

BOX 16-3.**FACTOR ENDOWMENT THEORY OF TRADE***

The Factor Endowment Theory of Trade (often called the Heckscher-Ohlin-Samuelson Theory because it is derived from their work) argues that because countries have different factor endowments, they adopt different production techniques, and the result is profitable trade. A country with relatively abundant labor (compared to land and capital), will have a low wage rate relative to land prices, rents, and interest on capital-borrowing. Such a country will find it optimal to adopt labor-intensive rather than capital-intensive technologies. The opposite would be true for capital-abundant countries. Without trade, the price ratio of labor-intensive goods to capital-intensive goods will be lower in the labor-abundant country than in the capital-abundant country. Opening the country up to trade would mean that the labor-abundant country would export labor-intensive goods in exchange for capital-intensive goods. Trade will have the effect of increasing the demand for the abundant factor, thus bidding up its price, and increasing the supply of the scarce factor (in the form of imported goods), thereby reducing its price. Trade is expected to reduce factor price differences between countries.

*This discussion is drawn from David Colman and Trevor Young, *Principles of Agricultural Economics: Markets and Prices in Less Developed Countries* (Cambridge: Cambridge University Press, 1989), pp. 232–34.

the foreign exchange contribution of agriculture. An open-trading regime helps provide accurate signals of relative resource scarcity to producers and to investors; the abundance of labor usually found in most developing countries signals the need for employment-intensive investment. With no bias in favor of capital-intensive industries, demands for capital-intensive manufacturing processes can be met through imports, increasing the importance of agriculture's labor contribution.

The food and fiber contribution of agriculture under an outward-looking strategy is usually of most concern to policymakers. Fear of excessive reliance on imports to meet domestic food needs can lead to protectionist policies. But protection raises the cost of food, and combining freer trade with more investment in domestic agricultural production usually results in faster and more stable economic growth. Of course, if growth in demand exceeds domestic food production, then imports may be needed to fill the gap, but these imports should be viewed as evidence of success in generating employment and income growth. Income growth will enhance food security and open trade will reduce reliance on often unstable domestic food production.

TRADE IMPEDIMENTS

The variety of agricultural trade strategies that exists in developing countries reflects differences in resource endowments, history, food security, sources of government revenues, balance of payments, and so on. This variety also indicates differences in perceptions about the ability of markets to generate prices consistent with desired income distributions. Virtually no country in the world operates with a completely free-trade regime. Most developing countries employ trade policies that discriminate against the agricultural sector, as discussed in Chapter 15. Domestic trade policies, however, are just one of the impediments to agricultural trade. In this section we discuss the major constraints to trade, and in Chapter 17 we suggest potential solutions to trade problems. Impediments to agricultural trade for developing countries can be classified into three major categories: (1) external demand constraints, (2) restrictive trade policies at home, and (3) market instability.

External Demand Constraints

Developing countries have long been concerned that as producers of primary products they face relatively inelastic demands in more-developed countries. With inelastic demands, additional exports may result in a fall in world prices for the commodities. While individual countries face relatively elastic export demands, when several countries that export the same products (e.g. cocoa, coffee, bananas, etc.) all try to increase exports simultaneously, prices might fall by a higher percentage than export quantities increase. Thus, their collective export revenues could decline, even as export quantities grow. An important recent example is the coffee crisis that began in the late 1990s as Vietnam, Indonesia, and other relative newcomers to coffee production began to expand their exports. World prices of coffee fell to around \$.50/lb compared to average prices of \$1.20/lb during the 1980s. Prices during the early 2000s were so low that an estimated 540,000 workers in Central America lost their jobs as coffee farms discontinued harvesting.⁴ After 2004, coffee prices partially recovered as supplies tightened, but temporary job losses caused permanent harm to many households. Sustained declines in export prices can cause worsening terms of trade in the long run as well. Historical evidence suggests that the terms of

⁴ See Panos Varangis, Paul Siegel, Daniele Giovannucci, and Bryan Lewin, "Dealing with the Coffee Crisis in Central America: Impacts and Strategies," The World Bank Development Research Group, Policy Research Working Paper 299 (March 2003).

trade for developing countries may indeed have declined over time, as their output growth has outpaced increases in demand.⁵

Trade Restrictions in More-Developed Countries

The demand for certain LDC agricultural exports is affected by trade restrictions in more-developed countries (MDCs). The MDCs are more protectionist of their agricultural than of their industrial products. Whereas LDCs often discriminate against agriculture, MDCs often support farm prices above market equilibrium levels in hope of supporting farm incomes (see Chapter 15). Thus, MDCs have to restrict imports to avoid supporting the whole world's prices. Restrictions particularly affect exports from temperate and subtropical areas of LDCs that compete with MDC agricultural products: commodities such as beef, certain fruits and vegetables, and sugar.

Raw tropical products such as cocoa and coffee face few restrictions because they do not compete with more-developed country production. However, semi-processed products, such as cocoa paste and certain fibers such as cotton, do face restrictions. Developing countries would like to export more processed commodities because those products have a higher unit value and provide more employment.

Quotas and tariffs are two of the more common import restrictions placed on agricultural commodities by MDCs. An example of how an import tariff works to increase price in the country imposing it and to reduce imports from the exporting countries is illustrated in Figure 16.1. The tariff increases the price that domestic consumers must pay for imports, which also raises the price they are willing to pay to local producers as well. In Figure 16.1, the country imposing the tariff is small in the world market so the tariff does not alter the world price. However, if its country is large in the world market, such as the United States with sugar, a tariff (or a quota that would act just like the tariff in its effects on the market) would depress the world price as well.

It is estimated that if the more developed countries removed all barriers to market access for agricultural products from other countries, the world would gain about \$44 billion (in 2001 dollars), about a

⁵ Gross terms of trade do not take into account differences in costs of production between the products. However, it is difficult to draw a firm conclusion about the net terms of trade because improved technologies have reduced the cost of producing the exports as well. It is possible for the gross terms of trade to decline but the net terms of trade and comparative advantage for agricultural products to improve.

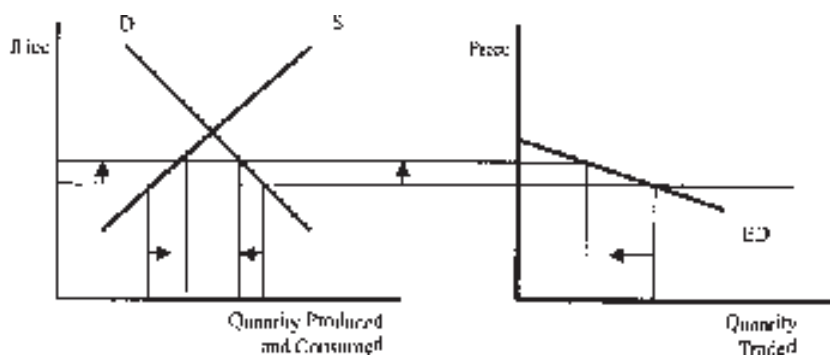


Figure 16.1. Effects of an import tariff.

quarter of which would accrue to developing countries.⁶ If all tariffs and subsidies were removed by more developed countries, the largest individual country winners would be Brazil, Argentina, and India.

Subsidized agricultural prices in the more developed countries encourage increased production in those countries while high prices discourage consumption. If production exceeds consumption, stocks accumulate unless they are exported at subsidized prices. The additional volume of exports can depress world prices, making production elsewhere even less attractive. Dairy products and wheat are examples of subsidized exports of high-income countries. Urban consumers in developing countries can benefit from these policies, at least in the short run, due to lower prices, but farmers in those countries are faced with production disincentives and lower incomes. These price distortions, though benefiting MDC farmers, are globally inefficient. They create conditions for lower growth worldwide. One of the purposes of negotiations under the auspices of the World Trade Organization (discussed in Chapter 17) is to reduce these trade restrictions.

Restrictive Trade Policies at Home

Many developing countries proclaim food self-sufficiency as an objective, but employ direct and indirect policies that, on net, tax farmers, subsidize consumers, and increase dependence on food imports. Examples of direct policies that influence agricultural trade are export

⁶Thomas Hertel and Roman Keeney, "What is at Stake: the Relative Importance of Import Barriers, Export Subsidies, and Domestic Support," in Kym Anderson and Will Martin, eds., *Agricultural Trade Reform and the Doha Development Agenda* (Washington, D.C.: The World Bank, 2005), pp. 49–52.



Developed countries protect rice producers at the expense of producers in developing countries.

taxes and subsidies, import tariffs, export and import quotas, import or export licenses, and government-controlled marketing margins. Multiple and overvalued exchange rates and high rates of industrial protection are the principal indirect means of discriminating against agriculture.

Agricultural export taxes are one of the oldest and most common trade interventions in developing countries. Export taxes tend to raise the prices of the products to foreign buyers and reduce the prices received by domestic producers. Producers of cocoa in Ghana, cotton in Mali, coffee in Togo, tobacco in Tanzania, and tea in India — to name just a few products and countries — typically receive much less than the border prices for their products. Some of this difference is due to marketing system inadequacies (see Chapter 15), but a significant portion is caused by export taxes.

Some taxation of export crops involves direct taxation of products as they move through ports. Alternatively, public marketing agencies are established that control marketing margins or set farm prices lower than market equilibrium. These agencies, often called marketing boards or parastatal marketing agencies, were discussed in Chapter 15. They are granted monopoly power for buying and selling the commodity, and they may set quotas for exports or imports.

Export taxes are prevalent in the developing countries because they are a relatively easy tax to institute and collect compared to alternatives

such as income or land taxes. Export taxes generate government revenues and, in some cases, reduce exports and encourage the shifting of production from exports to domestic food crops.

Occasionally, developing countries impose export taxes in attempts to exploit monopoly power that they believe they hold in world markets. If a country is a large enough exporter in the world market to affect the world price, it can use a tax to raise the world price. Although the volume of trade would be lower following the imposition of the tax, the hope is that additional income is earned at the expense of purchasing countries because the price is higher. Ghana has used this rationale for its export tax on cocoa, Brazil for a tax on coffee, and Bangladesh for a tax on jute. Although some world price increase is possible, the ability of individual developing countries to exploit monopoly power for particular commodities is quite limited. Higher prices create incentives for increased production in other countries as well as for the development of substitute products.

Developing countries sometimes use export quotas to partially or totally restrict exports. These restrictions force the sale of the products in domestic markets, thereby reducing prices to consumers. The result, however, is to discourage domestic production and to generate profits for those holding the quota rights.

Import tariffs and quotas are also used on agricultural products in developing countries, and are commonly employed on industrial products as well. When an import tariff or quota is imposed on industrial goods, the prices of the goods are raised relative to those of agricultural goods, creating an indirect tax on agriculture. Another significant source of indirect taxation is exchange rate misalignments that result from both macroeconomic policies and direct industrial protection policies. When fiscal and monetary policies (see Chapter 18) lead to a higher rate of inflation at home than abroad, the value of the local currency falls. If governments fail to adjust the official exchange rate downward, the currency becomes *overvalued*. An over-valued currency makes exports from a country more expensive and imports into it cheaper. Thus, fewer goods are exported and more imported. The additional supply of agricultural products on the domestic market reduces farm and consumer prices. Exchange rate overvaluation is common in developing countries and historically has been particularly severe in several African countries including Nigeria, Ghana, and Tanzania.

Countries sometimes establish a *multiple exchange rate system*. With this system different commodities are traded at different rates. For example, the government allows one rate of exchange for a commodity it wants to keep inexpensive in the country and another for a commodity

it wants to make expensive. Multiple exchange rate systems often discriminate against the agricultural sector.

Accurately measuring the effect of government policies on the prices received by farmers is difficult, in part because governments typically implement many different policies at once. The results of research to compare actual farm level prices with what farmers would have received under free-trade policies, across countries all around the world, are summarized in Table 16-2. The results in the table are averages for 75 countries, which together account for over 90 percent of the world's population, total income, and agricultural income. Policy effects were estimated for the major products in each country in each year, totaling more than 70 different products with an average of almost a dozen per country. Not all countries had data for the entire 1955–2007 period, but the average number of years covered is 41 per country.

The data in Table 16-2 illustrate how governments in Africa, Asia, and Latin America imposed heavy taxes on their farmers during the 1960s and 1970s. In the 1980s, a wave of reform known as structural adjustment led many of these governments to reduce average tax burdens, by lifting both exchange-rate distortions and direct trade restrictions. Some of these policy changes were imposed by foreign lenders so that borrowing countries could expand exports and repay their debts, but many were adopted voluntarily by developing-country governments seeking faster economic growth. Changing domestic socioeconomic conditions also led to policy change, particularly when higher incomes and other trends raised the relative political power of a country's farmers as opposed to its food consumers and taxpayers.

This rising political influence is reflected in Table 16-2 in the switch from taxing farmers to subsidizing them in Asia and Latin America, and in the particularly rapid rise in subsidy rates in the highest-income countries of Asia. This transition towards farm subsidies is a bit of a paradox in that farmers have greater political influence and more support from government after they are fewer in number and have already escaped extreme poverty. The situation may seem unusual, but as discussed earlier, lobbying is facilitated by smaller numbers, and richer countries can afford support easier than poor countries. Factors such as benefits and costs per person help explain why regions differ in the average tax or subsidy rates shown in the table.⁷

⁷ Several recent papers analyze these data, including William A. Masters and Andres F. Garcia, "Agricultural Price Distortion and Stabilization: Stylized Facts and Hypothesis Tests," in *Political Economy of Distortions to Agricultural Incentives*, ed. Kym Anderson (Washington, D.C.: The World Bank, 2009).

TABLE 16-2.
AVERAGE RATES of GOVERNMENT TAXATION or SUPPORT to AGRICULTURE in SELECTED COUNTRIES,
by REGION, 1955 TO 2007 (percent of undistorted prices)

	1955-59	1960-64	1965-69	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-07
Africa	-14	-8	-11	-15	-13	-8	-1	-9	-6	-7	-2
Asia	-27	-27	-25	-25	-24	-21	-9	-2	8	12	58
Latin America	-11	-8	-7	-21	-18	-13	-11	4	6	5	8
Europe and Central Asia	..	..	..	..	..	..	..	13	20	17	18
Western Europe	44	57	68	46	56	74	82	64	44	37	17
United States and Canada	13	11	11	7	8	13	19	16	11	17	10
Australia and New Zealand	6	8	10	8	8	11	9	4	3	1	2
Japan	39	46	50	47	67	72	119	116	120	120	74
Developing countries	-26	-23	-22	-24	-22	-18	-8	-2	6	9	25
High-income countries	22	29	35	25	32	41	53	46	35	32	16
All countries	1	3	6	0	2	5	17	18	17	18	15

Source: Kym Anderson, *Distortions to Agricultural Incentives: A Global Perspective, 1955 to 2007*. (New York and Washington: Palgrave Macmillan and the World Bank, 2009).

Note: Each observation is a weighted average among commodities in selected countries, with weights based on gross value of agricultural production at undistorted prices.

Policy changes that influence prices can lead to large responses in farm income and agricultural production. The output responses to price changes for different commodities in Africa and the rest of the world are indicated in Table 16-3. Production of individual crops whose area planted can vary quickly is more responsive than that of total agricultural output, but substantial shifts have occurred among commodities produced as prices changed.

Heavy taxation of agriculture and trade restrictions constrain agricultural growth. By reducing farm incomes they hasten the exodus of people from rural areas, creating social costs in urban areas, as sewer, water, health systems, and other infrastructure are stretched to their limits. Lower incomes in agriculture also reduce farmers' incentives to invest in land improvements such as irrigation and farm buildings, to adopt new technologies, and to support rural schools with local resources.

Arguments against a relatively free trade regime often are based on anticipated effects of trade on income distribution. The basic concern is that the benefits of trade may accrue to the wealthiest segments of society. While there is reason for concern that a disproportionate amount of economic gains from trade might go to the wealthiest, historical evidence suggests that a high proportion of the benefits from trade *restrictions* also accrues to them. Trade restrictions provide a

**TABLE 16-3. SUMMARY of OUTPUT RESPONSES
to PRICE CHANGES**

Crop	Percentage change in output with a 10% increase in price ^a	
	African countries	Other developing countries
Wheat	3.1 – 6.5	1.0 – 10.0
Maize	2.3 – 24.3	1.0 – 3.0
Sorghum	1.0 – 7.0	1.0 – 3.0
Groundnuts	2.4 – 16.2	1.0 – 3.0
Cotton	2.3 – 6.7	1.0 – 16.2
Tobacco	4.8 – 8.2	0.5 – 10.0
Cocoa	1.5 – 18.0	1.2 – 9.5
Coffee	1.4 – 15.5	0.8 – 10.0
Rubber	1.4 – 9.4	-0.4 – 4.0
Palm Oil	2.0 – 8.1	–

^aThe lower end of the range shows short-term supply responses, and the upper end shows long-term responses. *Source: World Bank, World Development Report 1986* (New York: Oxford University Press, 1986), p. 68.

fertile environment for powerful domestic interest groups to pressure for advantages. The benefits of quota rights, export and import licenses, and subsidized inputs provide economic incentives for people to lobby for these privileges. Visible corruption often emerges as well. It is naive to assume that governments are simply selfless protectors of social welfare. They are politicians and civil servants who respond to pressures from private individuals and interest groups.

While many government employees act with the overall public good in mind, they may also be just as concerned with their own self-interest as people are in the private sector. Self-interest can encompass monetary gain, re-election, promotion, or other rewards. And, even when there are no conflicts of public and private interests, administrative complexities associated with trade restrictions can lead to waste, costly time delays in marketing, and other types of inefficiency.

Market Instability

Government officials in developing countries often argue that trade restrictions are needed to counter food insecurity and income risks associated with international trade. Price instability in international commodity markets is indeed very large, but prices would also fluctuate domestically in the absence of trade.

Why are agricultural prices so variable? The central reason is that demand for most primary commodities is relatively inelastic. As weather changes and other factors cause supply to shift back and forth against an inelastic demand curve, prices vary substantially for small changes in quantity supplied (see Figure 16-2). A shift back in food supply against an inelastic demand at a time of low food stocks was responsible for a rapid rise in world food prices during 2007–08, which in turn led many food-surplus countries to restrict exports and food-deficit countries to seek self-sufficiency. When trade restrictions are imposed in such a situation, however, prices in local markets become even more volatile than world prices, because domestic demand tends to be even more inelastic than world demand.

One way for governments to reduce their country's vulnerability to fluctuations in commodity prices is to diversify, by investing in a wider range of agricultural products and in other sectors. When these new enterprises are profitable, the result is sustained growth and greater stability. Unfortunately, some attempts at diversification impose taxes on successful industries while promoting less successful ones. Such promotion can reduce growth and worsen instability. Both diversification and stabilization are often most successful when they are driven by new technologies and accompanied by marketing improvements. These

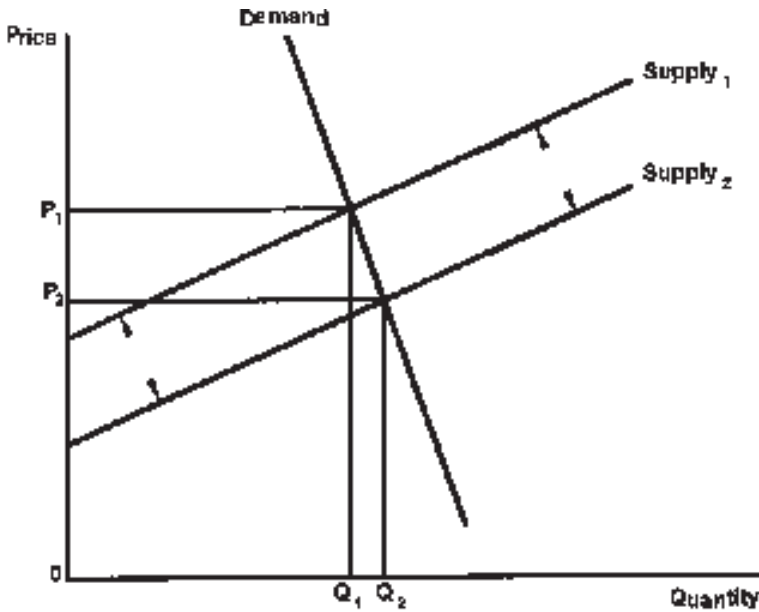


Figure 16-2. Small changes in the supply of agricultural products can result in large changes in price.

changes can make production of major field crops more stable, and can facilitate introduction of products for which markets are growing such as such as non-traditional fruits and vegetables. Diversification may be associated with higher levels of exports, but less overall exposure to single market risks.

SUMMARY

Proponents of trade restrictions argue that as countries become more integrated into the world economy, they open themselves up for exploitation by more-developed countries. Trade proponents of freer trade argue that it facilitates development and permits more efficient use of resources. It gives countries access to goods and services that otherwise would be unavailable or more expensive. Even well-motivated efforts to restrict trade, however, often serve merely to benefit the wealthy. Most developing countries do trade and also follow some restrictive trade policies. Many developing country exports come from agriculture. The preponderance of evidence supports the view that a relatively open trading environment is more conducive to economic development than a highly restrictive one.

Developing countries have a comparative advantage in several agricultural products, particularly tropical ones. They often become less self-sufficient in food in the middle stages of development. Trade tends to have favorable employment implications.

External demand constraints, market instability, and internal direct and indirect trade restrictions all impede exports from and imports into developing countries. Lack of access to developed country markets is probably the most severe external problem. Governments impose internal trade restrictions to raise revenue, to distribute income to particular groups in response to pressures from interest groups, to exploit monopoly power for certain export crops, and for reasons of food security. Indirect restrictions such as overvalued exchange rates are often greater sources of discrimination against agriculture than are direct restrictions such as export taxes and quotas.

IMPORTANT TERMS and CONCEPTS

Comparative advantage	Mercantilism
Export taxes	Multiple exchange rates
Foreign exchange rates	Overvalued exchange rate
Free Trade	Protectionism
Import substitution	Quotas
International commodity agreement	Tariffs
International trade	Terms of trade

Looking Ahead

A variety of steps can be taken to enhance international trade. The next chapter considers those steps including the role of regional groupings of countries, multilateral trade negotiations, and other changes in domestic and international policies.

QUESTIONS for DISCUSSION

- 1 Why do countries trade?
- 2 Why do some argue that the terms of trade turn against developing countries over time?
- 3 What is comparative advantage?
- 4 Has agriculture as a percent of total earnings increased or declined for developing countries over the past 30 to 40 years?
- 5 Why might a country's comparative advantage for particular products change over time?
- 6 Identify the possible linkages between trade and employment.
- 7 What are the major external trade impediments facing developing countries?

- 8 Why is world price instability a problem for developing countries?
- 9 What are the major direct and indirect agricultural trade restrictions employed by developing countries?
- 10 Why do developing countries impose trade restrictions?
- 11 Why does an overvalued exchange rate hurt agricultural exports from a country?

RECOMMENDED READINGS

- Anderson, Kym and Will Martin, eds., *Agricultural Trade Reform and the Doha Development Agenda* (Washington, D.C.: The World Bank, 2005).
- Colman, David and Trevor Young, *Principles of Agricultural Economics: Markets and Prices in Less Developed Countries* (Cambridge: Cambridge University Press, 1989), Chapter 11.
- Johnson, D. Gale, *World Agriculture in Disarray*, 2nd ed. (New York: St. Martin's Press, 1991).

Trade Policies, Negotiations, and Agreements

*...the WTO at least provides a system of rules for world trade. ...
The rules may not be perfect, but they are certainly better than no
rules at all.* — Eugenio Diaz-Bonilla and Sherman Robinson¹

THIS CHAPTER

- 1 Explores solutions to internal constraints to trade
- 2 Discusses trade negotiations, regional cooperation, and other international solutions to trade problems
- 3 Considers means of reducing price, production, and income instability problems associated with trade

REDUCING INTERNAL BARRIERS to INTERNATIONAL TRADE

Barriers to expanded international trade in agricultural products are both self-imposed by developing countries and externally-imposed on them by protectionist policies in more developed countries. We begin by considering what developing countries can do internally to solve their trade problems. Trade restrictions are imposed within developing countries in attempts to distribute benefits to particular groups, to generate government revenues, and to offset economic instability and food insecurity. Removing these restrictions may require institutional change to facilitate reform, alternative revenue sources to replace trade taxes that help pay for public services, and bridge financing to pay the adjustment costs associated with short-term losses before long-term gains arise.

¹ Eugenio Diaz-Bonilla and Sherman Robinson, "The WTO can Help World's Poor Farmers," *International Herald Tribune*, March 28, 2001.

Institutional Change to Facilitate Reform

As seen in the previous chapter, a principal motive for trade restrictions is to redistribute income within the restricting country, transferring real income to one sector at the expense of others. Reforming such policies requires a shift in political influence, which usually comes from changes in social institutions. Civic organizations, the media, legal procedures, and administrative practices all help determine whether a particular sector — such as sugar refiners or steel producers — have the political influence needed to obtain favorable trade restrictions. Often, reforms arise not because favored groups lose some of their power, but because other groups acquire more influence of their own, and use that to obtain countervailing policies that level the playing field. Helping more groups acquire some influence often involves lowering transactions costs and facilitating access to information among those who are relatively powerless. Doing so can help those individuals engage in collective action (especially informal lobbying and protesting), and thereby pressure the government for more favorable policies.

A concerted and sustained effort is often needed to reform policies that benefit powerful groups. Transparency and accountability in government, facilitated by a free media and an independent judiciary, are often essential to constrain unscrupulous behavior. Policy prescriptions mentioned in earlier chapters with respect to land tenure, environmental policy, price policy, and research policy are also relevant for trade policy.

One external means of encouraging internal policy reforms is for an organization such as the World Trade Organization (WTO) to help countries enter mutual commitments to favorable policies, and for lenders such as the International Monetary Fund (IMF) to require trade reforms as conditions for loans. This type of activity is viewed by many as meddling in the internal affairs of developing countries. And to a certain extent it is. It certainly places a high burden on an institution such as the WTO or IMF to get its interventions right, lest it cause more harm than good. Often, however, international actors can help a government to undertake reforms that are known to be desirable but may not be politically feasible for them to accomplish without an external partner.

Alternative Revenue Sources

Export taxes and import tariffs are among the easiest mechanisms for raising government revenues in developing countries. They can be replaced with less-distorting revenue sources, such as income taxes, property taxes, and value-added taxes, but this kind of fiscal reform requires

a large increase in record-keeping and accounting information about the domestic transactions to be taxed. Converting quantitative restrictions (quotas) to export taxes or import tariffs as an intermediate step to their removal, while not removing the distortion, would at least provide more revenues to the government rather than to private individuals.

Foreign debt reduction would reduce the pressure on developing country governments to generate revenues. The nature of debt problems in these countries and potential solutions are discussed in Chapter 18. Most of these solutions require action on the part of both more- and less-developed countries. Several developing countries have and will continue to realign their exchange rates to encourage more exports. But this solution will be insufficient for most countries without additional assistance from more developed countries.

