statistics. Washington, D.C.: IMF, various issues.
Handbook of International Trade and Development Statistics. New York: UN Conference on Trade and Development, various issues.
Monthly Bulletin of Statistics. New York: UN Department of International Economic and Social Affairs, various issues.
Yearbook of International Trade Statistics. New York: UN Department of International Economic and Social Affairs, various issues.
United Nations trade tapes.
-
- Balance of payments, capital flows, and debt** *Balance of Payments Manual*. 4th ed. Washington, D.C.: IMF, 1977.
International Monetary Fund balance-of-payments data files.
Development Co-operation. Paris: OECD, various annual issues.
World Bank Debt Reporting System.
-
- Population** *World Population Trends and Prospects by Country, 1950-2025: Summary Report of the 1980 Assessment*. New York: UN Department of International Economic and Social Affairs, 1980.
Demographic Yearbook. New York: UN Department of International Economic and Social Affairs, various issues.
United Nations population tapes.
World Population: 1979. Washington, D.C.: US Bureau of the Census, International Demographic Data Center, 1980.
World Bank Atlas, 1981. Washington, D.C.: World Bank, 1982.
World Bank data files.
-
- Labor force** *Labour Force Estimates and Projections, 1950-2000*. 2nd ed. Geneva: ILO, 1977.
International Labour Office tapes.
World Bank data files.
-
- Social indicators** *Demographic Yearbook*. New York: UN Department of International Economic and Social Affairs, various issues.
Statistical Yearbook. New York: UN Department of International Economic and Social Affairs, various issues.
Compendium of Social Statistics: 1977. New York: UN Department of International Economic and Social Affairs, 1980.
Statistical Yearbook. Paris: UNESCO, various issues.
World Health Statistics Annual. Geneva: WHO, various issues.
World Health Statistics Report. Special Issue on Water and Sanitation, vol. 29, no. 10. Geneva: WHO, 1976.
Government Finance Statistics Yearbook, 1981. Vol. V. Washington, D.C.: IMF, 1981.
World Bank data files.
-



World Development Report has been published annually by The World Bank since 1978.

Part I of *World Development Report 1982* reviews development prospects in the international economy and supplements the extensive discussion of adjustment issues in the 1981 Report. It finds that, although international prospects have worsened over the past year, during the remainder of the decade the middle-income countries should be able to continue narrowing the income gap between themselves and the industrial countries. The prospects for many of the low-income countries, however, remain a matter of grave concern.

Part II of the 1982 Report concentrates on agriculture, which remains the chief source of income for close to two-thirds of the population in developing countries and for the vast majority of the world's poor. Informing the discussion is the experience gained by The World Bank in helping to finance some 800 agricultural and rural development projects in more than 70 countries—experience supported by its broad, intensive programs of economic, scientific, and social research.

Numerous tables and multicolor maps and graphics supplement the main body of the Report; case studies are interspersed to provide analyses directly related to the substance of the text. The final portion of the Report comprises "World Development Indicators," 25 two-page tables containing economic and social profiles of more than 120 countries.

Commentary on earlier editions

"[A] most remarkable publication. It is the nearest thing to having an annual report on the present state of the planet and the people who live on it. . . . It is going to be the essential almanac for monitoring the way we are going, and where we are going."—*The Guardian*

"The sooner such changes [as the Report recommends] are initiated by policymakers, the brighter will be the prospect of alleviation of poverty in the developing countries of the world."—*The Bangladesh Observer*

"An authoritative and deeply illuminating summary of worldwide progress against poverty, and of the intricate relationships—not all of them economic—on which it depends."—*The Washington Post*

"Essential reading for any individual or organization interested in or involved with developing countries."—*The Sudan Progress*

"[An] annual contribution to the debate on man's economic future. . . . A sober and balanced presentation."—*The Financial Times* (London)

"[The] report gives an historical perspective to the past decade and draws lessons applicable to the coming years."—*Financial Gazette* (Zimbabwe)