Bridge Financing for Adjustment Costs

Developing countries often find it difficult to undertake necessary long-term policy reform because the short-term consequences are so severe. Devaluation of an overvalued exchange rate raises the cost of imports and reduces the cost of exports. While these cost changes improve the foreign-exchange balance and may improve economic efficiency, they also mean that fewer goods are in the domestic market and that there may be severe price increases in the short run. Food prices may rise, real incomes fall, and a disproportionate burden may be placed on the poorest members of society.

International organizations can play a role in providing financial assistance to help offset short-term *cost-of-adjustment* problems associated with policies or structural adjustment programs. In fact, multilateral donors, led by the World Bank, instituted social funds as a means of providing some protection to the poor during structural adjustment programs.² Since the losers from policy reform can block changes that would help many more people in the long run, assistance aimed at facilitating adjustment can have significant benefits over time.

REMOVING EXTERNAL CONSTRAINTS to INTERNATIONAL TRADE

The primary methods that have been suggested as potential solutions to external trade constraints include trade negotiations and special preferences, regional cooperation, and product diversification.

² See Carol Graham, *Safety Nets, Politics, and the Poor* (Washington, D.C.: The Brookings Institution, 1994).

Countervailing trade restrictions to offset the external constraints also have been suggested, but they can generate their own set of problems.

Trade Negotiations and Special Preferences

Bilateral and multilateral negotiations have provided opportunities for liberalizing external restrictions on developing country trade. Bilateral negotiations occur when one country negotiates preferential trade arrangements with a second country either for specific goods or for whole categories of goods and services. For example, nation A might grant nation B preferential access to its sugar market — that is, reduce or remove restrictions to sugar imports from nation B — in exchange for special access to nation B's wheat market. Or, nation A, a more-developed country, might simply grant a special preference to nation B, a less-developed country. Numerous variations of bilateral trade negotiations and special preferences are found.

Since World War II, the primary focus for trade negotiations has been multilateral rather than bilateral under the auspices of the General Agreement on Tariffs and Trade (GATT) and, since 1994, the World Trade Organization (WTO). The GATT, signed in 1947, replaced a series of bilateral agreements that segmented world trade before the war. More than 100 countries were signatories to the GATT, and currently about 150 countries are members of the WTO, its successor organization. The GATT and WTO have attempted to foster adherence to the principle that countries should not discriminate in the application of tariffs.³ Nondiscrimination implies that bilateral preferential agreements are not allowed. The rules allow for exceptions for developing countries. Several developed countries maintain preferential trading arrangements with particular groups of developing countries for certain categories of products. For example, the United States instituted a Caribbean Basin Initiative that eliminated tariffs and quantitative restrictions for many agricultural products from Caribbean countries. Several countries in West Africa have had special preferences with France. Some developing countries have called for more generalized preferences to be granted to countries with incomes below a particular level.

The GATT contained provisions related to consultation and negotiation to avoid disputes, rules concerning non-tariff as well as tariff barriers, and agreements to periodic multilateral negotiations to lower trade barriers. Over time, success in reducing tariff barriers increased

³ Nondiscrimination has been called the most-favored national principle, that a country should apply to other countries the same tariff levels that it applies to its most-favored nations.

the importance of non-tariff barriers. Non-tariff influences on trade include, but are not limited to, certain types of health and safety regulations (see Box 17-1), domestic content restrictions, complex customs formalities and reporting requirements, and rules on intellectual properties.

Eight rounds of multilateral trade negotiations took place under the GATT. Most of the early rounds involved negotiations on tariffs and on rules for trading blocs such as the European Community (EC). The middle rounds increasingly focused on non-tariff issues. Agricultural trade restrictions received relatively little attention until the Uruguay Round from 1986 to 1994.⁴ They are at the heart of the Doha Round negotiations under the WTO, also called the Development Round.

Developing countries have felt that trade negotiations have focused too little on developed country trade restrictions that affect developing countries. Since 1964, they have met periodically under the auspices of the United Nations Conference on Trade and Development (UNCTAD), a permanent organization within the United Nations, to develop proposals for trade arrangements more favorable to developing countries. These discussions led to calls for a *new international economic order* (NIEO). The NIEO contains provisions for improved access to

BOX 17-1.

ENVIRONMENTAL, HEALTH and SAFETY REGULATIONS

Environmental or health and safety regulations can have a significant effect on trade. The United States prohibits the importation of products that have certain pesticide residues. Fresh or frozen beef is prohibited from countries that have a history of foot-and-mouth disease. Clearly, governments are wise to regulate trade in products potentially injurious to public health. More-developed countries usually have tighter environmental and food-safety regulations than less-developed countries. These regulations raise the cost of production so that, without corresponding restrictions on trade, not only might there be environmental or health threats, but developed country producers might be placed at a competitive disadvantage. However, environmental or health and safety restrictions appear sometimes to be used arbitrarily to protect the economic health of an industry when the true human health hazard is seriously in doubt. As a result, recent multilateral trade negotiations have included tighter rules on when such restrictions can be applied.

⁴ Tariff rounds are frequently named after individuals or after locations where the initial discussions in the round take place. The Uruguay Round began with a meeting in Punta del Este, Uruguay, in 1986.

developed country markets through a generalized system of trade preferences and for a set of mechanisms aimed at reducing price and foreign exchange earnings instability.

Aside from some compensatory financing schemes for stabilizing foreign exchange (discussed below), some specific trade preferences, and a few other measures, UNCTAD proposals for a NIEO went largely unheeded. The Uruguay Round of the GATT produced the first serious attempt to address agricultural trade restrictions, including some of particular concern to developing countries. The reason for finally considering agricultural restrictions had little to do with agricultural development problems per se. By the mid-1980s, budget costs, shrinking foreign demand, and world surpluses that threatened a global trade war forced agricultural issues to the top of the GATT agenda. The Uruguay Round negotiations highlighted the divisions among more-developed countries and between more-developed and less-developed countries with respect to trade policy, and also illustrated the diversity of interests among less developed countries. Net-exporting developing countries were very concerned about market access and effects of developed country export subsidies. Net-importing developing countries, while concerned about market access, were also concerned about possible rising prices in world markets, particularly for food grains.

The Uruguay Round ended with a very modest reduction in trade barriers, but success in reorienting the trade debate in several respects. Prior to the Uruguay round, trade in many agricultural products was unaffected by the tariff cuts that had been made for industrial products in previous rounds. In the Uruguay Round, there was agreement to convert all non-tariff agricultural trade barriers to tariffs. These tariffs were subject to bindings that limit countries' ability to increase them. The round also contributed to a shift in domestic support for agriculture away from those policies with the largest potential to affect production and, therefore, to affect trade flows. Countries accepted commitments to reduce expenditures on export subsidies and not to apply new subsidies to unsubsidized commodities. Because the base periods chosen had generally high protection, the way non-tariff barriers were converted to tariffs, and the modest percentage reductions agreed to, the overall reduction in trade barriers was small.⁵ However, the base was established to build on in future negotiations.

⁵ Developed countries committed to reducing tariffs by 36% from the levels in the late 1980s, developing countries 15%. The Uruguay Round allowed countries to institute "tariff-rate quotas." A tariff-rate quota applies a lower tariff to imports below a certain quantitative limit (quota), and permits a higher tariff on imported goods

The Uruguay Round resulted in separate agreements on (a) sanitary and phyto-sanitary (SPS) measures to protect humans, animals, and plants from foreign pests, diseases, and contaminants; and (b) intellectual property rights to protect patents, copyrights, and other such rights from infringement abroad. Both of these measures have been difficult for developing countries to accept. The SPS rules can be credited with increasing transparency of countries' SPS regulations and providing a means for settling disputes. Still, the rules can be manipulated to some extent to create barriers to trade that may not be related to SPS concerns. The rules state that science should be the deciding factor as to whether an imported good poses a threat, but science can still be debated. Intellectual property rights are monopoly rights that are granted to create incentives for private individuals and firms to innovate. However, they also can lead to companies charging high prices to poor countries for drugs and production inputs.

World Trade Organization

The WTO was created in 1994 to replace the GATT, and strengthen the enforcement of international trade rules and the settling of trade disputes. For example, a single country can no longer block the formation of a dispute resolution panel, or veto an adverse ruling by blocking the adoption of a panel report. However, it can still be difficult to get countries whose practices have been successfully ruled against to change their behavior, because the only sanction which the WTO can impose when a member government is found to have violated its WTO commitments is to give to other governments the permission to impose limited, specific retaliatory sanctions.

The WTO matters mainly as a framework for negotiation. Despite concerns of developing countries that the WTO is dominated by more developed countries, the WTO does give developing countries more say than they would have outside it. It is also more open than the GATT. Partly for this reason, more developing countries have joined the WTO than were members of the GATT. Because developing countries can vote as a bloc or blocs, they can force issues more strongly than before. Future negotiations under the WTO are likely to succeed only with some concessions to developing country concerns. In the 2001 meeting in Doha, Qatar, developed countries agreed to place export subsidies

Footnote 5, *continued*

after the quota has been reached. The purpose was to ensure that historical trade levels could be maintained, while creating some new trade opportunities. However, the effect has been to slow the rate of trade liberalization.

higher on the agenda. They also agreed to some relief on intellectual properties, such as for drugs to fight AIDS. The Doha Round has been called the Development Round, to indicate international commitment to addressing concerns of developing countries. In the 2003 Ministerial level WTO meeting in Cancun, Mexico, a group of 21 developing countries (which altogether represented about two-thirds of all the world's farmers) called for tighter domestic support restrictions for developed countries and more flexibility for special and differential treatment for developing countries. Their strong position was one of the reasons leading to a breakdown of that meeting, but it marked a negotiating milestone in that, for the first time, several developing countries negotiated as a block and were able to affect the outcome.

The WTO faces significant obstacles in its role as an international forum for trade negotiations. Some poor countries fear that developed countries will use labor standards as a protectionist tool. Others are concerned that little progress will be made to strengthen anti-dumping rules, and to continue to remove protectionist policies on textiles and apparel. The Europeans want stronger environmental rules than either the United States or developing countries would like, the latter preferring environmental issues to come under separate, non-trade agreements.

Most would argue that the WTO is at least potentially more a friend than a foe for developing countries. It has been estimated that global free trade would confer income gains of about \$150-200 billion annually to developing countries and reduce the number of extremely poor people.⁶ About half of those gains would arise from removing restrictions (e.g., tariffs and quotas) on exports from developing-country products to developed-country markets, especially in agricultural goods, textiles, and apparel. The gains would be roughly twice the amount that developing countries currently receive through foreign development assistance. However, in the Doha Round negotiations neither developed nor developing countries have sought the degree of trade liberalization that would come close to generating this level of benefits. Almost half of what developing countries could gain from free trade would come from their own tariff reductions, because about a third of their exports are to other developing countries and because their tariffs are higher than those of the developed countries.⁷ In July 2008, Doha

⁶ William Cline, *Trade Policy and Global Poverty*, Institute for International Economics, Washington, D.C., 2004.

⁷ Kym Anderson and Will Martin, eds., *Agricultural Trade Reform and the Doha Development Agenda* (Washington, D.C.: The World Bank, 2005), p.12.

Round negotiations broke down over agricultural trade issues, especially a dispute over a mechanism that would allow poor countries to institute tariff protection for specific products if prices drop too low or there is a surge in imports. As of mid-2009, formal negotiations are still at an impasse. Global recession has hindered the restart of talks, as most countries find it politically difficult to discuss reducing trade barriers during economic downturns. The future of the Doha Round remains cloudy at this time.

Regional Trade Agreements

International trading relations are increasingly influenced by regional organizations and trading blocs. The economic union in Europe and the North American Free Trade Area (NAFTA) are examples, but so too are the more loosely integrated free-trade areas that have been established in the Asian-Pacific countries, the Andean countries and the Southern cone countries in Latin America, in Southern Africa, and elsewhere. *Free trade areas* are trading blocs whose member nations agree to lower or eliminate tariffs and perhaps other trade barriers among themselves, but each country maintains its own independent trade policy toward nonmember nations. Free movement of production factors, such as labor, are usually not included.⁸

One of the recommendations in the NIEO proposed by UNCTAD was for increased *collective self-reliance* among developing countries. Reduced trade restrictions among a group of those countries could allow for increased specialization, economies of scale (particularly for manufacturers), and competition that reduces costs of production and improves economic efficiency. Occasionally a group of countries can gain some market power through closer economic integration. However, exercise of that power usually creates incentives for one member country to undercut another in terms of production or prices. The power is then eroded and the cohesion of the group jeopardized.

Regional economic groupings can be helpful to developing countries, but their usefulness is limited somewhat by the fact that gains from trade among themselves often are constrained by the similarity of products produced among different countries in a region. For this reason, there has been interest in developing countries to link to more

⁸ Free movement of factors is allowed in a tighter form of economic integration such as a Common Market or an Economic Federation or Economic Union. One type of regional economic integration that is tighter than a free trade area but looser than a Common Market is a "Customs Union" in which member countries agree to a common trade policy against all outside countries.

developed countries in these groupings. NAFTA is a good example, with Mexico linked to the United States and Canada. Trade liberalization under NAFTA has been accompanied by substantially larger volumes of trade of agricultural commodities among the three countries. NAFTA eliminated many tariffs and quantitative restrictions among the participants beginning in 1994, and provides for progressive elimination of tariffs and other trade barriers between the countries over a 15-year period. Both exports and imports are up in each of the three countries more than would have been otherwise. The result has been gains from trade as well as resource adjustments within individual commodity sectors. Despite these gains, extending NAFTA to include first Central America and the Caribbean and then all of South America has been controversial. Developing and more-developed countries fear for loss of jobs, and there is little question that expanded regional trade would force many adjustment costs. Some also fear that the signing of regional trade agreements will lessen incentives for countries to enter into meaningful multilateral negotiations at the global level.

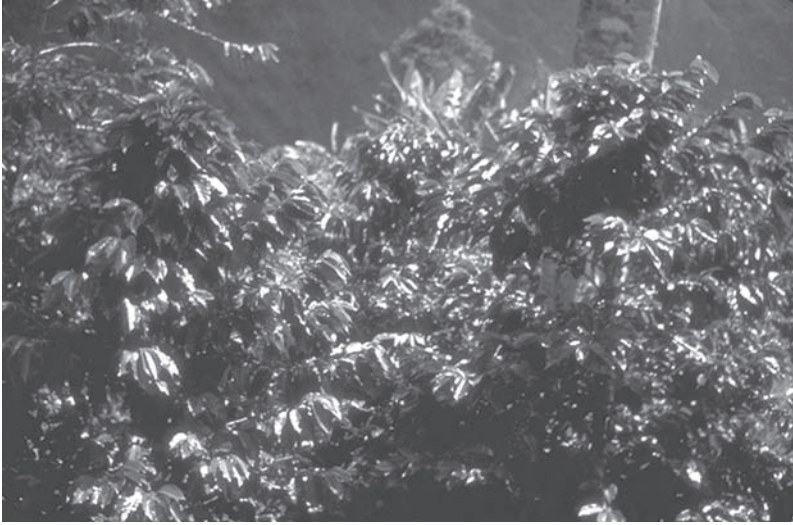
REDUCING INSTABILITY

Many trade policy debates focus on price variability rather than average price levels for traded goods and foreign exchange earnings. Some of the main strategies advocated to deal with price risk include: diversification, commodity agreements, compensatory financing, and enhanced use of market information.

Product Diversification

Many countries that receive a high proportion of their export earnings from one or two commodities could likely moderate the effects of external trade restrictions by some diversification of exports. The terms of trade can turn against any single product as substitutes are developed (e.g. for jute and sisal) or new technologies shift supply out against a relatively inelastic and slowly shifting world demand (e.g. peanuts). Also, even if progress is made through negotiations in opening up market access for commodities such as sugar or cotton or reducing explicit or implicit export subsidies for commodities such as peanuts, total removal of developed-country policy distortions is unlikely. Diversifying the production of export and food crops can help not only to reduce the terms-of-trade problems arising from external constraints, but may reduce risks associated with price, production, and foreign exchange variability.

The difficulty for developing countries is in deciding how much to diversify away from a commodity for which it has a strong



An international agreement was in effect for coffee several years ago.

comparative advantage. Diversification out of agriculture is a natural consequence of economic development that may eventually increase exchange-earnings stability, but too much diversification within agriculture can be a costly means of achieving stability.

Commodity Agreements and Buffer Stocks

Historically, a widely-discussed approach to reducing price variability for individual commodities has been to develop international commodity agreements. Several of these agreements have been concluded over the past 30 years for commodities such as wheat, sugar, coffee, and cocoa. However, few of these agreements have been effective for very long.

Some early international commodity agreements, like one for wheat that operated from the late 1940s through the 1960s, attempt to restrict variation in price without influencing the price level. Other agreements, such as those for coffee and sugar, have attempted not only to stabilize prices but also to keep prices high, by restricting production through trade quotas. However, when production varies, these quotas can actually serve to destabilize world prices. A third type of commodity agreement involves *buffer stocks*. With a buffer-stock scheme, when supplies are high, the commodity is bought up and stored. These buffer stocks are intended to provide protection against a time when supply of the commodity drops for some reason. If there is a shortage, stocks would be released on the market to keep prices down. The agreement might

specify a minimum and a maximum price, a buffer stock of say 15 percent of world production, a tax on imports or exports to build up the stocks, and perhaps some quotas for producing countries.

With most commodity agreements, exporters and importers have difficulty agreeing on an appropriate target price range. The agreements also have proven expensive to administer, especially buffer-stock programs with their high costs of storage.

Compensatory Financing Schemes

Schemes aimed at stabilizing expenditures or earnings are an increasingly popular alternative to direct intervention in commodity markets. The simplest approach has been compensatory financing schemes (CFS), as illustrated in Figure 17-1. A reference line is set for each country for its total export earnings or earnings from particular commodities. Upper and lower acceptable bounds are set around the reference line. When earnings go below the lower bound, the CFS fills in the shortfall by providing cash or credit to the particular country. When earnings are in excess of the upper bound, developing countries may pay back what was previously taken out. If the repayments shown by shaded regions above the top line exactly equal the borrowing shown by shaded regions below the bottom line, plus interest, then the CFS would exactly break even over time. Of course, it is nearly impossible to set reference lines at these break-even levels. Commodity price trends are unpredictable, and participating governments have a strong incentive to lobby for a more favorable choice of reference lines.

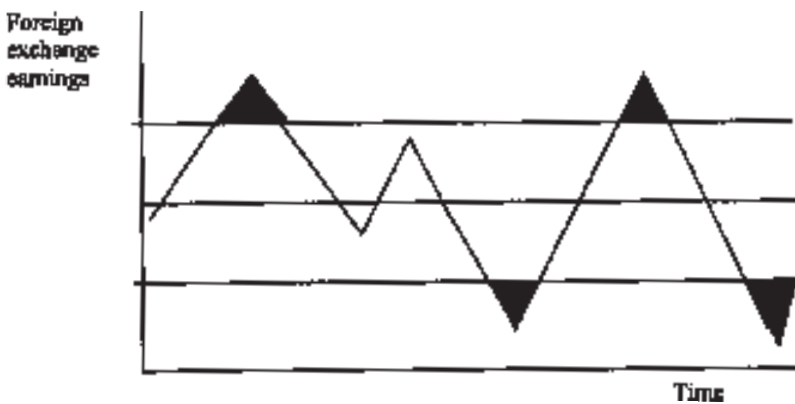


Figure 17.1. Example of a compensatory finance scheme.

Although CFS programs rarely break even, they have been widely used by donor agencies to help developing countries. For example, one CFS operated by the Compensatory Financing Facility (CFF) of the IMF was established in 1963 to provide financial assistance to member countries experiencing temporary export shortfalls. To use the CFF, the IMF must be convinced that the country will seek means to correct its balance of payments problem in the case that export earnings shortfalls are caused by structural problems. Countries also can borrow against the CFF when adverse weather and other circumstances beyond their control result in high cereal import costs. This component of the CFF, called the *cereal import facility*, was set up in 1981, but has been relatively little used.

A second important compensatory finance scheme was the STABEX, run by the European Community (EC) as part of the Lomé Convention.⁹ The STABEX scheme was restricted to African, Caribbean, and Pacific countries and was aimed at stabilizing export earnings for 48 agricultural products. Usually only exports to the EC were covered. A reference line was set for each commodity, based on the average value of exports for the products in the preceding four years. To qualify for compensation, export earnings had to fall at least 6.5 percent below the reference line. All loans were interest free and the least-developed countries repaid nothing. The major commodities supported were cotton, sisal, coffee, cocoa, and peanuts. Major beneficiaries were Senegal, Sudan, Cote d'Ivoire, Mauritania, and Tanzania.

Enhanced Use of Market Information, Insurance, and Derivatives

The difficulty of implementing any of the stabilization approaches discussed above has led to the development of new, more market-based interventions. At the simplest level, governments seek to increase the flow of market information to facilitate commodity trading and storage. Governments can also help traders use well-regulated futures and options markets. These contracts are called derivatives, because they represent the right to buy or sell something else: they are derived from the commodity but are not the product itself. Important derivative

⁹The EC's economic arrangement with African, Caribbean, and Pacific countries, which replaced former colonial preference schemes, was originally spelled out in the Lomé Convention of 1975 and revised several times before being itself replaced by the Cotonou Agreement of 2000. Other arrangements include free access for many African, Caribbean, and Pacific products to EC markets and the European Development Fund, which administers foreign aid to these countries.

markets exist in London, New York, Sydney, and elsewhere; the largest futures market “exchange” is in Chicago. With futures markets, commodities can be bought and sold for delivery at a future date. Farmers or exporters can fix a price for goods to be sold later, thus reducing the risk. This activity is called *hedging*. Alternatively, sellers can insure against extremely low prices and buyers against extremely high prices by trading in options on futures contracts. Farmers or exporters can insure against low prices by purchasing an option to sell if prices fall to a specified level. If prices fall below that level, they can exercise their option to sell at that price. If prices rise above it, they lose what was paid for the option, but they can sell the products for the higher price.

The usefulness of international futures and options markets is limited for developing countries because internal commodity prices may not follow the same pattern as commodity prices in Chicago, New York, etc. However, if trade becomes more liberalized in the future, these markets may become more useful.

SUMMARY

External demand constraints, market instability, and internal direct and indirect trade restrictions all impede exports from and imports into developing countries. Lack of access to developed-country markets is probably the most severe external problem. Governments impose internal trade restrictions to raise revenue, to distribute income to particular groups in response to pressures from interest groups, to exploit monopoly power for certain export crops, and for reasons of food security. Indirect restrictions such as overvalued exchange rates are often more significant sources of discrimination against agriculture than are direct restrictions such as export taxes and quotas.

Trade negotiations were undertaken under the GATT beginning in 1947, but only recently addressed in any substantial way the restrictions on agricultural products that are so important to developing countries. The WTO was formed during the Uruguay Round of negotiations to replace the GATT and currently has roughly 150 countries as members. Developing countries have more say in the WTO than they had under GATT. Regional economic groupings of countries such as NAFTA have also become more prevalent and have increased regional trade, although their effects on total trade are less certain. International commodity agreements, compensatory financing, product diversification, and enhanced use of market information may help developing countries deal with economic instability.

IMPORTANT TERMS and CONCEPTS

Compensatory finance	Product diversification
Doha Round	Protectionism
Free trade area	Quotas
GATT	Tariffs
International commodity agreement	Terms of trade
International trade	Trade preferences
Multi-lateral trade negotiations	Uruguay Round
NAFTA	World Trade Organization (WTO)

LOOKING AHEAD

The macroeconomic environment strongly influences agricultural production incentives, agricultural trade, and employment. Domestic macroeconomic policies affect key prices in the economy, including exchange rates, interest rates, wages, food prices, and land prices. Government revenues, taxation, borrowing, and inflation all influence agriculture. In the next chapter we will consider the effects of both domestic macroeconomic policies and the world macroeconomic relationships. Particular attention is devoted to world capital markets and the debt crisis facing many developing countries today.

QUESTIONS for DISCUSSION

- 1 Why do developing countries impose trade restrictions?
- 2 What is the GATT and why have developing countries felt that it has focused too little on their problems?
- 3 What is the WTO and why was it created?
- 4 What is the difference between multi-lateral and bi-lateral trade negotiations?
- 5 What are components of the new international economic order (NIEO) called for by developing countries under UNCTAD?
- 6 What is the purpose of a compensatory finance scheme and how might one work?
- 7 Why might product diversification be helpful to developing countries?
- 8 What is a free trade area? Give an example.
- 9 How do buffer stocks relate in international commodity agreements?
- 10 How might enhanced information help reduce internal trade restrictions in LDCs?
- 11 Why does an overvalued exchange rate hurt agricultural exports from a country?

RECOMMENDED READINGS

- Anderson, Kym and Will Martin, eds. *Agricultural Trade Reform and the Doha Development Agenda* (Washington, D.C.: The World Bank, 2005).
- Cline, William, *Trade Policy and Global Poverty* (Washington, D.C.: Institute for International Economics, 2004).

Macroeconomic Policies and Agricultural Development

In the long run, macroeconomic forces are too pervasive and too powerful for micro-sectoral strategies to overcome. When they work at cross-purposes, as they do in many developing countries, an unfavorable macroeconomic environment will ultimately erode even the best plans for consumption, production, or marketing.

— C. Peter Timmer, Walter P. Falcon, and Scott R. Pearson¹

THIS CHAPTER

- 1 Discusses the importance of government policies associated with taxation, spending, borrowing, interest rates, wage rates, the money supply, and exchange rates in influencing the performance of the agricultural sector
- 2 Examines why governments in less-developed countries tend to pursue specific types of macroeconomic policies
- 3 Describes the significance of the inter-relationships among macroeconomic policies across countries; international capital, labor, and product markets; and domestic agricultural markets

MACROECONOMIC POLICIES and AGRICULTURE

Macroeconomic policies have a strong influence on output prices, factor prices, marketing margins, and, hence, on incentives for agricultural producers, consumers, and marketing agents. Foreign exchange rates, for example, affect export and import prices and quantities and, thus, output and input prices. Interest rates determine the cost of investments in machinery and equipment and, when combined with wage

¹ C. Peter Timmer, Walter P. Falcon, and Scott R. Pearson, *Food Policy Analysis* (Baltimore: Johns Hopkins University Press, 1983), p. 215. This chapter updates ideas in *Food Policy Analysis*, especially in the first section.

rates, the capital intensity of production. Interest rates also influence the cost of storage.

The macroeconomic environment conditions the rate and structure of agricultural and urban-industrial growth. Job creation and income growth and distribution are as much a function of macroeconomic policies as are policies and projects targeted at specific sectors. The short-run effects of macro policies on employment and income distribution can be quite different from their long-term effects. Real incomes of urban consumers can be sharply reduced in the wake of macroeconomic policy adjustments aimed at reducing public debt or controlling inflation. Policymakers often seek means of softening short-run income and nutritional consequences of policy changes needed for long-term growth.

Understanding the effects of macroeconomic variables on food and agriculture is important for designing economically and politically viable short-and long-run policies. When macro policies create distortions such as over-valued exchange rates, heavily subsidized interest rates, and inflationary fiscal and monetary policies, agriculture is usually discriminated against and long-term prospects for development are compromised. Pressures build for major macro-policy reforms that, even if unintentionally, usually help the rural sector by increasing farm incomes and rural employment. Price increases and lower subsidies, however, necessitate painful adjustments by urban consumers. The pervasive nature of these macro-policy effects makes it imperative for those interested in agricultural development to understand how the macro-economy works.

Describing a Macro-economy

The “macro-economy” is the aggregate of all economic activity in the country. It is the sum of all individual goods and services, at the prevailing “macro prices” for foreign currency, capital, and labor that cut across all sectors. The value of the activity at current exchange rates, interest rates, and wage rates can be added up in terms of demand, supply, or income (see Figure 18-1). A country’s gross domestic product (GDP), a measure of its domestically produced national income, will, in theory, be identical regardless of whether it is calculated by summing demands, supplies, or incomes. In practice, differences in measurement errors lead to different measures of income, depending on the adding-up technique used. Macroeconomic policies in developed countries often focus on managing the demand side of the economy. Governments implement policies to stimulate private consumption or investment, use public expenditures to create demand, and closely

Demand Description	Supply Description	Income Description
Consumption	Agricultural production	Wages
+	+	+
Private investment	Industrial production	Interest
+	+	+
Government expenditures	Production of services	Rents
+	+	+
Excess of exports over imports	Government production	Profits
↓	↓	↓
Gross domestic product	Gross domestic product	Gross domestic product
+		
Net income transfers abroad		
↓		
Gross National Product (GNP)		

Figure 18-1. Three descriptions of a macro-economy.

manage trade. Policies in developing countries frequently are more concerned with managing aggregate supply. Governments in developing countries tend to use the types of policies described in Chapter 15 to manage agricultural supply; similar policies affect the other productive sectors. Numerous developing countries have attempted to stimulate supply by involving the government directly in the production of goods and services.

Demand equals supply when the components in Figure 18-1 are expressed in real terms (inflation is netted out). The basic factors of production (land, labor, and capital) together with management, earn incomes when they produce goods and services. These incomes are spent on the components of aggregate demand; hence total income equals GDP. Developing countries are often very concerned about the distribution of total income among wages, interest, rents, and profits, and undertake policies to manage this distribution.

The prices of goods and services are generally expressed in the country's currency units. The monetary value of a good or service can change due to inflation even when its real value has not changed. Policies that create inflation can change real values as well, though often indirectly. The causes of inflation are discussed below, but many of inflation's effects are, in a sense, unintended results of fiscal and monetary policies. We turn our attention to these policies first, highlighting their effects on agriculture. Then we consider the effects of macro-price policies, particularly those policies related to exchange rates, interest rates, and wage rates. Finally, we consider the effects of macro policies

on rural-urban terms of trade and land prices. The major macroeconomic and agricultural policy connections are summarized in Figure 18-2; these connections are described below.

Fiscal and Monetary Policy

Fiscal policy is the use of taxes and spending by government to influence employment, income growth and distribution, and other objectives. *Monetary policy* is the use of the money supply and the interest rate to influence these things. The two kinds of policy are closely related. In particular, since the government can print money and never goes bankrupt, expanding the money supply or borrowing from foreigners can be tempting alternatives to raising taxes. Governments differ substantially in their ability and willingness to run budget deficits, and in the way these deficits are financed.

Governments in developing countries often go into debt because of their many pressing needs and limited tax revenues. Tax collection, particularly income tax collection, is difficult and costly, and taxes are easy to evade in countries with poor information systems. Consequently,

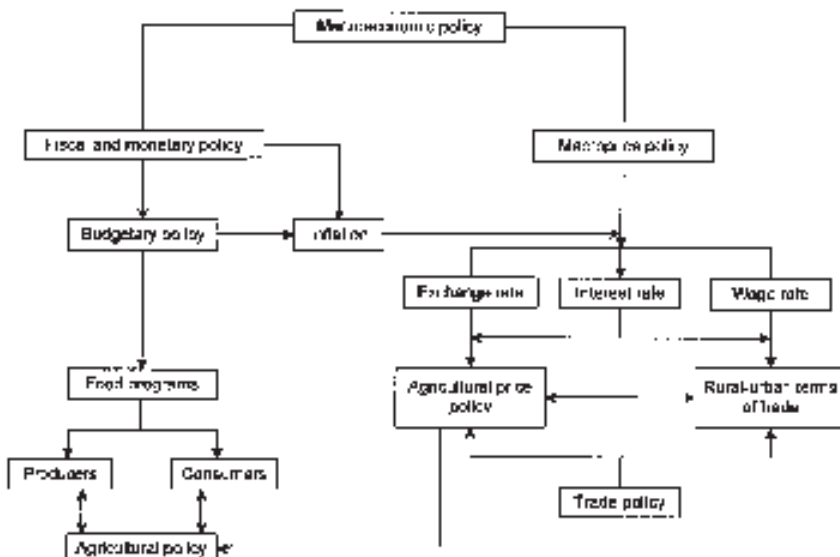


Figure 18-2. Major connections between macroeconomic policy and food policy. (Source: Based on Fig. 5-1 in C. Peter Timmer, Walter P. Falcon, and Scott R. Pearson, *Food Policy Analysis* (Baltimore: Johns Hopkins University Press, 1983), p. 223.)

developing countries raise large proportions of their tax revenues from export taxes, import tariffs, and sales taxes, as these taxes tend to be easier to collect than others.

Because agriculture is usually the largest sector in the economy in developing countries, it generally provides more revenue to the government than it receives in return in the form of government programs. However, there are usually substantial budget allocations to the agricultural sector. Programs for producers include items such as irrigation systems, roads, agricultural research and extension, market information, and certain output or input subsidies. Programs for consumers include items such as targeted and non-targeted food price subsidies. Many of the investments in agricultural research and extension, irrigation, roads, etc., also benefit consumers.

Foreign aid can ease some of these revenue needs, as discussed Chapter 19. A few countries have petroleum and other mineral resources that they can export so that foreign consumers help provide revenues for government spending. However, given the limitations to raising taxes, obtaining foreign aid, or exporting petroleum or minerals, most developing countries incur budget deficits. They meet these deficits by borrowing, often from abroad, or by increasing the money supply (that is, by printing more money).

Currently, several developing countries are heavily burdened by debts incurred through previous borrowing abroad. This debt problem, its causes, effects, and potential solutions to it, are discussed later in the chapter. The debt incurred in previous borrowing constrains the ability of many countries to take on additional debt. Consequently, domestic money supply and budget finance policies become that much more important. The size of the money supply must match the needs for operating capital in the productive sectors of the economy. However, when a country prints money to finance a large budget deficit, inflation is the usual result (see Box 18-1).

Inflation can be linked to increases in particular prices; for example, if a country devalues its exchange rate so the prices of all traded goods rise, or it keeps a fixed exchange rate and sees foreign prices rise. But in such cases, the rising prices of those items translate into economy-wide inflation only if the whole money supply rises accordingly. Otherwise, the prices of other things would fall, and only relative prices would change.

Whatever its source, inflation does not usually imply a change in all prices by the same amount, and so it creates some winners and some losers. Indeed, it often hurts agriculture because the prices of inputs usually rise by more than the prices of farm outputs. When inflation

BOX 18-1.**EFFECT on INFLATION of a GOVERNMENT BUDGET DEFICIT FINANCED by EXPANDING the MONEY SUPPLY**

Inflation is a sustained rise in the general price level for a country's goods and services. It is usually measured by a price index. The following example illustrates why expansion of the money supply to finance government budget deficits creates inflation. The aggregate supply of goods and services produced must equal the aggregate demand from total expenditures or, $Y = P \times Q = C + I + G + X - M$, where:

Y = monetary value of national output or income

P = price index for all goods and services produced

Q = quantity index for all goods and services produced

C = national consumption expenditures in private sector

I = national investment expenditures in private sector

G = government expenditures on consumption and investment

X = total value of exports

M = total value of imports

If government demand for goods and services (G) increases because the government prints money to pay for a budget deficit, either the quantity produced of goods and services (Q) must increase, imports (M) must increase, or prices (P) will rise. Most developing countries do not have enough idle resources to meet this demand with enough Q. Changes in imports require foreign exchange. Thus, the usual result is an increase in prices.

Source: C. Peter Timmer, Walter P. Falcon, and Scott R. Pearson, *Food Policy Analysis* (Baltimore: Johns Hopkins University Press, 1983), pp. 227–28.

occurs, the foreign exchange rate should change to reflect the reduced value of the currency. Many developing countries do not allow this adjustment to take place completely. The resulting overvalued exchange rate increases the price of agricultural exports (thus reducing export demand) and makes food imports cheaper. The resulting increased supply of agricultural products on the domestic market reduces farm product prices. The foreign exchange rate policy is just one of the macro-price policies that have significant impacts on agriculture.

Macro Prices and Agriculture

Governments use macroeconomic policies to influence inflation, provide incentives, and distribute income. Three prices — foreign exchange rates, interest rates, and wage rates — have major effects on the macro-economy and can be manipulated by the government. These *macro-prices*

are all, in fact, determined by supply and demand conditions in their respective markets, so that if the government decides to set them by fiat, conditions of excess supply or demand can result. Two of these prices, interest rates and wage rates, signal the scarcity of basic factors of production, capital and labor. Governments often are tempted to set wage rates artificially high to directly raise incomes of workers. They are tempted to set interest rates low to encourage borrowing and investment. Wages set above the free market, equilibrium value determined by supply and demand conditions will lead to excess supply of labor and, hence, unemployment. Interest rates set below equilibrium values will create excess demand for credit which will then have to be rationed. Government policy can be used to affect those macro prices indirectly by intervening to change the underlying supply and/or demand conditions. Public works projects, for example, stimulate demand for labor and could be used to raise wages.

The foreign exchange rate is relatively easy to control, and governments often do control it. Two other prices with major effects on the macro-economy, food prices and land prices, are influenced indirectly through exchange rate manipulations. These prices can also be affected directly by imposing tariffs, or by government interventions in their respective markets.

Exchange Rates An exchange rate is the number of units of one currency that it takes to buy a unit of another currency, or the price of one currency in terms of another. For many relatively developed countries, the foreign exchange rate is determined in international money markets by the supply of and demand for a country's currency. For example, there is a demand for U.S. dollars in Japan in order to pay for agricultural products imported from the United States. Similarly, there is a supply of dollars in Japan coming from the purchase of Japanese cars by U.S. consumers. The balance of payments of any country summarizes all economic transactions between it and the rest of the world. The current account, largely reflecting trade balances in goods and services, is balanced by the capital account, which reflects changes in ownership of assets between countries. A country with a trade deficit (i.e., it currently imports more than it exports), by the nature of the accounting relationship, must run a capital account surplus (i.e., it is selling more of its assets) to foreign investors. Thus, the supply of, and demand for, dollars are affected by international trade and capital flows for investment or other purposes.

These same supply and demand factors exist in developing countries, but the exchange rates in these countries frequently are set by governments rather than determined in currency markets. A developing

country may fix or “peg” the value of its currency to that of a major trading partner such as the United States. For example, Honduras for many years fixed its currency, the Lempira, to the dollar at a rate of 2 Lempira equals 1 dollar. The Lempira then followed the fate of the dollar in foreign exchange markets. It declined in value when the dollar declined against third countries, and rose when the dollar rose.

A government can set a new official exchange rate to raise or lower the value of its currency. For example, Honduras eventually devalued its currency relative to the dollar and set it at a ratio of 4 to 1. This devaluation made imports into Honduras more expensive and its exports cheaper. In recent years, countries as diverse as Thailand, Indonesia, South Korea, Russia, Brazil, Argentina, and Turkey have used pegged exchange rates, at least for a period of time. In some cases, such as Ecuador, the country has even done away with its currency and just used the dollar in its place. In other cases, countries have used what is called a crawling or soft peg where the currency is allowed to shift gradually over time or move within a pre-specified range with respect to another currency.

Many countries overvalue their exchange rates for long periods of time. Overvalued exchange rates usually result from differences in inflation rates between a country and its major trading partners. Domestic inflation in the presence of fixed exchange rates means that imports seem cheaper relative to domestically produced goods. At the same time, exports from the country become more expensive abroad. But the market for foreign exchange in the country will not balance unless capital flows in; thus the value of the currency is driven up. Any policy that creates inflationary pressures, such as government budget deficits or expansion of the money supply, will, when combined with fixed exchange rates, lead to overvaluation. Countries maintain over-valued exchange rates by controlling the movement of foreign exchange and foreign investment (see Box 18-2).

Countries overvalue exchange rates in part to keep domestic prices down. More imports and fewer exports mean more goods in the domestic market. The greater the domestic supply of goods relative to demand, the lower the price. The result of an overvaluation is that the prices of traded goods produced in the country, such as many agricultural goods, are depressed relative to those of non-traded goods and services. Thus rural incomes tend to be lowered compared to urban incomes.

Devaluation can correct the problem, at least temporarily, but unless fiscal and monetary policies are changed to reduce either government expenditures or aggregate demand, inflation will rather quickly

BOX 18-2.**HOW a GOVERNMENT MAINTAINS
an OVERVALUED EXCHANGE RATE**

Since supply and demand factors determine exchange rates, if a government wishes to fix the official rate at a level other than its equilibrium, then it must intervene in the foreign exchange market. It can support an overvalued rate by selling foreign exchange reserves (dollars or some other currency) and purchasing its own currency, thus supporting its value. Overvaluation thus diminishes foreign reserves and cannot be sustained for long periods of time. In the absence of significant reserves, a government can restrict access to foreign currency at the official rate, and thus effectively ration the commodity (foreign exchange) for which excess demand exists. This rationing is usually implemented by imposing direct currency controls, by controlled allocations of foreign exchange to preferred importers, and by tariffs and other barriers to imports.

result in a reoccurrence of the overvalued exchange rate. Devaluation can also cause hardship on those who produce non-tradable goods and services and consume tradable goods; for example, civil servants and certain groups of factory workers. Food prices generally rise in response to currency devaluation, helping farmers and hurting urban consumers. Policies are often needed to protect the welfare of the very poor when a devaluation occurs, especially if the currency has been allowed to become substantially overvalued and a large adjustment is needed.

Over time, countries that are open to international capital flows have found that either a fixed exchange rate or a flexible exchange rate that is allowed to float against other currencies is more sustainable than an exchange rate that is managed by the government so it adjusts gradually. Countries with a history of sharp monetary instability or that are closely tied in trade and capital flows to another country, seem to be the ones who choose the fixed rate system.

Interest Rates The price of capital investment is represented by the interest rate. The interest rate reflects, in part, the productivity of capital or the opportunity cost of using capital for one purpose rather than another. Interest rates also reflect risk and the value of current as opposed to future consumption. Interest rates are determined by the interaction of the supply of investment funds, basically household savings, and the demand for these funds.

Governments can influence interest rates by setting them for public credit sources and by imposing regulations such as reserve requirements on private financial sources. In addition, the method by which

the government finances a fiscal deficit affects interest rates. If a deficit is financed by domestic borrowing, then interest rates may rise in response to the increased demand for funds. The alternative means of financing deficits is to print money, a policy which is inflationary. Thus, higher interest rates in the presence of budget deficits can help keep inflation down. Macroeconomic policy with respect to interest rates often represents an attempt to balance the value of capital in increasing production with the valuation of future, relative to current, consumption.

Governments may set a maximum interest rate that can be charged by lenders in the country. If the rate is set too low, excess demand for credit is created because demand for credit will exceed its supply. Under these circumstances, credit has to be rationed to borrowers who are fortunate to have access to the funds, and private lenders will have incentives not to lend or to circumvent the regulations. Formal lending institutions may be forced out of business. Moneylenders and other informal credit sources not under the control of the government find it easier to charge higher rates.

When interest rates are controlled, they may even be set below the inflation rate. When this happens, the real interest rate is, in fact, negative.² Negative real interest rates create credit crises since they spur demand for borrowing far above the supply of savings. Even less extreme interventions can have negative effects, however, as they encourage use of government credit for those who can obtain it and drive out private credit institutions.

Wage Rates The primary source of income for most people in the world is returns to their labor. Hence creating jobs at decent wages is essential to reductions in poverty and hunger. Governments recognize the importance of labor remuneration and often set minimum wages in an attempt to raise people out of poverty. Unfortunately, in low-income countries where most people are self-employed, minimum-wage legislation is a relatively impotent tool for raising returns to labor and can have unintended effects that hurt labor.

Labor markets are complex because they are segmented by skill levels, occupations, and locations. In rural areas, labor arrangements may include payment in kind (e.g., food or other goods), may involve conditional access to a piece of land, or may depend on other special relationships between employers and workers that are determined by local customs or institutions. Wages for unskilled workers in these areas may be close to the average product of labor rather than the mar-

² The real interest rate is equal to the nominal interest rate minus the rate of inflation.

ginal product (Chapter 6). This level in turn is close to a basic subsistence level. Minimum-wage legislation is virtually unenforceable in rural areas in developing countries.

In urban areas, minimum wage legislation has been successful in large industries and government organizations. People who are able to obtain jobs at or above the minimum wage clearly benefit. Unfortunately, by raising the price of labor, minimum wage legislation reduces the demand for labor by these industries and organizations. Thus unemployment (or excess supply of labor) may result in the short run. In the long run, the industries may adapt more capital-intensive technologies, further displacing labor, or close their doors and move to a country with lower and more flexible wages. The possibility of higher wages in the formal sector may attract more migrants to the urban area, even if jobs are scarce. This influx of migrants will also swell the informal sector. Consequently, minimum-wage legislation in the formal sector may, over time, depress wages in the informal sector. In summary, wages are an important macro-price, especially to the poor, but governments have little ability to raise people out of poverty by legislating wage levels.

Prices of Agricultural Products and Land. Agricultural prices are influenced by government interventions in output and input markets, as discussed in Chapters 15 and 16. Price supports, input subsidies, export taxes, and so on, directly influence the terms of trade between the agricultural and nonagricultural sectors. Fiscal and monetary policies and macro-prices, however, usually have even larger effects on the terms of trade between the sectors than do the more direct price policies. For example, the agricultural sector produces a high proportion of tradable commodities. Thus, an overvalued exchange rate that encourages imports and discourages exports typically has a strong negative effect on the agricultural sector.

When macro-policies and prices discriminate against the agricultural sector so that agricultural prices are depressed, downward pressures are placed on land prices as well. Incentives are reduced for improving the land base or for developing technologies to utilize land more efficiently.

In summary, macro-prices reflect basic economic conditions in an economy. Unless agricultural productivity is increased, simply distorting these prices through government policies is likely to hinder the development process and create distributional effects that hurt the rural poor.

WHY GOVERNMENTS PURSUE PARTICULAR MACROECONOMIC POLICIES

Why do governments in developing countries often follow macroeconomic policies that discriminate against rural producers in favor of urban consumers? Why do they sometimes change course and introduce structural adjustment programs that may partially reverse this discrimination? Political leadership and individual personalities play an important role; at the simplest level, governments follow policies that respond to the balance of political power within their countries. They distribute income in particular ways to help certain sectors, to correct past problems such as external debts, to reduce inflation, and to react to changing world conditions. Because food is a wage good (i.e., food is a high proportion of consumer budgets in developing countries), the interests of urban consumers coincide with owners of industrial firms. Consumers view lower-priced food as higher real wages, while industrialists see it as serving to decrease upward pressure on nominal wages. Thus, an overvalued exchange rate, for example, is a tempting quick fix for stimulating industrial growth, distributing income toward politically influential urban consumers and industrialists, and reducing inflationary pressures.

The growth stimulus of macroeconomic intervention is often short-lived. Discrimination against agriculture reduces agricultural growth and investment and foreign exchange earnings from agricultural exports. A severely over-valued exchange rate can turn a food exporter into a food importer. Rural opposition to the macro-policies increases over time, inflation worsens due to higher food prices, and unemployment grows. Then, because pressures from urban groups continue, governments may subsidize agricultural inputs, raise output prices through subsidized market margins for food staples, and undertake other measures to reduce prices to consumers. In other words, they pursue partially offsetting policies. Governments institute such complex policies due to political expediency. Urban consumers and industrialists are potent pressure groups that demand low food prices and relatively more public goods for urban compared to rural areas.

Transactions Costs and Collective Action

Both macroeconomic interventions and sectoral policies provide benefits to politically-favored groups. Individuals may belong to several different groups, and may be simultaneously helped and harmed by different policies. The net benefit obtained from policy, often called political rents, is rarely clear. Macro-policy interventions are particularly difficult to observe. Thus, governments may provide direct

subsidies to agricultural producers that are more than offset by overvalued exchange rates and still appear to be helping farmers. Food prices are kept low in urban areas, at least in the short run, and urban industrialists and civil servants, with better information than most farmers, press for the continuation of exchange rate distortions and other forms of protection that benefit the urban sector.

Rural and urban households can form coalitions and lobby collectively for their interests. The policy preferences of politicians and other government officials are affected by the relative strength of these rural and urban lobby groups. The urban lobby is often quite strong because it may represent a coalition of households, students, civil servants, military factions, labor unions, and industrialists.

It is not the sheer size of the urban lobby that gives it power to influence policy. The rural lobby is even larger in many developing countries. However, the urban lobby is much more concentrated geographically, and this concentration facilitates its ability to organize. Students are concentrated near universities, civil servants in government offices, and labor unions and industrialists in a relatively small, concentrated formal sector. The military is highly organized. If people decide to protest rising food prices, the costs of organizing and coming together for this purpose are relatively small in the urban sector.

Because the urban lobby is made up of several relatively small but homogeneous groups, members of these groups see the benefits of organizing collectively to press for their interests. Rural interest groups, particularly small-scale farmers, are so dispersed that individual members often see few benefits to themselves. Communication is difficult so that even if collective benefits are perceived, the costs of organization and action are prohibitively high. Ironically, as development proceeds and the agricultural sector declines in relative and absolute size, its ability to organize and lobby often increases. Also, the cost to the government of subsidizing a small agricultural sector is lower than a larger sector. Therefore, once a country is relatively well-developed, it usually reduces its discrimination against agriculture.

Sometimes government policies are motivated by corruption among politicians and other officials. Policy distortion creates gains for certain groups, and some of these gains are appropriated by individuals in public service as payment for instituting the policies.

Historical Factors, Structural Adjustment, and External Forces

A government at any particular point in time is constrained by the accumulated effects of past policy choices, interacting with worldwide

economic conditions. One of the most dramatic examples of history colliding with external forces involves government debt. It is natural for developing countries to go into debt to some degree, but at the start of the 1980s, there was a simultaneous increase in international real interest rates and decline in world commodity prices that sharply increased the difficulty of repayment. Many countries, particularly in Latin America and in Africa, had no choice but to devalue their currencies and cut consumption expenditures in an effort to generate more foreign exchange. Similarly painful “structural adjustment” programs were forced on other countries in the 1990s, when their sources of capital suddenly disappeared. The term *structural adjustment* is often associated with policies aimed at repaying government debt, usually foreign debt. This adjustment typically involves a devaluation of the foreign exchange rate to increase exports and reduce imports, a reduction in government spending and increase in tax collection, sale of government assets and the removal of restrictions on economic activity. The devaluation, privatization, and various types of liberalization may be needed because external debts cannot be reduced without earning or saving foreign exchange. Reduced government spending and increased efficiency in tax collection can bring spending more in line with revenues. The removal of policy distortions is needed to stimulate economic growth, although growth effects may take several years.

Some policy changes are made necessary by changing world economic conditions. A recession in the industrialized countries, for example, can reduce the demand for products from developing countries. High interest rates elsewhere in the world can exacerbate debt problems for developing countries. A shock to the oil market can strain exchange reserves for countries without petroleum. Consequently, some policy changes are necessitated just to react to these external forces. In the next section we examine how these world macroeconomic linkages occur and how they affect developing countries.

WORLD MACROECONOMIC RELATIONSHIPS³

Starting from the end of World War II when there was virtually no international capital market, the international monetary system has grown to the point that transfers of capital between countries dwarf the values of international trade in goods. Capital flows ensure a close link

³ Parts of this section draw on and update material from G. Edward Schuh, “The Changing Context of Food and Agricultural Development Policy,” in J. Price Gittinger, Joanne Leslie, and Caroline Hoisington, eds., *Food Policy: Integrating Supply, Distribution, and Consumption* (Baltimore: Johns Hopkins University Press, 1987), pp. 78–87.

between interest rates and exchange rates across countries, and heavily influence countries' trade and their fiscal and monetary policy options.

A major change in the structure of the international economy was the shift beginning in 1973 from a system of fixed exchange rates to one of bloc-floating exchange rates. With the fixed system, currencies around the world were fixed for long periods of time against the dollar.⁴ With the bloc-floating system, the values of major currencies are allowed to change rapidly against each other in response to market conditions. Some developing-country currencies, however, remain fixed to the major floating currencies such as the U.S. dollar.

Implications of Well-Integrated Capital Markets and Bloc-Floating Exchange Rates

A well-integrated international capital market and bloc-floating exchange rates mean that interest rates, capital movements, exchange rates, and trade are interconnected. They mean that fiscal and monetary policies in each country are tied into a single global macro-economy, with a common core rate of inflation and interest rates. For example, when the United States issues bonds at higher interest rates to pay for a government budget deficit, the capital to buy those bonds comes from a wide range of foreign as well as domestic sources. This foreign purchase of U.S. bonds increases the demand for dollars, driving up the value of the dollar. It also reduces the capital available for other purposes, raising worldwide interest rates. The higher interest rate makes it harder for developing countries to pay off their remaining foreign debt, forcing them to reduce consumption more than they otherwise would.⁵

The higher value of the dollar also makes U.S. exports more expensive abroad and encourages imports into the United States. Developing countries with currencies that are tied to the dollar will also find

⁴ The fixed exchange-rate system had been established at the Bretton-Woods Conference in 1944. Trade expanded rapidly under this system, but the system eventually became unworkable when certain currencies, particularly the U.S. dollar, became seriously overvalued and others, particularly the German *deutschem* and Japanese yen, became severely undervalued.

⁵ Capital flows can also keep interest rates low in some cases. For example, in 2005, China purchased many U.S. bonds even though interest rates were low, which meant that the United States did not have to raise interest rates to sell bonds to finance its budget deficit. These low rates kept the demand for home mortgages and other loans strong, stimulated the U.S. economy as people were willing to borrow and spend, and contributed to a bubble in the housing market. That bubble subsequently burst and the housing market collapsed with major recessionary implications.

it harder to export and easier to import. Then, tradable goods sectors, such as agriculture, in those countries suffer from downward pressure on prices.

Governments often try to partially isolate their domestic agricultural sectors from changes in international markets, but any such isolation would mean loss of gains from trade and from access to foreign capital to facilitate development. Consequently, developing countries usually choose to absorb a certain amount of instability in interest rates, exchange rates, etc., caused by world macroeconomic forces in order to benefit from international goods and capital markets. These countries however, may need to: (1) protect the poorest of the poor through targeted food subsidies or other means of ensuring basic food security and (2) take full advantage of international schemes aimed at stabilizing foreign exchange such as the compensatory finance arrangements discussed in Chapter 17. The IMF does play a role in trying to help stabilize LDC economies during times of financial crises. In a sense, the IMF is the closest thing the world has to an international central bank. However, the relatively small resource base of that institution, and lack of explicit mandate, keeps its role circumscribed as discussed below.

Changes in International Comparative and Competitive Advantage

Comparative advantage increasingly is less influenced by physical resource endowments and more by human capital endowments. Government spending on education and agricultural research and the rapid international diffusion of certain technologies, particularly biotechnology, has the potential to influence human capital accumulation in many developing countries by improving education, nutrition, and incomes. These changes may eventually lead to restructured trade patterns.

Government macroeconomic and sectoral protectionist policies, however, can suppress underlying comparative advantage and distort a national economy away from what the physical and human resource base would seem to dictate. As exchange rates swing, so too does competitive advantage, in directions discussed previously. For example, a long decline in the value of the U.S. dollar can mislead U.S. producers and producers in other countries about their long-term ability to compete. A sustained rise in the value of the dollar can send opposite but still misleading signals. These movements can be induced by U.S. and foreign government macroeconomic policies that do not reflect any changes in fundamental comparative advantage.



The poorest of the poor may need to be protected by targeted food subsidies during structural adjustment.

The External Debt Problem: Causes, Effects, and Potential Solutions

It is natural for the governments of developing countries to borrow to finance productive investment. As long as a country has investment opportunities in the public or private sector that yield returns comfortably above the cost of funds in the world market, then such investments should be made even if external borrowing is required. The country will grow more rapidly and can export to repay the loan in the future. A country may also borrow at times to finance consumption, a policy that would be appropriate, for example, if a natural disaster or a short-run economic shock, such as a sharp oil-price change, makes it reasonable to sustain consumption even though current income is lower.

Borrowing is imprudent, however, when the debt is increased to cover longer-run consumption, questionable investments, large government deficits, or capital flight out of the country.⁶ Imprudent, large-scale borrowing by the government occurred in many developing countries during the 1970s, particularly in Latin America and Sub-Saharan

⁶ Capital flight occurs when capital leaves a country due to perceived risk at home. Capital flight, however, is difficult to distinguish from normal capital flows. It often occurs when the government borrows foreign exchange and makes it available to residents at a subsidized price. People acquire this foreign exchange, if they can, and move it to banks or other investments abroad.

Africa. The result was a *debt crisis* that began in the early 1980s and has only slowly receded over the past three decades. When a country has a debt crisis, it lacks foreign exchange to make payment of interest and principal on its loans.

Causes of the Debt Crisis. When a country makes more payments to the rest of the world than it receives in payments, it has a *current account deficit* (see Box 18-3). It has to sell off assets or borrow to finance the deficit. Developing countries began running abnormally large current account deficits beginning in 1973 when the price of oil skyrocketed. During the 1970s, commercial banks received a flood of dollars from the oil-producing countries. The banks loaned these dollars to developing countries to finance their current account deficits. Several Latin American and Asian countries seemed to be good risks because they had grown rapidly for several years. In Africa, growth had, for the most part, not occurred, but countries there borrowed from official sources such as the World Bank for development purposes.

By 1980, many developing countries were heavily in debt, which became suddenly much harder to repay when worldwide interest rates rose sharply due to tight monetary policy in the United States and Britain. Many of the commercial loans to developing countries had been made at adjustable interest rates, and borrowers found it hard enough to pay interest let alone repay principal.

Repayment of debt became even harder when a world recession struck, depressing demands for LDC exports. Even the demand for oil declined, resulting in a drying up of money for new loans. The first reaction of countries seriously in debt was to refinance the loans and spread them out over a longer period of time. Several countries, however, found it difficult to service their debts (make scheduled interest and principal payments) or to acquire new funds. For Latin America, debt servicing exceeded 50 percent of the value of the region's exports during the early 1980s, and much of the debt was owed on short-term loans at variable interest rates that were rising.

The first of the large debtors to announce it could no longer service its debts was Mexico in 1982. Mexico was a net oil exporter, but it had borrowed heavily against anticipated future oil revenues. These oil revenues declined with the worldwide recession, and Mexico was left with a debt of more than \$80 billion with few exports to make repayments. Banks and the U.S. government provided Mexico with new loans to forestall the repayment problem, but it was then clear that the world community had a major financial crisis on its hands that would have to be addressed. As Mexico renegotiated its loans, the crisis hit

BOX 18-3.
CURRENT ACCOUNT DEFICIT

The current account deficit represents the excess of spending on imports and interest payments on the external debt over export revenues. In other words, it equals the trade deficit plus interest payments. The current account deficit in a particular year also represents the increase in the net debt for a country. Unless the trade surplus is large enough, the mere existence of an external debt means that interest on that debt will cause the debt to keep growing.

other countries as well. By 1986, more than 40 countries in Latin America, Africa, and elsewhere had encountered severe financial problems. Except for the Philippines, countries in Asia largely escaped severe debt problems.

Comparisons of the external debt situation between 1970 and 2006 for low income, middle-income, and several individual countries are presented in Table 18-1. For developing countries, external debts as a percent of GNP were two to three times as great in 1990 as they were in 1970–1975. By 1989, developing countries owed more than \$1.3 trillion. Debt service was running more than \$100 billion per year. Twelve of the 17 countries identified by the World Bank as heavily indebted were in Latin America and the Caribbean. Africa's debt of more than \$110 billion was three times the value of all its annual exports. Cote d'Ivoire provides an example of the severity of the debt problem: with a population of 11.7 million in 1989, it owed \$15.4 billion or \$1300 per citizen in a country with an annual per capita income of \$790. Forty-one percent of the country's export receipts were needed just to service the debt.

Since the early 1990s there have been gradual debt reductions in several countries, especially middle income countries, but many other countries have continued to experience high debt levels. Some attempts have been made to forgive debts of several of the most highly-indebted, least-developed counties, but debt problems have proven persistent. In addition, a number of Latin American and East Asian countries experienced other short term financial crises in the 1990s, as discussed below.

Effects of the Debt Crisis. When a country attempts to reduce its external debt, domestic consumption must be cut to free up resources to produce goods that can be exported to earn foreign currency for debt service. Reductions in import demand are needed to save foreign exchange. Not all of the reduced spending affects traded goods. Some of

**TABLE 18-1. INDICATORS OF EXTERNAL DEBT
for DEVELOPING COUNTRIES**

Country or country group	Total external debt as a percent of gross national income				
	1970-1975	1980	1990	2000	2006
Low income	10.2	16.4	41	56.3	31.6
Middle income	18.6	31.9	39.9	36.5	25.2
Argentina	20.1	48.4	61.7	56	58.6
Brazil	16.3	31.2	25.1	39	18.7
Morocco	18.6	53.3	97.1	49	28.7
Philippines	20.7	53.8	69.3	64	47.1

Source: World Bank, *World Development Indicators Online Database*.

it falls on non-traded goods and services when labor and capital shift to the production of traded goods for export.

Within the country, prices of traded goods must rise relative to wages and other prices to encourage the production of traded goods and to discourage domestic consumption. Exchange rate devaluation is the typical means of bringing about these adjustments in relative prices. Devaluation, however, takes time to have the desired effect. Thus, policymakers typically find ways to reduce their imports in the short term by means such as imposing tariffs or import quotas. Because some of the imports are raw materials or producer inputs, economic growth often is slowed as well.

Spending cuts and devaluations are painful since they inherently involve reductions in real income for the country. The cuts usually include reductions in basic social services that help the poor. The devaluations effectively cut real wages. As the currency is devalued, the country has to give up more in terms of domestic resources to earn each unit of foreign currency. The country is essentially selling its labor and other resources more cheaply on world markets.

Many developing countries had overvalued exchange rates prior to the debt crisis; thus adjustments were needed irrespective of the crisis. The devaluations raised the prices of many agricultural exportables and importables, thus helping the farm sector. However, the resulting higher food prices hurt the poor particularly. The magnitude of this debt-induced hurt is difficult to judge, because several of these countries would have had to adjust their economies even without the debt crisis. But there is little doubt that the poor in developing countries have shouldered a large burden in adjusting to the crisis.

Cuts in government spending have also induced recessions that reduced government revenues. When countries can no longer borrow enough abroad to meet shortfalls, they often print money. Printing money usually increases inflation. Devaluation and import restrictions contribute to these inflationary tendencies. They also hurt markets for U.S. farm products.

At the time the debt crisis first hit, there was a major concern over the impending peril to the world financial system. The fear was that such countries as Mexico, Brazil, and Argentina would default on their loans, causing large commercial banks to go bankrupt. The threat to the banking community eventually receded, as threatened banks reduced their outstanding claims on developing countries, and increased the revenues they set aside to guard against disruptions in debt service.

The threat to the poor in developing countries, however, has only receded slowly, and in many countries not at all. In parts of Latin America and the Caribbean, real wages have gradually increased but not in all countries. In Sub-Saharan Africa, per-capita incomes have continued to stagnate. Governments in many developing countries have cut their education and health budgets. Not all of these declines were due to debt problems, but many were. The rise in poverty and the reduction in social services have led to increased hunger and malnutrition in some countries. Environmental problems have increased as well, as countries exploit resources to meet current food and foreign exchange needs.

Solutions to Debt Problems. External debt problems of developing countries impose costs on both debtors and creditors. One potential solution is for developing countries to default on the loans. Total default would have the advantage of relieving pressures to cut government spending and to export more to service the debt. The disadvantages are that the creditors could seize debtor's overseas assets, and creditors might seize payments to firms that attempt to export to the debtor and payments made by firms that attempt to import from it. Thus, the country would lose some potential gains from trade. In addition, the country would be less able to borrow again for several years. This combination of disadvantages has meant that few countries have totally defaulted on their loans, although some countries have stopped payments or made only partial payments for a period of time (e.g., Peru, Brazil).

When considering solutions to debt problems, it is important to separate the two different groups of countries whose governments have large debt problems. One group consists primarily of low-income,

mostly African countries that owe money largely to governments or to multilateral lending agencies. The second group is composed of the heavily indebted countries, primarily in Latin America, that owe money mainly to commercial banks.

Both groups have high levels of debt, but otherwise their circumstances are different. The low-income African countries possess limited domestic resources such as oil or minerals, do not own much abroad, have had slow income growth for reasons primarily unrelated to debt, and have continued to receive new loans in excess of debt service. The countries that owe most of their debts to commercial banks, by contrast, own more resources (for example, Mexico, Venezuela, Nigeria, and Ecuador have oil reserves), have a great deal of wealth abroad in many cases, and have had economic growth rates substantially reduced by their debt.

Because the lowest-income debtors owe mostly to governments, the creditor countries can mandate debt relief or restructuring without interfering in private international capital markets. Creditors can respond to the debt crisis in ways consistent with their humanitarian beliefs or, more likely, their overall foreign policy objectives. Low-income debtor countries can turn to the Paris Club for help in resolving debt issues (see Box 18-4). Because many loans to African countries are at below-market interest rates (subsidized), rescheduling these loans by extending the repayment period can significantly reduce the burden to the debtor. Recently, partial debt forgiveness for some of the poorest countries has occurred and more has been pledged. The Enhanced Heavily Indebted Poor Country (HIPC) debt relief initiative, established by the World Bank and IMF in 1996, reduced debt for 28 HIPCs, and the Multilateral Debt Relief Initiative (MDRI) agreed to by G-8 countries in 2005 provided additional debt relief to more HIPCs.

The solutions to debt problems for the heavily-indebted countries that have primarily commercial debts are different from those for the HIPCs, because whatever solution is arrived at must operate within the context of international capital markets that include commercial banks. Any solution will affect the distribution of the debt burden among debtors, private creditors, and the public in creditor countries.

Several potential solutions to the commercial debt problem have been proposed and some partially implemented. Most proposals involve a combination of debt rescheduling and restructuring of economic policies within the debtor nations. Other proposals include debt-for-equity swaps, cash buybacks of debt, and debt-for-conservation swaps. Debt rescheduling involves extending the repayment period for the loans, altering interest rates, forgiving part of the principal, or some

**BOX 18-4.
THE PARIS CLUB**

The Paris Club is a forum for negotiations on countries' debts to government creditors. The Club, formed in 1956 in response to Argentine debt difficulties, has no set membership. The participants in any Paris Club negotiation are the debtor government and its creditors, who traditionally meet under the chairmanship of a senior French treasury official.

All creditors are treated equally in Paris Club rescheduling negotiations. Debtor countries approaching the Paris Club are usually required to conclude an agreement with the IMF for an IMF loan and an IMF-approved program for restructuring economic policies. An example of IMF conditions for a structural adjustment program would be reductions in government spending and fewer restrictions on exports.

Source: P. Krugman and M. Obstfeld, *International Economics* (Cambridge: Massachusetts Institute of Technology Press, 1988), p. 596.

combination of the three. Efforts to restructure economic policies involve reducing exchange rates to discourage imports and to encourage exports, cutting government spending, and otherwise liberalizing the economy through reduced government intervention in markets and marketing.

Most countries' debt sells at a discount on a secondary market in which the debt can be shifted from bank to bank or to other institutions. The debt sells at a discount because creditors believe they will not be repaid in full. For example, each dollar of Peru's debt sold for about 5 cents on the secondary market in 1991. Debtor countries can sometimes buy back part of their debt with cash or by swapping government-owned assets (such as stock in publicly owned companies). Buying back the debt seems to make sense because the value of the debt on the secondary market is only a fraction of the face value of the loan. There have been few buybacks and swaps, however, because countries lack the cash, are uneasy about foreign ownership of their assets, and the secondary value goes up when they attempt to buy back the debt. In a few cases, for example in Costa Rica, outside groups bought up and eliminated part of the debt in exchange for government assurances of protecting rainforests or other natural resources. This type of activity is called a debt-for-conservation (nature) swap.

Rescheduling debts over a longer period of time at a fixed but below market interest rate would eventually solve the debt problem because countries could grow out of their debt. However, no single bank has an incentive to act alone. Debt reduction, like domestic bankruptcy,

needs an institutional setting to bring it about. Even when it is in the collective interests of the banks to reduce the debt, each bank has an incentive to insist on full payment of its own loans. If one bank does grant a concession to lower the interest rate or principal, it becomes more likely that other banks will collect their loans. Hence each bank waits around for other banks to voluntarily reduce the interest rate or principal owed so they can get a “free ride.” This free-rider problem exists for debt-equity swaps, cash buybacks, and other proposed solutions as well.

Third, developed countries have been reluctant to play too large a role in debt relief for fear of large budget expenditures. While there are strong humanitarian grounds for debt relief through Paris Club negotiations for the poorest countries, the arguments carry less weight for debt relief in Latin America if that relief comes at the expense of foreign assistance to even poorer countries in Africa and Asia. Therefore the world continues to muddle along with only gradual debt reduction.

Regardless of the method used to reduce the debts, it would be enhanced by lowering trade barriers to developing country exports. These barriers make it difficult for the countries to acquire foreign exchange for debt service. For this reason, the WTO negotiations may have a role to play in solving the debt problem.

Financial Crises in Latin America and Asia

In the 1990s, a series of shorter-run financial crises occurred in Latin America (1994–95), East Asia (1997), Russia (1998), and Brazil (1998–99). The impacts of the crises spread to other countries and regions. There were some similarities among the crises. In most cases there were increased private capital flows into the countries shortly before the crises, including both bank lending and private investments. The IMF gradually relaxed its rules on capital flows and encouraged capital movements in the 1990s. Real exchange rates generally had appreciated as well, especially in Mexico and Thailand. When investors became nervous, they pulled their money out and the governments were forced to let their currencies depreciate. Problems worsened when neighboring countries were forced to depreciate their currencies because investors as well as investors pulled out their money. As capital dried up in the affected countries, investment stalled and the countries went into deep recessions. In some cases the countries had problems with deficit spending or inflation before these crises, but in many cases did not.

The crises demonstrated that completely deregulated capital flows carry both benefits and costs. Advantages to the borrowers include resources to finance investments with high social returns

and to compensate for balance of payments problems and recessions. The disadvantages are that foreign investors might pull their money out quickly, thereby destabilizing the economy. Also, the money may go toward projects that are too risky if the investors think that the government or the IMF will bail them out if there is a problem. In addition, capital flows can affect the exchange rate. If capital suddenly starts to flow out, the government must choose between higher interest rates or depreciation of the exchange rate.⁷

Governments can reduce the chances of financial crises by stronger regulation of domestic banking and financial institutions, and improving information flows with respect to economic and financial conditions. The IMF can assist by helping devise solutions in times of crisis while providing some financial assistance when private funds are not available. The IMF must be sophisticated in its ability to distinguish between countries that are being fiscally irresponsible from those that are financially sound but are suffering sudden capital outflows due to temporary regional or global events.

Governments can not simultaneously fix the value of the exchange rate and use macroeconomic policy tools to offset economic problems if capital is allowed to flow in or out of the country freely. Therefore some countries choose to have a flexible exchange rate with relatively free capital flows and attempt to manage their macroeconomic policies. Others choose to fix their exchange rates and institute some controls on capital flows to minimize the danger of financial crises. This combination allows them to manage their macroeconomic policies. A third group of countries decide to fix their exchange rates, allow free capital flows, but give up the ability to influence their macro-economies. The latter countries are usually small ones with major trading partners to which they tie their currency. They also want to encourage strong foreign capital investment, and therefore do not want to institute capital controls.

Lessons from the Global Financial Crisis

In 2008-09, a financial crisis in developed countries, led by rapid depreciation in housing assets as a result of poor lending practices and lax financial regulation in the United States, spurred a deep global recession. Due to integration of product and capital markets, the effects were felt throughout the world, including poor countries. Trade flows were reduced, capital became scarce, unemployment was up, and more

⁷ Joseph Joyce, "The IMF and Global Financial Crises," *Challenge*, July-August 2000, p. 98.

people slipped below the poverty line. The recession hit the poor doubly hard, as many were experiencing the effects of the food price crisis discussed in Chapters 1 and 3. One lesson for developed countries was the need to tighten regulations not only in the banking sector but in the insurance sector that contributed much to the crisis. A second lesson is the need for central banks such as the U.S. Federal Reserve to pay greater attention to asset bubbles as they occur. One lesson for developing countries is the need to institute more safety nets for the poor that can be deployed immediately when global conditions turn sour due to market disruptions outside their control.

SUMMARY

Macroeconomic policies have a strong influence on prices, on marketing margins, and hence on incentives for economic agents. A macroeconomy can be described in terms of aggregate demand, supply, or income. Policies in developing countries are frequently aimed at the supply side of the economy. Both fiscal and monetary policies influence inflation. Developing countries often go into debt because of many pressing needs and limited tax revenues.

Governments use foreign exchange rates, interest rates, and wage rates to influence trade, investment, and incomes. Many developing countries over-value their exchange rates, a policy that discourages exports and encourages imports. They often subsidize interest rates and set minimum wages for the urban formal sector. Agricultural and land prices are influenced by macroeconomic policies.

Governments pursue particular macroeconomic policies to stimulate economic growth, distribute income, correct debt problems, lower inflation, and so on. Policies are influenced to a large extent by urban lobbies. Forces external to the country also come into play. Well-integrated capital markets and bloc-floating exchange rates tie economic policies of developing to developed countries.

While it is natural for governments in developing countries to borrow to finance investment, massive borrowing during the 1970s, followed by high interest rates and tight money in the early 1980s, led to a severe debt crisis. Many of the loans in Latin America were from commercial banks, and many of the loans in Sub-Saharan Africa were from official sources. Countries were forced to adjust their economies by exporting more, importing less, and reducing government spending in order to pay off debts. Attempted solutions to the debt crisis have been slow to reduce LDC debts. Much of the burden of adjustment continues to fall on the developing countries themselves. Structural adjustment

programs often hurt the poor in the short run, suggesting a need for safety-net programs and increased debt forgiveness.

In recent years, several developing countries have experienced short-run financial crises in which private capital has flowed out rapidly, causing severe economic downturns. Capital controls are a possible remedy for capital outflows, but come at the cost of reduced foreign investment. Some countries with flexible exchange rates choose to allow free capital flows, but then attempt to manage their macro-policies to offset the dangers of the sudden capital flows.

IMPORTANT TERMS AND CONCEPTS

Balance of payments	Fiscal policy
Bloc-floating exchange rate	Free rider
Capital flight	International capital market
Cash buybacks	Macro-prices
Current account deficit	Minimum wage
Debt crisis	Monetary policy
Debt-for-conservation swaps	Money supply
Debt-for-equity swaps	Paris Club
Debt relief	Secondary market
Debt rescheduling	Structural adjustment program
External debt	Urban lobby
Financial crisis	

Looking Ahead

International relations between more-developed and less-developed countries are influenced in major ways by foreign assistance programs. In the following chapter we discuss the various types of foreign assistance, motivations for the aid, and effects on the less- and more-developed countries.

QUESTIONS for DISCUSSION

- 1 What are the three ways a macro-economy can be described so as to arrive at gross domestic product (GDP)?
- 2 What do we mean by a country's "fiscal policy"?
- 3 What are the two primary monetary policies that can be used to finance a government deficit, and what are their effects?
- 4 What are the major macro-prices that governments often try to set?
- 5 Why do countries overvalue their currencies, and what is the effect of overvaluation?
- 6 What are the advantages of high versus low interest rates?

- 7 How are wage rates determined, and what are the advantages and disadvantages of minimum wage laws?
- 8 How are land prices affected by macroeconomic policies?
- 9 Why do governments pursue particular macroeconomic policies?
- 10 What is a structural adjustment program, and what are its effects?
- 11 How does a bloc-floating exchange rate system differ from a fixed exchange-rate system?
- 12 How are interest rates, capital movements, exchange rates, and trade interconnected?
- 13 How might a macroeconomic policy suppress the comparative advantage of a country in producing a particular good?
- 14 Why is it natural for developing countries to borrow from developed countries?
- 15 Describe the major causes of the debt crisis.
- 16 Why have many heavily indebted countries devalued their currencies?
- 17 Why have voluntary rescheduling of debt servicing by commercial banks not resolved the debt crisis?
- 18 What are the advantages and disadvantages of cash buybacks of debt? Of debt-for-equity swaps? Of debt-for-conservation swaps?
- 19 Why are the urban poor often hurt more by structural adjustment programs than are semi-subsistence farmers?
- 20 What are the pros and cons of a developing country defaulting entirely on its debts?
- 21 What were the causes of financial crises in Asia and Latin America in the 1990s?
- 22 Who are the HIPCs?

RECOMMENDED READINGS

- Cohen, Benjamin J., "What Ever Happened to the LDC Debt Crisis?" *Challenge*, vol. 34 (May-June 1991), pp. 47-51.
- Joyce, Joseph, "The IMF and Global Financial Crises", *Challenge*, vol. 43 (July-August 2000), pp. 88-107.
- Rogoff, Kenneth, "International Institutions for Reducing Global Financial Instability," *Journal of Economic Perspectives*, vol. 13, Fall 1999

Capital Flows, Foreign Assistance, and Food Aid

Everywhere one turns in global poverty reduction efforts, high-minded rhetoric provides tattered veneer over deficient funding.

— Jeffrey Sachs¹

THIS CHAPTER

- 1 Examines the nature of public and private capital flows to developing countries, including the rationale for and major types of foreign assistance to agriculture
- 2 Discusses the types, the objectives, and the positive and negative effects of food aid programs in less-developed countries
- 3 Identifies means for improving the effectiveness of foreign assistance

DEVELOPMENT ASSISTANCE PROGRAMS RELATED to AGRICULTURE

Flows of capital into developing countries can help overcome a shortage of capital relative to labor. Private capital flows, however, may not be sufficient to meet development needs, for several reasons. Restrictions on investments and other forms of capital flows in developing countries create risks for private investors, as do political uncertainty and long gestation periods for projects. Many key forms of infrastructure have attributes of public goods, and it is difficult to charge for use of public goods. All these factors reduce the willingness of the private sector to undertake investments and, hence, can slow the flow of capital into developing countries. The absence of sufficient incentives to

¹ Jeffrey Sachs, "A New Global Consensus on Helping the Poorest of the Poor," Annual World Bank Conference on Development Economics, 1999.

invest can also result from incomplete development of international capital institutions. Foreign development assistance (aid) is one possible solution to help reduce the resulting capital imbalance, including assistance to the agricultural sector.

Foreign aid in support of agriculture in developing countries has taken many forms, and the nature and magnitude of its effects have generated considerable debate. Multiple objectives drive all foreign aid programs, with the result that the distribution of aid among different countries often bears little relation to need as manifested by hunger, poverty, or presence of market failure. Hence, we begin this chapter by examining the rationale for foreign assistance.

Rationale for Foreign Capital Flows and Assistance

From a donor's perspective, the rationale for foreign aid in general, as well as for aid to agriculture, rests on humanitarian (moral or ethical), political (strategic), and economic (commercial) grounds.² Several variants of the humanitarian argument have been made, based on compensation for past injustices, uneven distribution of global natural resources, and a moral obligation to help the least-advantaged members of society.³ The premise is that the emergence of international economic and political interdependencies has extended the moral basis for distributive justice from the national to the international sphere. Foreign assistance to agriculture can benefit one of the largest and poorest sectors in most developing countries.

The political self-interest rationale is based on the notion that aid will strengthen the political commitment of the recipient to the donor(s). Aid is often given during wars and conflicts when there is an opportunity for political realignment, or as part of a negotiated agreement to provide aid in exchange for certain political or military actions.

The argument that aid serves a country's economic self-interest is based on the idea that aid increases exports from and employment in the donor country. For example, producers of food grains in the United States benefit from food aid to the extent that it increases total quantities demanded. Food aid may open markets to a country's exports by initiating commercial contacts. In general, foreign aid to agriculture can improve nutrition and stimulate economic growth, thereby, in low-

² See Anne O. Krueger, "Aid in the Development Process," *World Bank Research Observer*, vol. 1 (January 1986), pp. 57-58; and see Vernon W. Ruttan, *United States Development Assistance Policy* (Baltimore: Johns-Hopkins, 1996), chapter 2.

³ Vernon W. Ruttan, "Solving the Foreign Aid Vision Thing," *Challenge*, vol. 34 (May-June 1991), p. 46.

income countries, stimulating demand for agricultural imports and, by extension, donor exports. Much foreign assistance is tied to the purchase of goods such as food or equipment from the donor. These purchases directly benefit producers in the donor countries.

This complex set of reasons for foreign assistance means that foreign aid does not always go to where need is greatest. The fact that aid is given in part for donor self-interest purposes would seem to impose on donors some obligation to ensure that the distribution and types of foreign assistance provided do not harm the recipients.

The level and distribution of U.S. foreign assistance by country over time is shown in Table 19.1. In the 1960s, the United States distributed an average of just under \$17 billion per year in 2007 dollars. Most of the top ten recipients were in Asia, including a number of countries that later enjoyed rapid economic growth and earned high incomes as allies and commercial partners with the United States. Aid flows declined for many years, and the top-ten list evolved in response to conflicts and peace accords. Israel and Egypt were the top recipients in the 1980s and 1990s. In recent years, total aid flows have grown back to their level of the 1960s, and Iraq and Afghanistan have risen to the top of the top-ten list, while for the first time the list includes four countries in Sub-Saharan Africa: the D. R. Congo, Sudan, Ethiopia, and Nigeria.

Foreign Aid in the Context of Other Capital Flows

Foreign aid is not the largest type of capital flow to developing countries. Larger flows occur in the private sector, through portfolio investment and through individual remittances by workers to their families in developing countries.

Private investment consists of either portfolio investment or foreign direct investment (FDI). Portfolio investors buy shares or bonds, and can provide an important source of capital for middle-income developing countries with growing financial markets. FDI is the construction or purchase of company-operated facilities, which is particularly helpful if it involves the transfer of proprietary technologies and business methods. Both kinds of investment can be very large and productive, but flows are limited to particular sectors and countries, and have fluctuated widely over the years.

Remittances occur when migrants send money back to their families, as a gift or for investment. These flows tend to be more stable than private investment, have grown rapidly, and are now more than twice as large as foreign aid. In 2007, the total amount of remittances received by developing countries was estimated to have been \$280 billion, or 2.1

percent of their total income.⁴ Most of these remittances were sent to middle-income developing countries such as the Philippines, which have many educated and relatively high-earning migrants who choose to invest their earnings back home. Lower-income countries such as Nigeria receive a small fraction of all remittances, but because their incomes are so low these remittances are very important to them. For example, the 49 least-developed countries together received only \$40 billion in remittances during 2007, but that represented 5.9 percent of their total income. Like other flows, remittances vary widely across countries. In extreme cases such as Haiti, remittances can be 20 percent or more of total national income, whereas some very poor countries such as Madagascar or Mauritania receive very little (see Box 19-1).

Foreign aid is different from private investment or remittances in that, by definition, it uses government or philanthropic funds to serve a public purpose. Total foreign assistance encompasses official development assistance plus military assistance and export credits. Often private funds from voluntary agencies are included. Foreign development assistance, as the term is used in this chapter, excludes the military-related component and export credits, while the term *official development assistance* (ODA) excludes private fund transfers as well. To qualify as any type of foreign assistance, the resources transferred must be sent from donor(s) to a recipient without a commensurate return flow of resources. There may be good will, political support, and so on, but direct payments are not made in return.

At one extreme, foreign development assistance can occur as loans at near-market interest rates. At the other, this assistance can be an outright grant. In the middle, the assistance can be a loan at a concessional (below-market) interest rate or with a maturity period longer than that commercially available.⁵ Foreign development assistance also can come in the form of food aid or as technical assistance to provide needed expertise. To be classified as ODA by the Development Assistance Committee of the Organization for Economic Cooperation and Development (OECD), the assistance must have at least a 25 percent grant element.⁶ The grant element is defined as the excess of the loan or grant's value

⁴ Data in this section are World Bank staff estimates, updated periodically and available online through www.worldbank.org/remittances.

⁵ See Krueger, "Aid in the Development Process," pp. 57–58.

⁶ The OECD is an organization of 30 industrialized nations, designed to promote economic growth and stability among these relatively high-income countries, and in the world as a whole.

BOX 19-1.**REMITTANCES as a DEVELOPMENT TOOL**

Remittance transfers are generally small amounts sent to family members through wire transfers, banks, or hand-carried to individuals in developing countries. Their importance differs by region, and the top four recipient countries are India, China, Mexico, and the Philippines. Top recipient countries in terms of remittances as a proportion of national income (more than 25%) are Tajikistan, Moldova, and Honduras. Rapid growth and variation across countries suggests that improving how remittances are transferred could have a big impact on development. Efficiency can be improved by lowering the costs of and risks of transferring money through more cooperation and better regulation of international financial institutions. Steps are also needed to improve the enabling environment within recipient countries through reforms of banking systems, more transparent rules of access, encouraging acceptance of small-scale deposits, and so on. Incentives can be given for participation in the formal financial sector to help mobilize savings of remittance recipients and other potential small-scale customers. Steps to encourage use of remittance funds for private productive investments will channel these funds into capital accumulation and away from short-term consumption. Well-defined legal and regulatory frameworks will help build confidence of remitters to make productive investments and lower risks of losing their investments. Many of these steps would have the side benefit of mobilizing all forms of small-scale savings and investments and this micro-finance has been shown to facilitate broad-based growth (see Chapter 11).

See Samuel Munzele Maimbo and Dilip Ratha, *Remittances: Development Impact and Future Prospects* (Washington, D.C.: World Bank, 2005).

over the (present) value of repayments calculated with a 10 percent interest rate.

Trends in ODA amounts are shown in Table 19-2. In the early 1960s, U.S. foreign aid was more than half of all foreign aid. U.S. assistance then declined while others expanded their aid programs, such that by the 1990s the United States was giving only about one-sixth of the global aid total. In the most recent decade, ODA from both the United States and other donors has grown again, peaking in 2005.

Development Assistance Programs

Modern foreign aid programs began after World War II with recovery assistance provided by the United States to war-torn Western Europe and East Asia. A wider U.S. development assistance program grew out of President Harry S. Truman's inaugural address of January 20, 1949.

**TABLE 19-2: UNITED STATES and WORLD OFFICIAL
DEVELOPMENT ASSISTANCE (ODA), 1960–2007
(U.S. \$millions, 2000)**

Year	Total ODA	U.S. ODA	US as % Total
1960	22,256	13,137	59.0
1965	28,879	17,904	62.0
1970	24,835	11,665	47.0
1975	35,514	11,150	31.4
1980	49,248	13,420	27.2
1985	41,845	13,683	32.7
1990	65,578	14,108	21.5
1995	64,351	8,045	12.5
2000	53,749	9,955	18.5
2001	52,423	11,429	21.8
2002	58,297	13,290	22.8
2003	69,065	16,320	23.6
2004	79,432	19,705	24.8
2005	94,762	24,722	26.1
2006	89,539	20,188	22.5
2007	86,518	18,214	21.1

Source: OECD database, Development Cooperation Report 2008.

Truman called for a “bold new program for making the benefits of scientific advances and industrial progress available for the improvement and growth of underdeveloped area.”⁷ The program provided technical assistance to Taiwan, South Korea, and other countries in Southeast Asia, the Middle East, and the less-developed countries of Europe. The program was followed by other programs that were consolidated in 1961 to form the U.S. Agency for International Development (USAID). USAID remains the principal development assistance agency of the United States Government.⁸

Other donor countries also have development assistance efforts and have similar agencies leading their foreign aid programs, such as the Japan International Cooperation Agency (JICA), the U.K. Department for International Development (DFID), and the Canadian International Development Agency (CIDA). During the 1950s, assistance was

⁷ Harry S. Truman, “Inaugural Address of the President,” Department of State Bulletin 33, Washington, D.C., January 1949, p. 125.

⁸ See Elizabeth Morrison and Randall B. Purcell, *Players and Issues in U.S. Foreign Aid* (West Hartford, Conn.: Kumarian Press, 1988) for additional historical details.

extended by the United Kingdom, France, the Netherlands, and Belgium to their former colonies. The list of donors grew during the 1960s and now includes most members of OECD and many members of the Organization of Petroleum Exporting Countries (OPEC).⁹ Even though the United States gives more ODA than any other country, in recent years it has ranked at or near the bottom among OECD countries in terms of the ratio of ODA to GNP, a rough measure of the ability to “afford” aid. In 2003, it gave 0.15 percent while the weighted average across all OECD countries was 0.25 percent and simple average was 0.41 percent. In March 2002, the OECD countries pledged to contribute 0.7 percent of their GNP to ODA as a means of achieving the United Nations Millennium Goals. However, few countries have achieved that goal.

The actual content of foreign assistance programs varies widely over time and across donors. In the last decade, the biggest area of emphasis for U.S. assistance has been on improving governance institutions in developing countries. This area received very little aid in the 1970s, but grew rapidly beginning in the 1980s. The second-biggest area is now population and reproductive health, which includes programs for HIV/AIDS prevention. Emergency response programs are the third-largest area, followed by debt forgiveness programs. Food aid was the largest area of focus in the 1970s, and remained the largest in the 1980s, but has since fallen. The Agriculture, Forestry, and Fishery sector was the second largest sector in the 1970s and 1980s, but is now the seventh largest sector. Foreign assistance to agriculture includes such diverse components as aid used for agricultural research and extension, irrigation projects, rural roads, agricultural education and training, flood control projects, health improvement programs, integrated rural development projects, and agricultural policy assistance. Comparing the aid allocations of the United States with those of all other donors reveals that other donors place greater emphasis on aid to education and debt reduction.

Not all development assistance is administered through government agencies. Governments sometimes contract for aid delivery through nonprofit, nongovernmental organizations (NGOs), which are often also supported by private charitable donations and commercial

⁹ OPEC is a group of countries devoted to seeking agreement among themselves regarding selling prices and other issues related to oil exports. OPEC members include Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.

activities.¹⁰ Several of the largest nonprofit NGOs have religious affiliations, such as Catholic Relief Services or Lutheran World Relief; the biggest of these is a non-denominational Christian organization, World Vision International, whose operations in 2008 involved more than \$1.8 billion in revenue plus in-kind donations valued at more than \$700 million.¹¹ Most NGOs specialize in specific areas. For example, the International Committee of the Red Cross and Doctors without Borders specialize in the health sector, while Heifer International specializes in animal agriculture. Some NGOs have major advocacy programs, such as Oxfam and Bread for the World.

NGOs differ widely in their sources of revenue. For example, the Bangladesh Rural Advancement Committee (BRAC) is a large NGO providing microfinance and other commercial services. In 2008, BRAC reported total expenditures of \$535 million, of which only 27 percent was donor funding.¹² Development assistance can be channeled through for-profit firms as well as NGOs. The use of private contractors to deliver foreign aid services is particularly important for the United States, where firms routinely bid for contracts from USAID and other government agencies on a commercial basis.

Although most foreign aid funding comes from governments, private philanthropy also plays an important role in international development. The Rockefeller Foundation and other donor organizations made key contributions throughout the 20th century. In the 1990s, large-scale philanthropy by individuals such as George Soros and Ted Turner became important, followed by major grants from Bill and Melinda Gates and from Warren Buffett, whose combined grant making contributed over \$1.2 billion for global health and over \$300 million for global development in 2007.¹³ These and countless other acts of individual generosity, alongside the even larger taxpayer-funded programs, create many opportunities to overcome past failings and meet new challenges. Managing aid in a cost-effective manner, however, is still a significant challenge.

¹⁰ A detailed analysis of NGOs in U.S. foreign aid is provided by Rachel McCleary and Robert J Barro, "Private Voluntary Organizations Engaged in International Assistance, 1939–2004," *Nonprofit and Voluntary Sector Quarterly*, vol. 37, no. 3 (September 2008), pp. 512–36.

¹¹ World Vision International, *2008 Annual Review*. Available online at www.wvi.org.

¹² BRAC, *BRAC at a Glance*, March 2009. Available online at www.brac.net.

¹³ Bill and Melinda Gates Foundation, *Annual Report 2007*, which is available online at www.gatesfoundation.org.

Multilateral Assistance Programs

While much aid is bilateral, or country-to-country, a second approach to giving and managing aid is for multiple donors to combine their resources through multilateral organizations in which donated funds are pooled and managed for a common purpose. Combining funds helps donors to leverage their contributions and obtain access to specialized professional staff and impartial management.

The leading multilateral organization for international development is the World Bank, which was created in 1944. Unlike other development agencies, the Bank does not disburse donor funds as grants — and unlike other banks it does not take deposits. Instead, the World Bank uses donor contributions to guarantee the repayment of funds borrowed from investors, and it then lends at low interest rates to developing countries. The World Bank has more than 180 country members and consists of three major arms that together represent the largest source of long-term multilateral economic development assistance. The first arm, the International Bank for Reconstruction and Development (IBRD), established in 1945, makes long-term loans at interest rates related to its own cost of borrowing, mostly for large-scale projects. The second arm, the International Development Association (IDA), established in 1960, uses profits on the IBRD loans and other funds to subsidize loans to the poorest countries. Loans from IDA have long repayment periods and concessional interest rates. As of 2008–09, the operational cutoff for eligibility for a country to borrow on these terms was about \$1000 per person per year in gross national income. The third arm, the International Finance Corporation (IFC), is a profit-making enterprise and is funded by capital from its member countries. It makes loans to the private sector, to mixed (public/private) enterprises, and to government-owned agencies that channel financial assistance to the private sector. Two other arms of the World Bank are the Multilateral Investment Guarantee Association (MIGA) and the International Centre for the Settlement of Investment Disputes.

In addition to the World Bank, there is a set of regional development banks for Latin America, the Caribbean, Asia, Africa, and Eastern Europe. These banks operate in a similar way to the World Bank, but on a smaller scale. The World Bank is also complemented by the International Monetary Fund (IMF), a sister organization with a much smaller staff whose purpose is to make short-term, emergency loans for macroeconomic stabilization, as opposed to the long-term development objectives of the multilateral banks. The World Bank and IMF are the major multilateral sources of development funding, but large numbers

of technical staff provide assistance through the other U.N. agencies described in Box 19-2.

Effects of Foreign Assistance

The economic effects of development assistance on recipients are the regular subject of debate in the popular press and among policy makers. The effects of aid can be assessed at the project, the sector, or the national levels. At the project level, rates of return have been calculated for individual investments such as roads, schools, or agricultural research. These calculations typically yield high returns: for example, the

BOX 19-2. MAJOR UNITED NATIONS AGENCIES for FINANCIAL and TECHNICAL ASSISTANCE to DEVELOPING COUNTRIES

The **United Nations Development Programme** (UNDP) is the central funding and coordinating mechanism within the United Nations for technical assistance to developing countries. The United Nations Fund for Population Activities (UNFPA) helps countries gather demographic information, undertake family planning projects, and formulate population policies and programs.

The **United Nations Children's Fund** (UNICEF) provides technical and financial assistance to developing countries for programs that benefit children and for emergency relief for mothers and children.

The purpose of the **Food and Agriculture Organization** (FAO) is to raise nutrition levels and standards of living by improving the production and distribution of food and other commodities derived from farms, fisheries, and forests. It also helps countries with food emergencies.

The **World Food Programme's** (WFP) purpose is to stimulate economic and social development through the use of food aid and to provide emergency food relief.

The **World Health Organization** (WHO) conducts immunization campaigns, promotes and administers research, and provides technical assistance to improve health systems in developing countries.

The **United Nations Education, Scientific, and Cultural Organization** (UNESCO) promotes international intellectual cooperation in education, science, culture, and communications.

The UNDP, UNFPA, WFP and UNICEF are funded through voluntary contributions, public and private, while FAO, WHO, and UNESCO are funded primarily through assessments on member nations with some additional voluntary contributions and other sources of funds.

Source: Details on UN agencies are provided at www.un.org.

World Bank's independent evaluation group estimated the real rate of return for each of 396 projects that ended between 1995 and 2000, and found an average return of 22 percent per year.¹⁴ This payoff is much higher than the interest paid to borrow these funds, which suggests that increased lending for similar investments would raise total economic growth rates.

Given the high rates of return to many aid projects, questions are raised about why private lending has not been more forthcoming, or why concessional loans are needed. An important part of the answer is that returns to aid are spread among the recipient population in ways that a private company could not capture to repay its investors. For example, aid that helps a small child avoid malnutrition or attend school can generate benefits far in excess of its cost, but those benefits cannot be seized by a lender. Indeed, aid is most effective when it focuses on precisely these kinds of public services, which will not be provided by private firms. The developing country's own governments cannot provide enough of these public goods because they lack the tax base or administrative capacity to finance them, from either current revenues or to repay its own loans. As a result, public-sector development assistance from richer to poorer countries has an important role to play in making the world economy more efficient as well as more equitable.

At the sector or national levels, development assistance can augment domestic savings, help provide foreign exchange, and minimize adverse impacts of needed policy reforms. These effects can stimulate growth. Many studies have attempted to assess the impact of development assistance at the national level as it affects savings, investment, or growth. Generally, the results have been positive but, in many cases, inconclusive.¹⁵ The fundamental problem is that aid typically flows to countries in trouble and so is usually associated with bad economic outcomes, even though without aid the outcome might have been worse. Poor countries face many different kinds of problems, from natural disasters and disease to wars and corruption. A widely-cited view suggests that aid has positive effects on growth only in countries with good

¹⁴ World Bank, *Annual Review of Development Effectiveness 2000*, supplement Table 13a. Available online at www.worldbank.org

¹⁵ For more details, see Constantine Michalopoulos and Vasant Sukhatme, "The Impact of Development Assistance: Review of Quantitative Evidence," in *AID and Development*, ed. Anne O. Krueger, Constantine Michalopoulos, and Vernon W. Ruttan (Baltimore, Md.: Johns Hopkins University Press, 1989), chapter 7.

fiscal, monetary, and trade policies, but recent studies suggest that aid has helped even in countries with weak governments.¹⁶

The small size of aid relative to other capital sources, as described above, undoubtedly has contributed to many of the inconclusive findings about the effects of aid on growth. It is also difficult to measure the effects of aid without breaking it down into its different types and the different reasons for which it is given. For example, aid for infrastructure may have different impacts on growth than aid for policy reform, or for emergency food relief. Emergency food relief programs may be very effective at reducing hunger and human suffering associated with short-term problems, but their effects on aggregate growth may be hard to measure.

Despite a relatively weak link between aid and aggregate economic growth, for reasons outlined above, aid has helped reduce poverty and improved the quality of life of the poor. Targeted aid has helped eradicate smallpox, put polio on the brink of eradication, reduced death from diarrheal diseases, and reduced the incidence and severity of many illnesses.¹⁷ These results will, over time, contribute to economic growth and development, but their effects are indirect and hard to measure.

Few studies have attempted to evaluate the effects of development assistance to the agricultural sector. One study for 98 countries did find a positive effect of foreign assistance to agriculture from 1975 to 1985, particularly in Asia. However, the effects of aid to agriculture in Latin America and the Middle East were non-significant.¹⁸ Investment in research and dissemination of new technologies may be among the most effective kinds of aid for reducing poverty, especially in Africa where the level of such investment has been lowest and where rural poverty is particularly severe.¹⁹

¹⁶ See Craig Burnside and David Dollar, "Aid, Policies and Growth," *American Economic Review*, vol. 90 (September 2000), pp. 775–86; and Carl-Johan Dalgaard, Henrik Hansen, and Finn Tarp, "On The Empirics of Foreign Aid and Growth," *The Economic Journal*, vol. 114, no. 496 (June 2004), pp. F191–F216

¹⁷ See Jeffrey Sachs, *The End of Poverty* (New York: Penguin Press, 2005); Joseph Stiglitz, "Overseas Aid is Money Well Spent," *Financial Times*, April 14, 2000, p. 20; and Shalendra Sharma, "The Truth About Foreign Aid," *Challenge* (July–August 2005), pp. 11–25.

¹⁸ See George W. Norton, Jaime Ortiz, and Philip G. Pardey, "The Impact of Foreign Assistance on Agricultural Growth," *Economic Development and Cultural Change*, vol. 40 (July, 1992), pp. 775–86.

¹⁹ See Colin Thirtle, Lin Lin, and Jenifer Piesse, "The Impact of Research-Led Agricultural Productivity Growth on Poverty Reduction in Africa, Asia and Latin America," *World Development*, 31, vol. 12 (December 2003), pp. 1959–75.

Effects on Donors

Many donor countries believe that development assistance is effective in stimulating growth in developing countries, but ask whether the effects on their own countries are negative. In other words, they question whether their economic self-interest is served by aid. For example, farm groups and the farm press in the United States frequently express concern that foreign aid may be generating foreign competition. Several studies have assessed whether foreign aid to agriculture does indeed hurt U.S. farmers. These studies have found that for particular commodities in particular countries at particular stages of development, foreign competition is increased as a result of aid. However, they also have found that agriculture as a whole in donor countries is helped by foreign aid to agriculture in developing countries.²⁰

The reason farmers in donor countries often benefit from aid to agriculture in developing countries is that agricultural growth in LDCs increases incomes, and these incomes, in turn, stimulate food demand. Middle-income countries, particularly, still have relatively high population growth rates and high income elasticities of demand for food. Demands shift toward higher-quality grains and livestock products as incomes rise. Consequently, when agricultural production rises in these countries, if domestic economic policies permit that production growth to stimulate other sectors of the economy, the result is an expansion in food demand that must be met partially through food imports. Of course when countries eventually reach higher income status, their growth in food demand slows. If and when most of the currently developing countries reach that status, trade will be governed by comparative advantage and trade-distorting policies. Development assistance to agriculture will no longer be an issue.

In summary, while empirical evidence is not always conclusive about the effects of development assistance in general or to agriculture in particular, it appears that positive but modest gains are likely for both recipients and donors. It is unlikely that large gains will be realized except in a few small countries because aid usually represents a small portion of ODA.

²⁰ See, for example, Alain de Janvry, Elisabeth Sadoulet, and T. Kelley White, "Foreign Aid's Effect on U.S. Farm Exports," U.S. Department of Agriculture, Economic Research Service, Foreign Agricultural Economic Report Number 238, Washington, D.C., November 1989; and James P. Houck, "Link Between Agricultural Assistance and Agricultural Trade," *Agricultural Economics*, vol. 2 (October 1988), pp. 158–66.

FOOD AID

Food aid has been an important and controversial dimension of foreign assistance since the mid-1950s. Its importance relative to other kinds of aid has fallen over time, but it is still a significant component of U.S. foreign assistance. The United States has been the largest source of food aid since the enactment of the Agricultural Trade Development and Assistance Act of 1954, commonly referred to as Public Law (P.L.) 480. Food aid once represented about one-half of U.S. grain exports, but in recent years it has declined to a small fraction of those exports.

The role and effects of food aid have been controversial because of its many purposes. While food aid fulfills a humanitarian and development mission, it also provides a means for donor countries to dispose of surplus commodities and to develop new markets. As with any foreign aid, food aid serves the foreign policy objectives of donors. While this multiplicity of objectives has added instability over time to food aid allocations, it also has strengthened the political support for maintaining food-aid programs within the donor countries.

Critics of food aid have argued, among other things, that unrestricted cash donations would be preferable to food. While it is clear that recipients would prefer cash, many donors treat food aid as an addition to, rather than a component of, their economic assistance. It is highly unlikely that donor budgets would be expanded by the value of food aid if the latter were eliminated.

History of Food Aid

The history of food aid to developing countries is marked by shifting emphases on its multiple objectives. During the period of 1959 to 1965, the United States and Canada were particularly concerned about disposal of farm surpluses, developing markets for farm products, and providing emergency food relief. Most of the aid provided during this period was in grain, but several other products were given, including tobacco. In 1961, an amendment was added to P.L. 480 to permit food to be used for economic development instead of being restricted to emergency relief. Improved export markets, led by demand growth in developing countries, reinforced the objective that food aid helps develop markets.

The era from 1966 to 1972 was a period of heavy use of food aid for emergency relief, particularly in drought-stricken areas of South Asia. Self-help of recipients also was promoted during this period. The European Community and Canada increased their shipments of food aid for emergency relief in this period. The 1966 to 1972 period might be called the idealistic era of food aid.



Food aid helped alleviate hunger in Ethiopia during the 1980s.

Unfortunately, any idealism with respect to food aid programs was pretty much destroyed by the cutbacks in food aid that followed food price increases in 1972 to 1975. The United States had depleted its grain surplus by exporting commercially to the Soviet Union and other countries. From 1972 to 1973, U.S. commercial grain exports doubled and the volume of food aid fell in 1974 to its lowest level since the enactment of P.L. 480. Furthermore, during this period half of all U.S. food aid went to South Vietnam and Cambodia as a result of U.S. involvement in those countries.

In 1975, the U.S. Congress instituted more humanitarian and development criteria for receiving food aid by passing the International Development and Food Assistance Act (see Box 19-3). This legislation called for increased food aid to the poorest countries. The remainder of the 1970s also saw increasing food aid quantities from EC countries. However, the use of food aid for political purposes also increased after 1975. For example, U.S. food aid to Bangladesh declined from 1.15 million tons in 1975 to 0.34 million tons in 1985, while food aid to Egypt increased from 0.58 million tons to 2.00 million. This increase to Egypt was directly linked to the Camp David Peace Agreement signed with Israel in 1979. Food aid quantities increased in the mid-1980s in response to severe drought problems in Ethiopia, the Sudan, and other Sub-Saharan African countries. In the 1960s, most food aid went to Asia and Latin America. By the mid-1980s Sub-Saharan Africa was absorbing as much food aid as the much more populous Asia.

BOX 19-3.**THE UNITED STATES P.L. 480 FOOD AID PROGRAM**

Since 1954, most U.S. food aid activities have been coordinated under P.L. 480. Numerous amendments and extension have been added to the original act, but currently the major provisions fall under the three following titles:

Title I — Was formerly the most important component of P.L. 480, but by the early 2000s it had shrunk to about \$100 million per year compared to more than \$50 billion in agricultural exports from the U.S. Recipient governments buy grain on credit with interest rates of 3 percent or less over 20 to 40 years, repayable in local currency. These governments can sell the grain internally and use the profits for development. The lower interest rates and long repayment period mean that almost 70 percent of the food aid loan is a grant.

Title II — involves gifts of food for emergency relief and for economic development; in 1991 it surpassed Title I as P.L. 480's largest component, now accounting for more than 85 percent of the program. The food is given to and distributed by private agencies such as CARE, who use the food for infant feeding programs and for mother and child health programs in addition to emergency distribution. In a recent year about 70 percent of CARE's budget was P.L. 480. Shipping and labor are paid for by the U.S. government. Food given under Title II also is used in food-for-work programs.

Title III — involved using food aid in government-to-government programs to support economic development, but has not received funding since 2001.

Other U.S. food aid programs exist, but food aid is now dwarfed by agricultural export credit programs which support commercial grain exports.

Types of Food Aid Programs Today

Emergency food aid grabs most of the headlines as it relieves crises associated with droughts in Ethiopia, the Sudan, and North Korea, and flooding in Bangladesh and other parts of Asia. Emergency food aid has also played a significant role in feeding refugees from Afghanistan, Iraq, and other countries in recent years. This short-term food aid is essential for reducing acute hunger problems. The possibilities of using food aid to foster long-term development, however, are more closely linked to program or project food aid.

Program food aid is, in many respects, similar to more general financial assistance, as it provides currency to buy imports, in this case food that can be sold or otherwise distributed in the domestic market.

This aid fosters the development of marketing linkages with the donors, it helps the recipients save foreign exchange, and the funds generated by the sales can be used for development. Some donors participate in determining how the funds generated by commodity sales are used. Donors may insist that funds be used for investments in the agricultural sector or to support specific policy changes affecting agriculture. Some of the recent food aid shipments to Sub-Saharan African countries were intended to soften the adjustments to structural changes in their economies.

Project food aid is aimed at meeting specific development objectives. Projects tend to be multiyear, to be targeted at nutritionally vulnerable individuals or groups, and may involve food in exchange for work on the project. Donor and recipient countries agree on who will be targeted by the project, the amount of food each individual receives, the delivery system for the food, and the design, implementation, and monitoring of the project activities.²¹ Most of the projects involve the rural sector and can vary in size from a few hundred thousand dollars to \$100 million or more. Food aid projects often involve forestry development, soil conservation and watershed management, resettlement projects, training, development of irrigation works, and construction and maintenance of rural roads.

Effects of Food Aid

The positive and negative effects of food aid on recipient countries have been studied and debated for many years. On the positive side, food provides real resources that can be used to expand investment and employment. Food aid can have a disproportionate but positive effect on disadvantaged groups, notably by supporting specific nutrition or food-for-work projects or by providing food to the poor for free or at subsidized prices. Food can be used to help recipient governments support storage and stabilization schemes to provide a small buffer against poor production years.

Food aid also can have adverse effects on the recipients. These potential adverse effects of food aid can occur in a number of ways: (1) disincentive effects on local agricultural production through reduced prices because of greater supply, (2) dependency effects because the government can substitute food aid for agricultural development programs, and (3) the uncertainty of food aid quantities from year to year.

²¹ See Robert Chase, "Commodity Aid for Agricultural Development," in *Trade, Aid, and Policy Reform*, ed. Colleen Roberts (Washington, D.C.: World Bank, 1988), pp. 199–204.

The disincentive issue has been examined empirically in several studies.²² In theory, additional supplies could depress food prices and discourage production. Some empirical studies have found this to be the case, but other studies have found the opposite. The disincentive effect is minimized if food aid is given or sold to those who otherwise could not afford the food. Transferring food is like transferring income. The quantity of the aid compared to the country's overall food production is important. For example, it appears that there has been a disincentive effect in Egypt due to the large quantities of aid shipped, but it is extremely difficult to sort out the impact of food aid from the many policy-induced distortions. Even when food aid reduces prices, it is likely to have a beneficial effect on the poor, who generally purchase more food grains than they sell.²³

The idea that food aid creates dependency has not been examined as frequently. Food aid is no different from other aid in that, by providing resources, it may lead to less effort to raise revenues domestically or to promote agricultural development. Conditions are usually placed by donors on program aid that minimize this possibility. A second part of the dependency argument is that, over the long run, food aid leads to more food imports and changes in preferences away from domestically produced foods. Some evidence shows that this preference effect may be occurring, although it is difficult to separate changes induced by food aid from those that occur because of income growth and other trade.

Food aid can be used in a positive way by recipients to further both agricultural and overall economic development. Emergency food aid will always be variable and it can play a major life-saving role during short-term emergencies. It appears that the potential positive development role of food aid has not been fully exploited, although some efforts are under way to improve its development contribution.

Most donor countries find public opinion is generally supportive of food aid, especially when it is used in visible programs to prevent starvation. The future, however, for food aid is uncertain due to budget tightening in donor countries, reduced price supports for agriculture as a part of opening of global markets, and questions about its effectiveness as a development tool. Stronger multi-year commitments

²² See S. T. Maxwell and H. W. Singer, "Food Aid to Developing Countries: A Survey," *World Development*, vol. 7 (1979), pp. 223–47, for a summary of results of 21 studies.

²³ See James Levinsohn and Margaret MacMillian, "Does Food Aid Harm the Poor? Household Evidence from Ethiopia," National Bureau of Economic Research, Inc, NBER Working Papers: 11048 (2005).



Food aid is used in Kenya to help pay labor for road construction.

are certainly needed if food aid is to be more effective in promoting development.

SUMMARY

Foreign development assistance in support of agriculture in developing countries has been substantial, taken many forms, and generated considerable debate. The rationale for foreign aid rests on various political and economic interests as well as humanitarian grounds, so aid does not always go to where need is greatest. Aid may be channeled through government agencies, NGOs, or private contractors, and comes mainly from donor-country governments but also from charitable donations and philanthropies. Some aid is a simple grant, but much of it comes as loans at below-market interest rates. Foreign aid to agriculture includes aid for agricultural research and extension, irrigation projects, rural roads, agricultural policy assistance, and many other items.

The United States is the largest donor country, but the share of total ODA coming from the United States has declined over time. The United States has been particularly active in giving food aid, which provides emergency relief in times of severe shortage, and supports specific development projects and programs. Food aid also provides a means for donor countries to dispose of surpluses, develop new markets, and pursue foreign policy objectives.

IMPORTANT TERMS and CONCEPTS

Bilateral aid	Nongovernmental
Concessional interest rates	organization
Economic self-interest	Official development
Food aid	assistance
Foreign development assistance	Point Four Program
International Bank for Reconstruction and Development	Public Law 480
International Development Association	U.S. Agency for International Development
International Finance Corporation	The World Bank
Multilateral aid	

Looking Ahead

This chapter concludes the section of the book concerned with macroeconomic and international issues affecting development. The book concludes in the next chapter with a discussion of how the various components required for agricultural development can be combined in an overall strategy. An assessment of future development prospects is provided, and suggestions are made for how you as individuals can contribute to solving the world food-poverty-population problem.

QUESTIONS for DISCUSSION

- 1 What is the rationale for foreign development assistance?
- 2 What are the major types of foreign development assistance?
- 3 What are some of the major effects of foreign development assistance on recipients and donors?
- 4 Distinguish between bilateral and multilateral aid.
- 5 Give several examples of foreign aid to agriculture.
- 6 How do NGOs differ from official sources of foreign development assistance?
- 7 What are the three major arms of the World Bank and how do they differ?
- 8 Which country is currently the largest bilateral donor of foreign aid?
- 9 Why might foreign development assistance help U.S. farmers?
- 10 What are the objectives of food aid?
- 11 What is the case for and against food aid?
- 12 How have food aid programs changed over time?
- 13 What is the difference between program and project food aid?
- 14 How do the three Titles of P.L. 480 differ?

RECOMMENDED READINGS

Collier, Paul, *The Bottom Billion* (New York: Oxford University Press, 2008).
Easterly, William, *The Elusive Quest for Growth* (Cambridge: MIT Press, 2002).

Lancaster, Carol, *Foreign Aid: Diplomacy, Development, Domestic Politics* (Chicago: University of Chicago Press, 2007).

Riddell, Roger, *Does Foreign Aid Really Work?* (Oxford: Oxford University Press, 2007).

Sachs, Jeffrey, *The End of Poverty* (New York: Penguin, 2005), especially chapter 13.

Lessons and Perspectives

“Progress in reducing hunger has been uneven across regions and countries...reducing hunger and malnutrition will require strengthening governance of the food and agriculture system at the global, country, and local levels...scaling up public investment for agricultural and rural growth, taking targeted steps to improve nutrition and health, and creating an effective global system for preventing and mitigating disasters...We must push ourselves even further to develop and implement solutions and policies to achieve food and nutrition security for the poorest of the poor and those most afflicted by hunger.”

— Joachim von Braun¹

THIS CHAPTER

- 1 Summarizes how the various components required for agricultural development can be combined to increase agricultural productivity and stimulate economic growth and development
- 2 Discusses how principles discussed in this book can be used to assess future prospects for agricultural development in developing countries
- 3 Suggests ways that individuals can contribute to reducing the food-poverty-population problem

AN INTEGRATED APPROACH to AGRICULTURAL DEVELOPMENT

It is easy to be pessimistic about prospects for solving poverty and hunger problems in developing countries. Many countries in Sub-Saharan Africa have stagnated for decades, and disease problems such as HIV / AIDS have made a bad situation there worse. Latin American countries

¹ Joachim von Braun, Director General, International Food Policy Research Institute, from remarks prepared for the CGIAR Annual General Meeting, Marrakech, Morocco, December 6, 2005.

have suffered periodic setbacks on the path to development, and have only improved gradually over time. Several Asian countries have grown rapidly over the past 30 years, but population growth remains rapid in many already densely-populated Asian countries, while water becomes scarcer. Concerns for the global environment have focused attention on the growing problem of resource degradation, especially of soils, in all developing regions. Recent increases in energy prices have placed cost stress on agricultural producers, while commodity price volatility has made planning more difficult and harmed many consumers in developing countries.

Governments have been seeking policy solutions to these and other problems. Over the past several years, numerous policy prescriptions have been suggested, yet none has been universally successful. Import substitution policies, domestic and trade policy liberalization, land reform, foreign aid, education, privatization, investment in large-scale industries, integrated rural development projects, farming-systems research, and many other solutions have been offered. Some of these suggestions have contributed to the development process; others have not. Blame for slow progress often is laid at the doorstep of the developed countries, sometimes with justification.

While economic development has been painfully slow and uneven (witness the rise in 2008–09), there is certainly room for guarded optimism. Globally, the percentage of people living in poverty fell in most years from the 1960s until 2009, as did the absolute number of malnourished people despite the growth in population. While poverty and malnutrition rose in 2008–09 due to a sharp increase in food prices and a global recession, they may again fall as food prices stabilize and economic growth resumes.

Several lessons have been learned about what it takes to stimulate agricultural and overall economic development. One of these lessons is that there are no panaceas. Development requires a mix of technical and institutional changes that work best in combination. The exact mix varies between countries, and policies appropriate for one environment may not necessarily be so for another. A second lesson is that development takes time and many of the investments necessary for long-run sustainable development have impacts long after they have been implemented. This time lag requires patience and political stability. A third lesson is that developing countries are primarily responsible for their own development, but interdependence in trade and capital flows means that developed-country policies can assist or retard that development. A few years ago, the United Nations and its member states set a series of millennium development goals for 2015 that would significantly

reduce poverty, hunger, and disease while promoting education, gender equality, and environmental sustainability.² Some progress has been made toward achieving those goals, although their total attainment seems unlikely.

In *Economics of Agricultural Development*, you have examined the dimensions of world food-income-population problems (see top of Figure 20-1). You have considered the interconnections among these problems and their linkages to health, nutrition, literacy, and the environment. There is enough total food in the world at the moment, but hunger is caused by food price volatility and by distributional problems that are, in many cases, related to poverty. There are short-term food crises and long-term or chronic malnutrition. You have considered economic development theories, the role of agriculture in those theories, and the nature of existing agricultural systems. You have learned that developing-country farmers tend to be relatively efficient at what they do, but have low productivity because of their limited access to resources, their existing technological and institutional environments, and the pervasive risks they face. Having learned something about the dimensions of the problem, the role of agriculture in economic development theories, and the nature of agriculture in developing countries, you then examined several components of the development process. Let's review below the interrelationships among those components, and assess where the need is greatest for additional insights with respect to the development process.

Technical and Institutional Change in Agriculture

In the 1950s, many development experts felt that the keys to agricultural development were capital investment and the transfer of technologies from more-developed countries. By the 1960s and 1970s, it was clear that technology transfers and capital investment had a role to play, but that many other factors were equally or more important. Differences in resource bases across countries meant that indigenous research and extension were vitally important. Education was required if countries were to produce, adapt, transfer, and receive new technologies. By the 1990s, countries that were successful in agricultural development had put in place a research- and technology-transfer system that included: (1) indigenous agricultural research stations and educational

² See Jeffrey Sachs, *Investing in Development: A Practical Plan to Achieve the Millennium Development Goals, the Millennium Project* (London: Earthscan publishing, 2005).

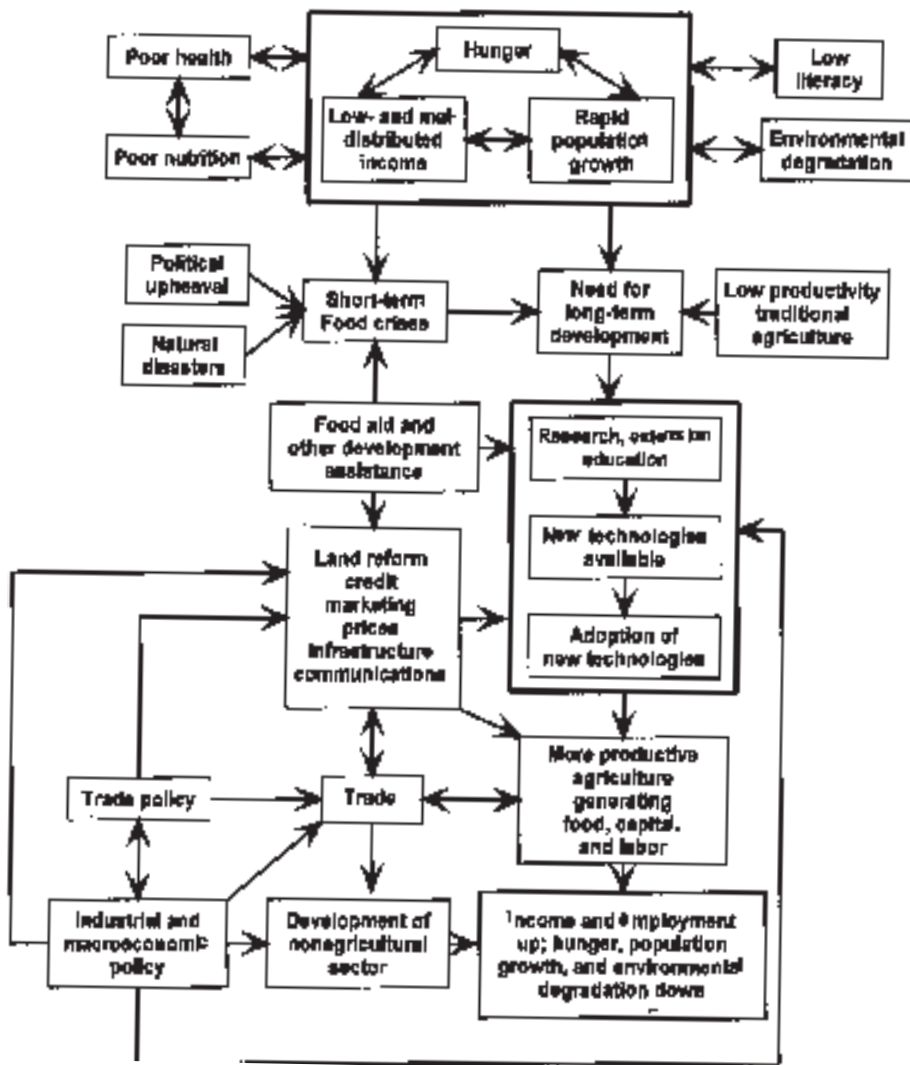


Figure 20-1. The hunger problem and the solution process.

institutions, (2) a mechanism for linking those stations to on-farm research and testing, and (3) ties between the national research system and the international agricultural research and training network.

As important as indigenous capacity for agricultural research and extension is, the last several years have also demonstrated the need for a whole series of policy or institutional reforms related to the agricultural sector. These reforms have been proven important not only

because of their influence on production incentives and the distribution of economic gains, but also because of their influence on the types of technologies produced and adopted. Land reform, improved credit policies, marketing system development, nondiscriminatory pricing policies, rules on intellectual property protection, efficient means of managing risks, and incentive systems to reduce environmental externalities are examples of the institutional changes that may be required.

New technologies are not gifts of nature, and institutional changes do not magically appear. New technologies require research investments, and the levels and types of technologies produced and subsequently adopted are influenced by changes in relative prices of inputs and outputs. Institutional changes also are induced by changes in relative prices and by technical change.

The logic of the induced technical and institutional change theories and their apparent empirical verification in several countries, particularly in East Asia, give cause for optimism. However, the failure of many countries to follow a path of sustained development has forced economists to broaden the induced innovation theory. This broadening has come by incorporating transactions costs and collective action into the theory.

Transactions costs refer to the costs of information, of adjusting a fixed-asset base, and of negotiating, monitoring, and enforcing contracts. The fact that information is not perfect and is costly to acquire, and that people are willing to exploit their situation at the expense of others, has received particular attention. If one group has greater access to information than another, that group can act collectively to press for policies or new technologies that benefit it at the expense of others.

If a small but wealthy elite with large landholdings finds it cheaper to acquire information and act collectively, it may press for technical and institutional changes for personal benefit at the expense of the masses. The elite may press for changes that not only distribute income in its favor, but reduce the agricultural growth rate because the resulting technologies and policies may not be appropriate for the resource base in the country.

Factors that can help reduce transactions costs are those factors that reduce information costs. Improved roads and communications infrastructure are examples; new communications technologies are having dramatic impacts even in remote areas. More widespread access to market information is allowing producers to make decisions that increase economic efficiency. Widespread access to education is also critical, as education allows people to better use information. Land reform can help in many countries, as can institutional change to enhance



Young boys in Guatemala.

contracting, to improve the legal infrastructure, and to provide certain types of regulations.³ Freer markets to provide efficient price signals to individual farmers also should help.

Markets are generally held to be the best means of transmitting signals to actors. In developing countries, however, market imperfections due to transactions costs, unequal asset distributions, and other factors are the norm. These factors also increase variability in prices and exacerbate risks for producers and consumers. Some government involvement is legitimate and necessary to reduce these imperfections and allow markets to work. Government involvement can be justified to provide “public goods,” to create equal access to opportunities, and to achieve equity outcomes consistent with society’s wishes.

Macroeconomic and International Institutional Changes

In the 1950s and 1960s (and to some extent before and after) several economists in developing countries recommended policies that discouraged agricultural exports and encouraged production of goods that would substitute for imports. The argument for these policies was based on potential or perceived exploitation of developing countries by more-developed countries. However, countries that integrated more closely into international markets tended to develop

³ For example, regulations may be needed to reduce environmental externalities, to provide food safety standards, and for other purposes.

more rapidly than those that closed or isolated their economies. The more rapid development was due in part to the lower level of rent-seeking behavior and corruption as well as the increased efficiency gains from trade and specialization.

Some of the countries that discriminated against agricultural trade encouraged capital-intensive imports, causing capital-intensive industries to develop in labor-abundant countries. These industries placed a drag on economic development because human resources, freed up by increases in agricultural productivity, were under-employed. This tendency to develop capital-intensive industries may have been induced in part by transactions costs and collective action, but also by a perceived need to imitate more-developed countries.

For the past 30 years, several developing countries have suffered from heavy external indebtedness. This problem has forced some countries to reform their policies in ways that are intended to spur longer-run economic growth. The debt overhang is so large for some Latin American and African countries, however, that without debt reduction on the part of those holding the loans, development will remain impeded. Official debt can be rescheduled through the Paris Club and by multilateral organizations. Some debt reduction for the lowest-income heavily-indebted countries has occurred and more has been promised. However, commercial debt reduction will only be achieved slowly without improved international oversight to reduce the free rider problem that currently exists.

Continued efforts by developing countries to reduce overvalued exchange rates and to phase out policies such as export taxes will be required to stimulate agricultural growth. Phasing out export taxes, however, will necessitate new mechanisms for generating government revenues, such as land or income taxes. Such taxes become somewhat more feasible as information flows improve in a country. New institutions will be needed along with increased government responsibilities. Reduced trade restrictions by developed countries as a result of negotiations under the auspices of the WTO would also help developing countries. Increased regional economic integration among developing countries may also play a positive role in some cases.

Capital Flows and Foreign Assistance

Capital flows have provided a two-edged sword for many countries, particularly in Asia and Latin America. Capital inflows have helped stimulate investments and growth, particularly in East Asia, but have led to financial crises when outflows occur rapidly over a short period of time. The crisis that spread through East Asia beginning in 1997 had

devastating impacts on human welfare and set back progress toward development in affected countries. The world-wide economic crisis that began with the freezing of lending by U.S. and European banks in fall 2008 contributed to a deep global recession whose impacts are still being felt. Developing countries each must decide upon the appropriate mix of regulations for capital flows, fixity of exchange rates, and freedom to adjust macro-economic policies. Flawed decisions can lead to economic instability and stagnation.

Economic development assistance can help relieve short-term food crises and can contribute to longer-term development. Emergency food aid is essential for averting famine following natural disasters and major political upheavals. Longer-term financial aid could help to reduce the debt problem in several countries and provide real resources for development.

Aid effectiveness could be improved by longer-term commitments and increased donor coordination. Less tying of aid to factors such as procurement from donor sources but increased tying of aid to institutional changes that eliminate distortions or reduce transactions costs would help.

Coordinated international action has been successful in dealing with specific development problems. International support for agricultural research led to productivity increases that enhanced food security, reduced famines in highly populated areas, and helped alleviate rural poverty. Worldwide immunization efforts, coordinated by the World Health Organization, have significantly reduced deaths due to common childhood diseases. Concerted efforts to provide food to famine victims have reduced famine mortalities. Similar international coordination could be effective in reducing debts, providing assistance for policy reforms, and for other specific actions. Because development needs and the impacts of different interventions vary from country to country, international actions to promote growth have tended to be less successful than those used to address specific short-run problems.

In summary, it is clear that many pieces are needed for a country to solve its development puzzle. Enhanced information flows are vitally important for agricultural development. More labor-intensive industrial growth is needed in several countries if the employment problem is to be solved.

ASSESSING FUTURE PROSPECTS

Several countries in Asia have grown at relatively rapid rates for almost three decades (with some short-term financial instability), but masses of impoverished people still live in Asia. Latin American

countries that grew in the 1960s and 1970s stagnated in the 1980s and most of the '90s. Most Sub-Saharan African countries have grown very slowly, stagnated, or declined for the past 40 years. Hunger problems persist despite increased food production, per capita, in the world over the past 50 years. Poverty rates have, however, generally fallen except during 2008–09. Environmental problems have grown worse in several countries as well. What does the future hold for reducing hunger, poverty, population growth, and environmental problems? Let's consider some of the underlying forces at work.

Supply and Demand for Food

The real price of food in the world trended slightly downward for several years as supply growth outstripped demand growth. Recently, real energy prices have increased, raising production costs, and incomes have grown and shifted demands outward in populous countries such as China and India; real world food prices have increased. Most experts think that food prices will remain high and volatile through 2010–20, although they may not hit the peaks of mid-2008. The major long-run food supply shifters are new technologies and the competition with energy for use of agricultural resources. The major demand shifters are population and income growth. As we look to the future, population will continue to grow, but the *rate* of population growth will fall. Incomes have increased rapidly in several Asian countries, including China with its massive population base. Continued income growth is likely. Asia has two-thirds of the world's population and, as a region, the best chance of continued supply increases due to research-induced technical change. Food production per capita will likely continue to increase in Asia, but income-based growth in demand is likely to keep food prices high (Box 20-1). There will be increased diversification away from rice, however, as diets change with higher incomes. In particular, demands for animal proteins are likely to increase, with important implications for livestock production and marketing systems.

In Latin America, increased food production per capita is likely, but not at a rapid rate, as debt problems continue, limiting public investments in agriculture. Population growth rates have already declined from their peaks of earlier decades, facilitating this per-capita increase. More urbanization and income growth will have implications for food demands and a changing face of marketing and trade in food. Overall, demand growth is likely to outstrip supply growth for this region.

Unfortunately, many Sub-Saharan African countries will continue to experience disease and stagnant per-capita growth in food production. Some increased investments in education and in agricultural

BOX 20-1.**THE PROSPECTS for CEREAL TECHNOLOGIES**

The spectacular burst in yield potential from new varieties of rice and wheat that began the Green Revolution has not been repeated. Rice yields on experimental farms have not grown dramatically since the introduction of IR-8 in 1966. However, the difference between yields on the best farms and the yields on experiment stations has shrunk dramatically since 1970, particularly in Asia. This reduced difference is due to widespread irrigation, high application of fertilizer, and good management. Future gains in rice production must come increasingly from rain-fed upland and deep-water areas, unless new biotechnologies provide yield breakthroughs.

The prospects for wheat and maize are more optimistic, even in the shorter run. The Centro de Mejoramiento de Maiz y Trigo (CIMMYT) reports a continuing increase in the yield potential of wheat of about one percent annually. Substantial progress has been made toward breeding in disease resistance, especially against wheat leaf-rust. Yield growth for wheat in less favorable conditions has been less spectacular. High-yielding varieties for low-rainfall marginal areas are limited, and there are virtually no new varieties for the lowland humid tropics. Major break-throughs in these areas may pave the way for a technology-driven boom in wheat yields. Maize shows the most promise. There is a large gap between experiment station and farmer's yields, and weed control seems to be the critical problem. Human-based solutions to weed problems provide opportunities for increased employment while increasing maize yields.

In terms of genetic engineering and other biotechnologies in general, the outlook is promising but uncertain. Many improvements, such as increased insect/disease and drought resistance, are on the horizon, but public fears about biotechnologies in developed countries have slowed the development and spread of these technologies in developing countries as well.

research systems have been realized, but population growth rates are still high. If small income increases can be realized, population growth may decelerate, but environmental problems appear to have already degraded the resource base in parts of the Sahel to the point of reducing productivity. AIDS and malaria remain serious health problems. Recently the Gates Foundation has joined other public and private organizations in a concerted attempt to solve these serious health problems, but solutions will be difficult and will take time.

Institutional Changes

Improved information technologies and infrastructure development have improved information flows in some developing countries. These

improvements may create pressures for political and institutional changes, changes that offer favorable opportunities for development. Reduced transactions costs that result would induce the development of technologies that are better suited to the relative resource scarcities of the countries. More market-oriented policies may continue to create efficiency gains, as they have in Asia. There is evidence that some governments in Latin America and Africa have laid the groundwork for these types of gains as well. One factor that has led to food price volatility in recent years has been the small size of food stocks held globally and in individual countries. While it can be inefficient for countries in Africa to hold large stocks due to storage losses, among other factors, evidence seems to indicate that increased holding modest levels of stocks to buffer prices swings may make sense.

The willingness of more-developed countries to provide foreign assistance and international institutional changes to help poor countries is constantly in flux. Indifference was growing during the 1990s among policy makers in the United States and many other developed countries. The fall of communism in Eastern Europe and the breakup of the Soviet Union a few years ago reduced political pressures on Western governments to help developing countries for the purpose of keeping those countries out of Soviet influence. The heightened focus on the terrorism threat since September 11, 2001, has caused many nations to focus their resources more on countries posing security threats than on attacking more broadly the root causes of poverty and hunger.

The relatively wealthy countries of the world must resist isolationist temptations. Terrorist attacks and threats may help stimulate countries eventually to seek longer term solutions to problems abroad. A long-term goal of promoting democracy and freedom can only be attained through steps to reduce poverty and build economic opportunity. Many security, income, hunger, and environmental problems require a supra-national decision-making process. In order to strengthen the United Nations agencies that could make these decisions, developed countries will need to increase their contributions to official development assistance.

HOW YOU CAN HELP

You as individuals can do a great deal to help solve hunger, poverty, ill health, environmental degradation, and other development problems. Some of you can get involved directly through working for grass-roots organizations in developing countries. The Peace Corps is an example in the United States, but there are many others. For those from developed countries, spending time living and working in a



People in developing countries can benefit from grass-roots help.

developing country can greatly improve your understanding of development problems. We are each captive of the pictures in our mind, and living in a developing country provides a more accurate picture of the world.

Getting directly involved in influencing the fortunes of others can bring you a feeling of significance or satisfaction. The frustrations of working with desperately poor people are many. If you are not an optimist, you may not want to try. However, if you are adventurous, flexible, and somewhat persistent, you may want to consider working at a grass-roots level in a developing country.

Some of you can obtain a graduate education to become animal scientists, plant breeders, plant pathologists, entomologists, agricultural economists, soil scientists, microbiologists, or some other type of agricultural scientist needed to help solve world food, income, and environmental problems. Employment opportunities exist for rewarding careers at universities, in international agricultural research centers, national research centers, and private firms. Until the world's population stabilizes, the battle to keep world food production increasing at roughly 2 to 3 percent per year will continue.

Most of you will take very different career paths, but the opportunity always exists to contribute to solving poverty problems through financial contributions to private voluntary organizations. All of you can strive to keep informed about what is happening in the world

outside your state and country. You can try to keep politicians informed and let them know that you support foreign assistance contributions to countries where needs are greatest.

SUMMARY

In this chapter, but also in the whole book, we have stressed the interrelatedness of hunger, population, and poverty problems. There are no panaceas, but a set of interconnected pieces to a development puzzle. We have learned over the years what many of these pieces are. In this chapter we stressed particularly the importance of enhanced-information flows if broad-based development is to occur. Open economies, employment-based industrial policies, and development policies that do not discriminate against agriculture are essential. For developed countries, now is the time for renewed commitment to finding solutions to development problems.

IMPORTANT TERMS and CONCEPTS

Agricultural scientist	No panacea
Enhanced information flows	Supply and demand shifters
Feeling of significance	Supra-national decision-making process
Grassroots organization	
Interdependence	

QUESTIONS for DISCUSSION

- 1 Why might there be room for guarded optimism with respect to future agricultural and economic development?
- 2 Describe the interconnectedness among the pieces that can contribute to solving the development puzzle.
- 3 How has the theory of induced technical and institutional innovation been broadened and why?
- 4 What factors can help reduce transactions costs?
- 5 Why have relatively open economies grown more rapidly than relatively closed economies?
- 6 What factors will determine the long-run future price of food in the world?
- 7 Why do enhanced information flows offer favorable prospects for development?
- 8 What might you as an individual do to help solve hunger, poverty, and other development problems?

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Glossary of Selected Terms

- absolute advantage:** When one country's cost of producing a good is lower than the cost in other countries.
- agricultural extension:** The process of transferring information about improved technologies, practices, or policies to producers, consumers, or policymakers.
- agricultural productivity:** Level of agricultural output per unit of input.
- balance of payments:** Difference between receipts from all other countries and payments to them, including all public and private transactions.
- biased technical change:** The process of adoption of new means of production that use one factor more intensively than other factors, holding all other things constant.
- bilateral:** Two-party or two-country, such as aid from one country to another.
- biotechnology:** A set of tools, including traditional breeding techniques, that alter living organisms, or parts of organisms, to make or modify products; improve plants or animals; or develop micro-organisms for specific uses. Modern biotechnology includes use of recombinant DNA, monoclonal antibodies, and novel bio-processing techniques, among others.
- birth rates and death rates:** The number of births or deaths per 1,000 population in a year.
- buffer stocks:** Supplies of a product that are stored and used to moderate price fluctuations. These stocks are sold during periods of rising prices, and purchased when prices fall.
- capital accumulation:** Investment.
- common property:** Property for which the rights of use are shared and ownership is not private but shared by all.
- comparative advantage:** Ability of a country to produce a good or service at a lower opportunity cost than another country can. The theory of comparative advantage implies that a country should devote its resources not to all lines of production, but to those it produces most efficiently.

- concessional:** Subsidized, usually used with respect of interest on loans.
- consumer/producer surplus:** Consumer surplus is the area below the ordinary demand curve and above the price paid; it is a measure of well-being. Producer surplus is the area above the supply curve and below the price paid; it is a measure of returns to fixed factors of production.
- debt rescheduling:** Extending the repayment period for loans, altering interest rates, forgiving part of the principal, or some combination of the three.
- demographic transition:** The historical shift of birth and death rates from high to low levels in a population. Death rates usually decline before birth rates, resulting in rapid population growth during the transition period.
- discount rate:** The value used to determine the present value of future cash flows arising from a project or an investment.
- economic development:** Improvement in the standard of living of an entire population. Development requires rising per capita incomes, eradication of absolute poverty, reduction in inequality over the long term, and increased opportunity of individual choice.
- economic or structural transformation of an economy:** The increase in the size of the nonagricultural sector relative to agriculture that occurs in all economies as economic growth occurs.
- elasticity:** A measure of the percentage response of one variable (for example, quantity demanded) to a 1 percent change in another variable (for example, price).
- experiment station:** A center or station at which scientists conduct research.
- external debt:** Debts owed by the government in one country to creditors in another country.
- externality:** An economic impact of an activity by an individual or business on other people for which no compensation is paid. Externalities may be positive or negative and are often unintentional.
- foreign assistance or foreign aid:** Includes financial, technical, food, and military assistance given by one or several countries to another country. This assistance may be given as a grant or subsidized loan.
- foreign exchange rate:** The number of units of one currency that it takes to buy a unit of another currency.
- free rider:** An individual or business that receives the benefits of the actions of another individual or business without having to pay for those benefits.
- free trade area:** A block of countries that agree to lower or eliminate tariffs and other trade barriers among themselves, but each country

maintains its own independent trade policy toward nonmember nations.

fungibility of credit: The degree to which money loaned for one purpose can be used for another.

General Agreement on Tariffs and Trade (GATT): Multilateral agreement, originally negotiated in 1947, for the reduction of tariffs and other trade barriers. The agreement provides a forum for intergovernmental tariff negotiations.

globalization: The increasing integration of economies around the world, particularly through trade and financial flows. Also refers to the movement of people and knowledge across international borders.

Green Revolution: The dramatic increases in wheat and rice harvests that were achieved in the late 1960s, primarily in Asia and Latin America, following the release of fertilizer- and water-responsive, high-yielding, semi-dwarf varieties of those crops.

high-yielding variety: Varieties of plants that have been improved through agricultural research so that they yield more per amount of input than the traditional varieties.

human capital: The level of education, skills, knowledge, health, and nutrition of an individual or a population.

import substitution: Actions by a government to restrict imports of a commodity to protect (from international competition) and encourage domestic production of the good.

induced innovation theory: A theory that hypothesizes that technical change is induced by changes in relative resource endowments and by growth in product demand; institutional change is induced by changes in relative resource endowments and by technical change.

institutions: Organizations or rules of society. Government policies, regulations, and legal systems are examples.

integrated pest management: The coordinated use of biological, cultural, and chemical pest control practices to reduce insects, diseases, and weeds. The purpose is to control pests in both an economically and an ecologically sound manner.

intellectual property rights: Laws regulating the copying of inventions, identifying symbols, and creative expressions. These laws encompass four separate and distinct types of intangible property — patents, trademarks, copyrights, and trade secrets.

international agricultural research centers (IARCs): The set of agricultural research centers supported by a group of public and private funding sources. These centers provide improved technologies and institutional arrangements to help developing countries increase their

food production. Funding is coordinated by the Consultative Group on International Agricultural Research (CGIAR).

international capital market: The transfers of capital (money) among countries in response to short- and long-term investment opportunities.

international commodity agreement: A formal agreement among the major producing and consuming countries of a commodity that specifies a mechanism for stabilizing price. An agreement may specify import and export quotas for each country.

International Monetary Fund (IMF): An international financial institution designed to: (1) promote international monetary coordination; (2) foster international trade; (3) facilitate stabilization of exchange rates; (4) develop mechanisms for multilateral transactions between members; and (5) provide resources for enhanced international financial stability.

land reform: An attempt to change the land tenure system through public policies.

land tenure: The rights and patterns of control over land.

less developed country (developing country) (LDC): Generally refers to countries in which per capita incomes are below \$6,000, although a few countries with higher incomes consider themselves to be less developed or developing.

market failure: When markets fail to efficiently organize production or allocate goods in a way that maximizes social welfare.

micro-finance: Small-scale provision of credit, savings, and insurance services, usually to the very poor.

moneylender: An informal lender whose business it is to lend money to borrowers, usually at high interest, with little or no collateral or paperwork.

money supply: Currency plus money that can be easily withdrawn from checking or savings accounts.

monopoly power: When a single seller or united group of sellers has the power to alter the market price as opposed to having to just accept the market price.

monopsony: A market with a single buyer.

multilateral: Refers to many countries as opposed to two countries (bilateral). Examples are multilateral aid, multilateral trade, and multilateral agreements.

multiple exchange rates: When a country sets different rates between its currency and foreign currencies depending on the class of imports. May be used to control foreign exchange by limiting certain types of imports.

Official Development Assistance (ODA): Foreign assistance that excludes military related assistance, export credits, and private fund transfers while having at least a 25 percent grant element. The grant element is defined as the excess of the loan or grant's value over the (present) value of repayments calculated with a 10 percent interest rate.

opportunity cost of capital: The rate of return on the best alternative use for the funds. It is the cost of alternative investments forgone when a particular investment is made.

overvalued exchange rate: When the official value of a currency is too high given the exchange rate that would otherwise prevail in international money-markets given the supply and demand for the country's currency.

parastatal: An institution, such as a marketing board, that is used by a government to control the production, distribution, international trade, and domestic price of a product. This product might be an agricultural good or an input such as fertilizer.

production function: Describes, for a given technology, the different output levels that can be obtained from various combinations of inputs or factors of production.

production possibilities frontier: The trade-off between the maximum amount of two goods that can be produced in a country given existing production technologies and the available productive resources.

protectionism: A reaction by an industry or a country to foreign competition. That reaction is usually manifest through tariffs, quotas, or other means of reducing imports to shield domestic producers.

public goods: Goods or services that are non-rival (consumption or use by one person does not preclude consumption by another) and non-exclusive (a person cannot be excluded from consumption or use, except at prohibitively high costs).

scale-neutral technology: A technology that can be employed equally well by any size firm.

social cost: The total value of resources used in production of a good, including the value of externalities, which are not borne by the producer of the good or reflected in the market price.

structural adjustment program: Government program aimed at adjusting the economy to reduce imbalances between aggregate supply and demand. Structural adjustment programs typically involve: devaluation of the foreign exchange rate to increase exports and reduce imports, reduced government spending, and removal of many government policies that distort prices, including barriers to trade.

subsidized (concessional) credit: Loans made with interest rates below the rates prevailing in the market.

sustainable development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

tariff: A tax or duty placed on goods imported into a country.

technology: The method for producing something. New technologies are often embedded in inputs, for example, seeds or machines. Hence higher-yielding seeds or more efficient machines are often referred to as improved technologies. Technological progress occurs when more output is obtained from the same quantity of inputs. Technology transfer occurs when methods (perhaps embedded in materials) from one location are applied in a second location.

terms of trade: The relationship between the prices of two goods that are exchanged; for example, the price of an export good relative to the price of an import good. When the price of an export good increases relative to the price of an import good, the terms of trade have increased for the export and are said to be favorable.

trade preferences: Refers to favorable tariff treatment accorded by one country or group of countries to exports of certain other countries.

transactions costs: The costs of adjustment, of information, and of negotiating, monitoring, and enforcing contracts.

World Bank: The major multilateral-funded organization that makes loans to developing countries. It contains the International Finance Corporation, the International Bank for Reconstruction and Development, and the International Development Association.

World Trade Organization (WTO): The international institution created in 1994 to replace the GATT, and strengthen enforcement of international trade rules and the settling of trade disputes.

Authors Cited

Page numbers followed by

b — indicate material in boxes

f — indicate material in figures

n — indicate material in footnotes

t — indicate material in tables

- Achard, Frédéric, 167
Acharya, Meena, 192
Adams, Dale W., 294, 297, 299, 300
Ahmed, Raisuddin, 314t, 317
Alston, Julian M., 230, 232t, 234, 259
Alwang, Jeffrey, 46, 137, 145, 285b
Anderson, Kym, 111, 323, 332, 339, 342, 343, 348, 356, 364
Anderson, S., 138
Angelsen, Arild, 174
Asturias de Barros, Linda, 192, 194b
Baker, Doyle C., 193b, 203
Bardham, P., 291
Barro, Robert J., 401
Baumol, William J., 218
Baxter, Michael, 255, 259
Beitema, Nienke, 254, 259
Bell, Clive, 270, 280
Bellu, Lorenzo Giovanni, 184
Benjamin, Dwayne, 269
Bennett, Lynn, 192
Bennett, M. K., 15, 50
Benor, Daniel, 255, 259
Berry, Albert, 280
Bezuneh, Mesfin, 35f, 152f
Bigot, Yves, 299
Binswanger, Hans P., 217b, 250, 280, 286, 299
Boserup, Ester, 154b, 203
Bouman, F. J. A., 299
Braverman, Avishay, 268b
Bromley, Daniel W., 174, 175
Brooks, Karen, 268b
Brown, Lynn R., 185, 204
Burnside, Craig, 405
Byerlee, Derek, 323
Chan-Kang, Connie, 230, 232t, 317, 323
Chapagain, Devendra P., 175
Chase, Robert, 410
Chen, Shaohua, 29
Christensen, Cheryl, 51t
Cistulli, Vito, 184
Cline, William R., 280, 327, 356, 364
Cohen, Benjamin J., 392
Collier, Paul, 414
Colman, David, 111, 336b, 348
Conklin, Neilson, 93f
Courbois, C., 140
Csaki, Csaba, 268b
Cummings, Ralph W., Jr., 280, 281
Dalgaard, Carl-Johan, 405
Davie, Ted J., 168
de Janvry, Alain, 218, 265, 274, 280, 406
de Waal, A., 200
Deaton, Angus, 55, 57b
Deere, Carmen D., 203
Dehmer, Steven, 254, 259
Deiningner, Klaus, 274, 280
del Ninno, Carlo, 40, 45
Delgado, C., 140
Dercon, Stephan, 193
Diaz-Bonilla, Eugenio, 349
Dimitri, Carolyn, 93f
Dixon, John, 145
Dollar, David, 405
Donald, Gordon, 300
Doss, Cheryl, 197
Duckham, Alec N., 149, 150, 160
Duncan, A. J., 138
Easterly, William, 414

- Edirisinghe, Neville, 41
Effland, Anne, 93f
Ehui, S., 140
Eicher, Carl K., 24, 160
Ellis, F., 145
Erbaugh, Mark, 192, 194b
Eva, Hugh D., 167
Evenson, Robert E., 250, 319, 323–4
Fafchamps, Marcel, 218, 274
Falcon, Walter P., 3, 324, 365, 368f, 370
Fan, Shenggen, 317, 323
Feder, Gershon, 280
Feldstein, Hilary Simms, 185, 193b, 203, 204
Flores, Rafael, 45
Fogel, Robert, 107
Folbre, Nancy, 203
Folmer, H., 184
Foster, A., 277
Foster, Phillips, 45, 68
Gallego, Javier, 167
Gandhi, Vasant P., 235
Garcia, Andres F., 342
Gardner, Bruce L., 111, 187
Gavian, Sarah, 45
Gelbard, Arlene, 85
Gibbon, David, 145
Giovannucci, Daniele, 337
Gillespie, Stuart, 45
Gittinger, J. Price, 37, 203, 301, 312, 323, 378
Gladwin, Christine H., 203
Glewwe, Paul, 186, 204
Graham, Carol, 351
Graham, Douglas H., 299
Grosh, Margaret, 40, 45
Guasch, J. Luis, 268b
Gulliver, Aidan, 145
Haddad, Lawrence, 185, 193, 204
Hamilton, Sarah, 192, 194b
Hareau, Guy, 245
Harou, Patrice, 184
Harris, Colette, 192, 194b
Harrison, James A., 255, 259
Haub, Carl, 85
Hayami, Yujiro, 128, 145, 207–15, 217b, 225, 250, 252, 293, 299, 323
Heinrichs, E. A., 176, 192, 194, 285b
Hansen, Henrik, 405
Herrero, M., 138
Hertel, Thomas, 339
Hicks, John R., 212
Hoisington, Caroline, 37, 203, 301, 312, 323, 378
Hopper, W. David, 145
Hossain, Mahabub, 292, 299, 317
Houck, James P., 406
Houtman, R., 299
Irwin, Michael E., 176, 192, 194, 285b
James, Clive, 245
Jin, Songqing, 274, 280
Johnson, D. Gale, 348
Johnston, Bruce F., 47
Joyce, Joseph, 389, 392
Juggins, Janice, 192, 195
Junhua, Ehou, 156b
Kaimowitz, David, 174
Keeney, Roman, 339
Kent, Mary M., 85
Khandker, Shahidur, 292
Kikuchi, Masao, 217b
Koppel, Bruce M., 225
Krishnan, Pramila, 193
Krueger, Anne O., 323, 394, 397, 404
Krugman, P., 387b
Ku-Vera, J. C., 138
Lancaster, Carol, 414
Landsburg, Steven, 112, 113
Lapenu, Cecile, 295, 296
Leathers, Howard D., 45, 68
Leaver, J. D., 138
Leslie, Joanne, 37, 203, 302, 312, 323, 378
Levinsohn, James, 411
Lewin, Bryan, 337
Lin, Justin Y., 156b, 160
Lin, Lin, 405
Lipton, Michael, 38
Loomis, Robert S., 146
Luther, Gregory C., 176, 192, 194, 285b
MacMillian, Margaret, 411
Maddison, Angus, 89
Mahar, Dennis J., 179b
Maimbo, Samuel Munzele, 398b
Malingreau, Jean-Paul, 167
Markandaya, Anil, 184
Markandaya, Kamala, 25
Marra, Michele C., 230, 232t
Martin, Will, 339, 348, 356, 364
Martorell, Reynaldo, 193
Masefield, G. B., 149, 150, 160
Masters, William A., 259, 273b, 332, 342
Maxwell, S. T., 411

- Mayaux, Philippe, 167
 McCleary, Rachel, 401
 McMillan, Della, 203
 Mellor, John W., 45, 47, 58, 60t, 68, 131, 314t
 Meyer, Richard L., 289, 300
 Meyers, Norman, 163, 164
 Michalopoulos, Constantine, 404
 Mills, Bradford, 245
 Moore, Keith, 192, 194b
 Morrison, Elizabeth, 399

 Ndiaye, Aida, 193
 Norman, David W., 145
 North, Douglas C., 128, 218, 223, 225
 Norton, George W., 176, 192, 194, 234, 245, 259, 285b, 405
 Obstfeld, M., 387b
 Olson, Mancur, Jr., 128
 Ortiz, Jaime, 405
 Ouerghi, Azedine, 40, 45
 Owen, E., 138
 Palomino, Julio, 233b
 Pandya-Lorch, Rajul, 45, 185, 428
 Pardey, Philip G., 24, 68, 69, 230, 232t, 234, 254, 259, 405, 428
 Pearce, David W., 184
 Pearson, Scott R., 3, 324, 365, 368f
 Peña, Christina, 185, 204
 Peterson, Everett, 245
 Piesse, Jenifer, 405
 Pingali, Prabhu, 299, 319, 323–4
 Pinstrup-Andersen, Per, 45, 185, 245, 259, 306t, 307, 323, 428
 Pitt, Mark M., 292
 Plucknett, Donald L., 236b
 Poats, Susan V., 203
 Posada, Rafael T., 235, 259
 Puetz, Detlev, 55, 198
 Purcell, Randall B., 399
 Quisumbing, Agnes, 185, 204
 Ramakrishnan, Usha, 193
 Rangnekar, D., 138
 Ratha, Dilip, 398b
 Raup, Philip M., 260
 Rausser, Gordon, 187
 Ravallion, Martin, 28b, 29
 Ray, Debraj, 280
 Reardon, Thomas, 319, 320, 323
 Repetto, Robert, 168
 Reynolds, C. K., 138
 Richards, I., 138
 Richards, Timothy, 167
 Riddell, Roger, 414
 Roberts, Colleen, 410
 Robinson, Marguerite S., 295, 299
 Robinson, Sherman, 349
 Rogoff, Kenneth, 392
 Rosegrant, Mark W., 24, 68, 69, 140, 428
 Rosenzweig, Mark R., 217b, 277
 Rosero, José, 197
 Rudra, A., 291
 Runge, C. Ford, 24, 68, 69, 428
 Ruthenberg, Hans, 160
 Ruttan, Vernon W., 111, 128, 207–15, 225, 226, 250, 252, 259, 293, 299, 394, 404
 Sachs, Carolyn, 192, 194b
 Sachs, Jeffrey, 112, 113, 284, 300, 393, 405, 414, 417
 Sadoulet, Elisabeth, 218, 274, 406
 Sahn, David E., 135
 Sain, Gustavo, 323
 Sangraula, Prem, 29
 Sarma, J. S., 51t, 235
 Schady, Norbert, 197
 Schiff, Maurice, 323
 Schioler, Ebbie, 245, 259
 Schramm, Gunter, 161, 164, 179b, 184
 Schuh, G. Edward, 378
 Schultz, T. Paul, 187, 319, 323–4
 Schultz, Theodore W., 136, 145, 187, 211, 227
 Scobie, Grant M., 235, 259
 Sen, Amartya K., 31b, 45
 Senauer, C. Benjamin, 24, 68, 69, 428
 Sfeirounis, Alfredo, 163
 Sharma, Shalendra, 405
 Shirmer, Isabelle A., 168
 Siegel, Paul B., 46, 137, 145, 337
 Singer, H. W., 411
 Skjonsberg, Else, 145
 Smith, Lisa C., 193
 Smith, T., 138
 Spriggs, John, 317
 Staatz, John M., 24, 160
 Steele, M. A., 138
 Steinfeld, H., 140
 Stibig, Hans-Jürgen, 167
 Stiglitz, Joseph, 405
 Streeten, Paul, 324
 Sukhatme, Vasant, 404

- Tanzo, Irene, 192, 194b
Tarp, Finn, 405
Tesliuc, Emil, 40, 45
Thirlwall, A. P., 111
Thirtle, Colin, 405
Thomas, D., 138
Thorbecke, E., 28
Tietenberg, T. H., 184
Timmer, C. Peter, 3, 301, 304, 312, 319,
320, 323, 324, 365, 368f, 370
Todaro, Michael P., 24
Truman, Harry S., 399
Turner, R. Kerry, 184
Valdes, Alberto, 323
Varangis, Panos, 337
Vink, N., 111
von Braun, Joachim, 55, 68, 198, 335, 415
Von Pischke, J. D., 299, 300
Von Thunen, Heinrich, 210n
Walsh, John, 239b
Warford, Jeremy J., 161, 164, 179b, 184
Webb, Patrick, 198
White, T. Kelley, 406
Whiteside, A., 200
Wigley, Tom M. L., 168
Williamson, Oliver, 226
Wilson, E. O., 168
Wolgin, J. M., 145
Wood, Stanley, 254, 259
Wortman, Sterling, 280, 281
Wyatt, T. J., 230, 232t
Yaron, Jacob, 300
Young, Trevor, 336b, 348
Zeller, Manfred, 289, 295, 296, 300

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Subject Index

Page numbers followed by

- b — indicate material in boxes
- f — indicate material in figures
- n — indicate material in footnotes
- t — indicate material in tables

Note: Proper nouns come before the same word used generically; i.e., Human comes before human.

A

- access to information, 313
- adaptive research, 242
- adjustable interest rates, 382
- adjustment costs, 358
- Afghanistan, 166, 395, 396t, 409
- Africa, 4, 5, 6f, 8, 10, 52, 71, 94, 135b, 149, 150, 152f, 158, 166, 175, 188, 208–9, 239b, 245, 246, 249t, 252, 261, 262t, 263b, 285, 332, 3422, 343t, 361, 378, 382, 383
 - Central, 51t
 - Eastern, 51t, 399
 - Horn of, 284
 - North, 253t
 - Southern, 51t, 245, 254, 319, 357, 399
 - Sub-Saharan, see Sub-Saharan Africa
 - The Sahel, see Sahel, The
 - West, Western, 51t, 135b, 150, 190, 194b, 277, 352
- Africa Rice (WARDA), 249t
- Agricultural Trade Development and Assistance Act of 1954, 407
- agricultural
 - development, 141–3, 207–24, 365–90
 - integrated approach to, 415–22
 - role of trade, 335–6
 - theories of, 207–12
 - export taxes, 340–2
 - extension, see extension
 - labor markets, 275–8
 - lobbies, 331
- agricultural, *continued*
 - prices of products and land, 375
 - production, 39–40
 - productivity, 168–70, 228–31
 - defined, 5
 - research, see agricultural research
 - systems, 146–59
 - technology, 29–30
 - trade, 11, 354
- agricultural research, 227–58
 - categories of, 241–3
 - economic benefits, 245–6
 - environmental effects, 238–9
 - international research centers, 246–9
 - nutritional implications, 237–8
 - organization of, 246–8
 - rate of return on investment, 232t
 - spending, 252–4, 253t
 - transferability of results, 250
- agriculture
 - change in, 417–20
 - conservation, 196b
 - export-oriented, effects of, 335
 - foreign assistance to, 400
 - intensive use, 21, 209–10
 - revolution, first & second, 22b
 - role of, in development, 18–22
 - settled, 22b
 - traditional, 131–43
- agroforestry, 249t
- Ahmed, Raisuddin, 317
- AID, see USAID
- AIDS, 10, 77, 356, 424
 - see also HIV-AIDS
- allocative efficiency, 100
- Amazon, 175, 179b
- America, see Latin, North, South
- Andes mountains, 34, 164
- anemia, 41
- animal
 - inputs, 285–6
 - power, compared with labor, 157
 - products, 50, 164

- annual cropping, 154b
 anti-feudal land reforms, 265–7
 applied research, defined, 242
 Argentina, 19, 20t, 251, 332, 339, 372, 385
 Asia, 4, 5, 5f, 71, 94, 138, 142, 166, 168,
 188, 190, 192, 195, 198, 208, 209–10,
 236b, 246, 247, 253t, 261, 262t, 263b,
 286, 319, 342, 343t, 382, 395, 408, 409,
 423
 Central, 343t
 East, 319, 383, 388
 South, 28b, 94, 148, 158
 West, 253t
 Asian-Pacific countries, 357
 asset redistribution, 223
 assistance programs, 393–406
 Atlantic Ocean, 8
 Australia, 20t, 208, 343t
- B**
- balance of payments, 371
 banana(s), 57b, 153, 175, 180, 249t, 264,
 333, 337
 Bangladesh, 20t, 30, 31b, 38, 71t, 82f,
 143f, 164, 165f, 292, 294f, 295, 306t,
 314t, 315f, 317, 341, 396t, 408, 409
 Bangladesh Rural Advancement
 Committee (BRAC), 401
 basic research, 241–2
 bawon rice harvesting system, 217b
 Bedouin, pastoral nomads, 150
 Belarus, 72t
 Belgium, 400
 Benin, 72t
 Bennet, M.K., 15, 50
 Bennett's law, 50
 bilateral preferential agreements, 352
 bio-diesel, 60
 Biodiversity (IPGRI), 249t
 biofuels, 8, 26, 60–1, 283
 biological technologies, 22b
 biotechnology research, 243
 benefits and costs, 244–5
 products of, 244
 birth rates, 75–6, 77–9
 reduction of, 79
 Bolivia, 132
 black market, 305
 bloc-floating system, 379
 Bolivia, 396t
 Borlaug, Norman, 236b
- Boserup, Ester, 154b
 Botswana, 10, 138, 193b, 332
 Brazil, 20t, 51t, 60, 71t, 167, 175, 179b,
 188, 228, 229t, 305, 306t, 313, 339, 341,
 372, 385, 388, 396t
 Bread for the World, 401
 Britain, 103, 114, 209, 328b, 382, 400
 Brimley, Daniel W., 175
 Brown, Lynn R., 185
 buffer stock program, 307, 359–60
 Buffett, Warren, 401
 Bulgaria, 72t, 268b
 bullock, 141f
 Burkina Faso, 72t, 245
 Burundi, 72t
 bush fallow cultivation, 154b
- C**
- calorie
 availability, 5, 32, 33f
 intake, 15
 Cambodia, see Kampuchea
 Camp David Peace Agreement, 408
 Canada, 20t, 343t, 358, 407
 Canadian International Development
 Agency (CIDA), 399
 capital
 accumulation, 101, 104–5, 116, 274
 flight, 381
 flows, 388–9, 393–8,
 human, 102, 106–7
 -intensive goods, 21–2
 -led growth, 127
 markets, 11, 379–80
 physical, 104–5
 physiological, 107
 social, 109
 sources of, 116
 trade interactions, 335
 CARE, 409b
 Caribbean, 175, 192, 253t, 358, 361, 383,
 385
 Caribbean Basin Initiative, 352
 cassava, 34, 228, 247, 249t
 mealybug, 239b
 mosaic virus, 228
 casual labor, 276–7
 Catholic Relief Services, 401
 cattle, 58f, 133–4b, 135b, 138–41, 152–3,
 175
 CDM = Clean Development Mechanism

- ceblokan harvesting system, 217b
- Central America, 113, 141, 149, 164, 181, 193, 194b, 209, 264, 277–8, 319, 337, 358
- Centre for International Forestry Research (CIFOR), 249t
- Centro de Mejoramiento de Maiz y Trigo (CIMMYT), 424b
- Centro Internacional de Agricultura Tropical(CIAT), 249t de la Papa (CIP), 249t, 251f
- cereal
- import facility, 361
 - products, 41, 61, 164
- CGIAR = Consultative Group for International Agricultural Research
- Chan-Kang, Connie, 317
- Chapagain, Devendra P., 175
- chemical
- fertilizers, 283
 - pollution, 170, 284
- Chenery, Hollis, 116
- child, children
- as investment, 77–9, 200–1
 - benefits of, 77, 134b
 - consumption benefit, 77
 - education of, 187–8, 190f, 200–1
 - employment of, 77–8, 200–1
 - malnutrition, 77
 - mortality, 78
- Chile, 396t
- China, 10, 30, 71, 71t, 79, 117, 138, 155, 156b, 164, 166, 192, 228, 229t, 254, 264, 267, 270, 284, 306t, 313, 317, 398b, 423
- CIAT = International Center for Tropical Agriculture, 239b, 249t
- CIDA = Canadian International Development Agency
- CIFOR = Centre for International Forestry Research, 249t
- CIMMYT = International Center for Maize and Wheat Improvement, 247, 249t, 424b
- CIP = Centro Internacional de la Papa (International Potato Center), 251f
- Clark, Colin, 115
- Clean Development Mechanism, 180–1
- climate change, 12, 140–1, 148, 152, 168–9
- adaptation to, 168–9
- Cline, William R., 327
- cocoa, 18, 135b, 153, 180, 277, 333, 337, 338, 340–1, 344t, 359, 361
- coffee, 18, 135b, 153, 175, 180, 192, 255, 313, 333, 337, 338, 340, 341, 344t, 359, 361
- collective
- action, 219, 350
 - land tenure system, 154–5, 156b, 264–5
 - self reliance, 357
- Colombia, 1f, 20t, 43f, 58f, 79, 199f, 235, 266, 276b, 306t, 396t
- commodity
- agreements, 359–60
 - groups, 331–2
 - marketing boards, 316b
 - markets, 8
 - price trends, 360
 - supply curve, 230
- common property management, 180
- communicable diseases, 10
- communications, 313–5
- comparative advantage, 113, 329–31, 380
- principle of, 329, 330b
- Compensatory Financing Facility (CFF), 361
- Schemes (CFS), 360–1
- competitive advantage, 380
- complements, defined, 53
- Congo, Democratic Republic of, 72t, 74f, 395
- Conservation Agriculture for Sustainable Agriculture and Rural Development (CA), 196b
- labor effects, 196b
- constraints to trade, 337–46
- external demand, 337–8
- Consultative Group for International Agricultural Research (CGIAR), 247, 248
- consumer subsidy, 304f
- consumption parameters, 56–9
- contraception, 79
- cooperative farms, 264
- copyrights, 240, 355
- Corn Laws, 114, 328b
- corporate farms, 264
- corruption, 345, 376–7, 420–1
- cost differences, 329
- cost of adjustment problems, 351
- cost-recovery measures, 189
- Costa Rica, 387, 396t
- Cote d'Ivoire, 361, 383
- cotton, 133b, 333, 338, 340, 344t, 358, 361

- credit
 access to, 197–8
 government-assisted programs, 293–8
 markets, 281–97
 policy lessons, 296–7
 role of, 288–9
 subsidized, 293–5
- crop rotation, 22b, 209
- cross-price elasticities, 53
- cross-sectional data, 54–5
- Cuba, 266
- Cummings, Ralph W., 281
- current account deficit, 382, 383b
- D**
- Dacca, 31b
- dairy products, sector, 140, 339
- death rates, 75–6
- Deaton, Angus, 57b
- debt
 buying-back, 387
 crisis, 382–5
 causes, 382–3
 effects, 383–5
 solutions, 385–8
 foreign, 12, 351
 forgiveness, 400
 for conservation (nature) swap, 387
 forgiveness, partial, 386
 relief, 42–3, 385–8
 rescheduling, 386–8
 service, 383
- default probability, 291, 385
- deforestation, 12, 13, 162, 166–8, 167f, 179b, 238
 results of, 170
- degradation of natural resources,
 solutions to, 176–82
- demand
 curve(s), 48, 48f, 52, 63f, 345
 effective, 47–56
 defined, 47
 factors, 8
 food, 47–65
 aggregate, changes in, 58–9
 determinants of, 48–59, 60t
 influences on, 58–9
 growth of, 60t, 407
 income
 effect on, 49
 elasticities of, 49–52, 91–2
- demand, *continued*
 -induced changes in, 56–8
 interactions with supply, 61–5
 law of, 48
 price elasticity of, 92
 shifts (food), 7, 91
 -supply interactions, 61–5
- Democratic Republic of the Congo, 72t, 74f, 395, 396t
- demographic transition, 76f, 77
- dependency theory, 119–20, 127
- derivatives, markets, 361–2
- desertification, 12, 164–6, 170, 238
 defined, 165
- determinants of farming systems, 146–9
- devaluation, 372–3, 384–5
- Development Assistance Committee of
 OECD, 397
- Development Round = Doha Round
 353, 356
- development, 14–5, 415–20
 agricultural, 207–24, 393–406
 assistance programs, 398–401
 banks, regional, 402
 diffusion theory, 210–1
 location theory, 210
 strategies, 121–7
 growth vs equity, 124–5
 industry versus agriculture, 122
 inward vs outward-led, 123–4
 private vs public, 125–6
 sustainable, 196b
 defined, 14
 theory, 87–128
 trade protectionism, 119–20
 two-sector model, 116–9
 value judgments, 18
- DFID = United Kingdom Department
 for International Development
- Dhaka Bangladesh, 82f
- Diaz-Bonilla, Eugenio, 349
- dietary energy, 32
- diminishing returns, law of, 97–8
- disease(s)
 child, 77
 communicable, 10
- diversification, 137, 210, 345, 358–9
- diversity, biological, 168
- division of labor, 106, 113
- Doha Round
 trade negotiations, 353, 356

- Domar, Evsey, 116
 drainage, 209, 283
 drip irrigation, 284
 drought, 165
 -resistant plants, 284
 dryland farming, 133b, 164–5
 dual-economy models, 116–9, 117f, 127, 236
 Duckham, Alec N., 149–50
- E**
- EC = European Community
 econometric model, 55
 economic
 determinants of
 crop and livestock mix, 155–8
 input use, 155–8
 development, 14
 growth, 89–111
 sources of, 100–9
 opportunities, 81
 optimality, 95, 98–100, 100f
 solutions to natural resource
 degradation, 177–82
 transformation, 19–21, 20t, 89–111
 Ecuador, 20t, 53f, 103f, 163f, 201f, 233b, 266, 285b, 372, 386
 education
 adult, 188–9
 benefits of, 186–8
 for non-farm jobs, 187
 role of, 186–9
 types of, 188–9
 effects
 income, 53–4
 substitution, 53
 efficiency
 allocative, 100f, 106
 improvement, 106
 input, 157f
 market, 106
 output, 159f
 price, 100f, 106
 technical, defined, 106
 Egypt, 51t, 166, 305, 306t, 332, 395, 396t, 408, 411
 Eicher, Carl K., 24
 El Salvador, 396t
 elastic, defined, 52
 elasticity
 complements, 53
 elasticity, *continued*
 cross-price, 53
 estimates, 54–6
 income effect, 49–53
 methods for obtaining estimates, 54–6
 own-price, 52
 price, of demand, 52–4
 substitution effect, 53
 unit elastic defined, 52–3
 employment
 off-farm, 137–8
 energy, 60
 deficiency, 32t, 166
 enforcement of environmental
 protections, 182
 Engel's law, 49–50
 England, see Britain
 Enhanced Heavily Indebted Poor Country (HIPC) debt relief initiative, 386
 enlightened self interest, 222–4
 environmental
 degradation, 12, 161–82, 238
 effects of research, 238–9
 problems, 170–93
 erosion, soil, 12, 162–4, 238
 caused by livestock, 141
 ethanol, 60, 283
 Ethiopia, 20t, 35f, 42, 164, 193, 198, 395, 396t, 408, 409
 Euphrates River basin, 1666
 Europe, 71, 75, 114, 209, 319, 331, 343t, 399
 Eastern, 71, 164, 268b, 270, 399
 Northwest, 14, 22b
 European Community (EC), 353, 361, 407
 exchange
 flexible, 389, 391
 foreign, defined, 371
 rate devaluation, 384
 rates, 335, 341–2, 371–3, 373b, 388–9
 expanding the extensive margin, 208
 exports
 cash-crop, 18
 industrial, 18
 -oriented agriculture, 335
 quotas, 338, 341
 taxes, 155, 307, 308f, 341, 421
 extension, 254–6
 extensive
 livestock systems, 153
 margin, 208

- external debt, 381–8
 externalities, 126, 171–2, 173b
- F**
- Factor Endowment Theory of
 Trade, 335, 336b
- factors of production, 95
- Falcon, Walter P., 3, 365
- family
 nuclear, 190
 planning, 78, 79
 size, 77–9
 structure, 185–202
 well being, 197
- famine, 5–6, 30–6, 31b, 125, 422
- Fan, Shenggen, 317
- FAO = Food and Agricultural
 Organization of the United Nations
- farm
 products, markets for, 407
 size, 231–4
 surpluses, disposal of, 407
 tenure, 231–4
- Farmer Field Schools, 196b, 285b
- farming systems, 249t
 biological factors, 148
 determinants of, 146–59
 endogenous factors, 148
 exogenous factors, 148
 human factors, 147f, 148–9
 institutional factors, 147f, 148–9
 physical factors, 148
 technical factors, 147f, 148
 types of, 149–55
 women's role, 191–5
- farms
 commercial family, 262–3
 family, 262–3
 group, 264
 state, 264, 268b
 traditional, 129f, 131–43
 size of, 132–4
 types of, 264–5
- FDI = foreign direct investment
- feeding programs, 40–1
- Fei, John, 116
- female, see women
- fertility change, 75–80
- fertilizer, 22, 133b, 139, 174, 282, 283, 424b
 natural sources of, 283
 -responsive rice, 217b
- feudalism, 265
- FGT = Foster, Greer, Thorbecke Index
- FGT Index, 28b
- financial
 services, 290
 systems microfinance approach, 295–6
- financing gap, 116
- fiscal policy, 368
- Fisher, Alan, 115
- fish, fisheries, 249t, 306t
- fixed-payment leases, 216
 -rent contracts, 267
- flooding, 164
- Food and Agricultural Organization
 of the United Nations (FAO), 35, 248,
 403b
- food
 aid, see food aid
 balance sheets, 35–6
 consumption, 26
 demand, see food demand
 deprivation, 8
 emergency, 409
 for work programs, 43
 fortification, 40–1
 grains, 6, 407
 intervention programs, 40–1
 livestock role in supply, 138–9
 market structure, 319–20
 prices, 6–8, 29–30, 390
 safety regulations, 353b
 stamps, 309
 subsidy programs, 40, 305
 supply, 3–6, 25–6, 138–9, 237, 423–4
- food aid, 43, 397, 400, 407–11
- food demand, 25–43, 47–56, 91, 423–4
 economics of, 47–65
 effective, 47–59
 determinants of, 48–9
 income elasticities of, 49–52
 law of, 48, 48f
- foot-and-mouth disease, 353b
- Ford Foundation, 247
- foreign aid, 369
 capital flows, 395–8
 content of programs, 400
 effects of, 403–5
 effects on donors, 406
 humanitarian, 394
 rationale for, 412
 results, 404–5

- forestry, rate of return on investment, 232t
 formal money markets, 289, 291–3
 Foster, J., 28b
 Foster, Greer, Thorbecke Index, 28b
 France, 20t, 254, 352, 400
 Frank, Andre Gunder, 119
 free trade areas, defined, 357
 free-rider problem, 125–6
 fungicides, 284, 285b
 Future Harvest centers, 247–9
 futures markets “exchange”, 361–2
- G**
- Gates, Bill and Melinda, 401
 Gates Foundation, 424
 GATT = General Agreement on Tariffs and Trade
 Gaud, William S., 236b
 GDP = Gross Domestic Product
 gender roles, 185–202
 determinants of, 195–201
 in traditional farming, 141–2
 General Agreement on Tariffs and Trade (GATT), 352–4, 355
 genetic engineering, 243
 Germany, 71, 72t, 254, 328b
 Ghana, 316, 340–1
 gini coefficients, 262
 global trade war, 354
 globalization, 11–12
 GNI = Gross National Income
 GNP = Gross National Product
 goat (s), 139, 152–3
 goiter, 34
 goods, inferior, normal, superior, 52
 governance assistance, 400
 government role in marketing, 316–8
 information, 317–8
 infrastructure, 317
 regulations, 318
 grains, food crops, 8, 153, 333, 407
 Grameen Bank of Bangladesh, 292, 294f, 295
 grants, foreign assistance, 397
 Great Britain, see Britain
 Great Depression, 316b
 Greece, 20t
 green
 –house gas emissions, 181
 manuring, 209
 revolution, 22b, 108b, 236b, 247, 424b
 Greer, J., 28b
 Gross
 Domestic Product (GDP), 15, 83b, 332, 366–7, 367f
 National Income (GNI), 16f, 90f, 91f
 National Product (GNP), 15, 383, 400
 groundnuts, 133b, 137, 249t, 344t
 growth
 constraints to, 114
 contemporary theory, 120–1
 determinant of, 227–8
 stages, in economies, 114–5
 sources of, 100–9, 101b, 117
 strategies, 112–26
 technology driven, 116
 theory, 120–7
 Guatemala, 174, 180, 313, 420f
 Guinea, 72t
- H**
- Haiti, 396t, 367
 Hamilton, Sarah, 194b
 Harrod, Roy, 116
 Harrod-Domar model, 116
 Harrod-Domar-Chenery model, 116
 harvest, 133b, 134
 –labor institutional systems, 217b
 Hayami, Yujiro, 207
 HDI = Human Development Index
 health, 8–10, 37–8, 284
 reproductive, 400
 Heckscher-Ohlin-Samuelson Theory, 336b
 hedging, 362
 Heifer International, 401
 herbicides, 284
 herding, nomadic, 164
 hides, livestock role in providing, 139
 Hima, pastoral nomads, 150
 Himalayas, 164
 HIPC = Enhanced Heavily Indebted Poor Country (debt relief initiative)
 history of food aid, 407–8
 HIV/AIDS, 10, 38, 77, 195, 200, 400, 415
 homogeneity condition, 55–6
 Honduras, 11f, 13, 188, 372, 396t, 398b
 horticultural products demand,
 marketing, 320, 320b
 Hossain, Mahabub, 317
 Household Responsibility System, 267
 HPI = Human Poverty Index

- Human
 Development Index(HDI), 15, 27
 Poverty Index (HPI), 17, 27
 human capital, 102, 106–7, 185–202, 380
 Hungary, 72t
 Hunger Project, The, 80
 Hunger Task Force, 428
 hunger, 4–6, 8, 25–43, 418f, 423
 hunter-gatherer societies, 22b
 Hurricane Mitch, 13
- I**
- IARCs = International Agricultural
 Research Centers, 246–9, 251, 257
 IBRD = International Bank for Recon-
 struction and Development, 402
 ICARDA = International Center for
 Agricultural Research in Dryland
 Areas, 294t
 ICRISAT = International Crops Research
 Institute for the Semi-Arid Tropics,
 249t
 IDA = International Development
 Association, 402
 IFAD = International Fund for
 Agricultural Development, 292
 IFC = International Finance
 Corporation, 402
 IFPRI = International Food Policy
 Research Institute, 41, 249t, 335
 IITA = International Institute of
 Tropical Agriculture, 239b
 ILRA = International Livestock Research
 Institute, 249t
 IMF = International Monetary Fund,
 350, 361, 386, 387b, 389, 402
 immunization efforts, 422
 import
 restrictions, 338, 385
 substitution strategy, 123, 332, 335
 incentives, government-sponsored, 181
 income, 15
 effect, 53
 elasticity of demand, 49–52, 51t, 60t
 fluctuations, 27, 39
 from agriculture, 90
 transfer programs, 308, 309
 Index, level of living, 15
 India, 13, 19, 30, 38, 51t, 71, 71t, 79, 117,
 139, 164, 188, 201, 228, 229t, 234, 236b,
 254, 266, 277, 284, 306t, 314t, 332, 339,
 340, 396t, 398b, 423
 Indian ocean, 8
 indirect pricing policies, 308
 Indonesia, 13, 20t, 51t, 71t, 79, 167, 198,
 201, 228, 229t, 314t, 333, 334t, 337, 372,
 396t
 induced
 innovation theory, 212–6, 282, 419
 implications, 219–21, 220f
 technical, 212–4, 213f
 institutional change, 214–6, 419
 in Java, 217b
 industrial revolution, 22b, 328b
 inelastic demand
 curve, 345
 defined, 53
 inequality defined, 17b
 inferior goods, 52
 inflation, 367–8, 369, 370b
 information
 access to, 313
 government provision of, 317–8
 lack of for marketing, 312
 infrastructure
 communications, 313–5
 deficiencies, 312
 government role, 316–8
 storage, 313
 innovation, 108b
 possibilities curve, 212, 213f
 input(s), 281–98
 animal, 285–6
 high payoff, 211
 importance of, 281–9
 manufactured, 282–7
 mechanical, 286
 markets, 281–97, 287–8
 response curve, 95–6, 96f, 97f
 subsidies, 287, 345
 insecticides, 284
 instability, food price, 7
 institutional change, 239–40, 350, 424–5
 insurance, 27, 137, 289
 Integrated Pest Management, 176, 194b,
 285, 285b
 Intellectual Property Rights, 121, 240–1,
 355
 intensification, 210
 intensive
 annual crops, 151f, 152–3
 livestock, 151f, 153
 intercropping, 137

- interest rates, 373–4
 adjustable, 382
 negative real rates, 374
 rural rates, 289–93
- International
 Agricultural Trade, Development, and Assistance Act of 1954 (P.L. 480), 407, 408, 409b
 Agricultural Research Centers (IARC), 246–9, 251, 257
 Bank for Reconstruction and Development (IBRD), 402
 Center for Agricultural Research in Dryland Areas (ICARDA), 249t
 Center for Insect Physiology and Ecology, 248
 Center for Maize and Wheat Improvement (CIMMYT), 247, 249t
 Center for Tropical Agriculture (CIAT), 239b, 249t
 Centre for the Settlement of Investment Disputes, 402
 Committee of the Red Cross, 401
 Crops Research Institute for the Semi-Arid Tropics (ICRISAT), 249t
 Development Association (IDA), 402
 Finance Corporation (IFC), 402
 Food Policy Research Institute (IFPRI), 41, 249t, 335
 Fund for Agricultural Development (IFAD), 292
 Institute for Tropical Agriculture (IITA), 239b, 249t
 Livestock Research Institute (ILRI), 249t
 Monetary Fund (IMF), 350, 361, 386, 387b, 389, 402
 Rice Research Institute (IRRI), 205f, 247, 249t
 Water Management Institute (IWWI), 249t
- international
 agricultural research centers, 246–9, 248f, 249t
 institutions, laws, 222, 224
 trade, see trade
- investment, 104, 395–8
 foreign direct (FDI), 395
 portfolio, 395
- IPGRI, see Biodiversity
- IPM = Integrated Pest Management
- IPR = Intellectual Property Rights
- IR-8 = rice variety, 247, 424b
- Iraq, 166, 395, 396t, 409
- iron
 deficiency, 34
 deficiency anemia, 32t
- IRRI = International Rice Research Institute
- irrigation, 21, 166, 176, 209, 238, 249t, 283, 369, 424b
- Islam, -ic, 192
- iso-cost line, 158
- iso-revenue line, 158
- isoquant (curve), 96, 97f, 155–8
- Israel, 264, 265f, 395, 396t
- Italy, 20t
- IWWI = International Water Management Institute
- J**
- Japan, 20t, 71t, 214, 254, 270, 331, 343t, 371
- Japan International Cooperation Agency (JICA), 399
- Java, 164, 217b
- JICA = Japan International Cooperation Agency
- Johnston, Bruce F., 47
- Jordan, 396t
- Jorgenson, Dale, 116
- K**
- Kampuchea (Cambodia), 30, 396t, 408
- Katmandu, Nepal, 13f
- Kefa Village, Zambia, 133–4b
- Kenya, 51t, 139f, 150, 177f, 248, 314t
- kibbutzim, 264, 265f
- knowledge
 as a public good, 121
 as a source of growth, 177
- Korea, 164
 see North Korea, South Korea
- kwashiorkor, 34
- Kyoto Protocol, 180–1
- L**
- labor
 casual vs permanent, 276–7
 compared to animal power, 157
 demand for, 81, 116–9
 dual-economy model, 116–9

- labor, *continued*
 exchange, 137
 -intensive consumer goods, 22
 -land ratios (U.S., Japan), 214
 marginal cost of, 118
 -surplus, 116-9, 117f
 markets, 260-78, 374-5
 seasonality, 276
 Laguna de Tigre national park, 174
 Lancaster House Agreements, 272b
 land, 260-78
 access to, 261, 269-70
 banks, 274
 commissions, 268b
 markets, 260-78
 ownership, 149, 261-5
 reform, 198, 260-7, 267-75, 278
 defined, 261
 results of, 271-4, 272b
 rights, 261
 supply, fixed, 92
 tenure, 260-7
 reform, 265-7
 systems, 21, 154-5, 261-5
 use patterns, 175
 Landsburg, Steven, 112, 113
latifundia, 263
 Latin America, 4, 5, 6f, 52, 138, 150, 175, 188, 192, 198, 201, 208, 236b, 239b, 246, 261, 286, 342, 343t, 357, 378, 381, 382, 383, 385-6, 388-9, 390, 402, 405, 415, 423
 "La Violencia", 276b
 Law 4 (1973), Law 135 (1961), Law 200 (1936), 276b
 law of
 demand, 48-9
 diminishing returns, 97-8, 113
 LDC = less-developed countries, 338, 380
 leading sectors, 115
 leases, fixed payment, 216
 Lesotho, 195
 less-developed countries (LDC), 338, 382, 390
 level-of-living index, 15
 Lewis, W. Arthur, 116
 licenses, export and import, 345
 life expectancy, 15
 List, Frederick, 114-5
 livestock, 192, 247, 285, 423
 impacts on environment, 140-1
 livestock, *continued*
 management systems, 22b
 revolution, 140
 roles of, 138-41
 systems, changes in, 140-1, 152-3
 lobbying, 342, 376-7
 location theory, 210
 Lome Convention, 361
 Loomis, Robert S., 146
 Lucas, Robert, 120
 Lutheran World Relief, 401
- M**
- macroeconomy, 366-8, 367f
 institutions, 222, 420-1
 policies, 365-75, 376-8
 prices, 370-5
 relationships, 378-90
 stabilization, 402
 Madagascar, 168, 367
 Maddison, Angus, 89
 maize, 6, 7f, 51t, 60, 61, 133b, 137, 164, 247, 249t, 257, 282, 306t, 307, 314t, 344t, 424b
 rate of return on investment, 232t
 malaria, 10, 38, 283, 424
 Malawi, 72t, 191, 277, 314t
 Malaysia, 51t, 332, 333, 334t
 Mali, 20t, 72t, 340
 malnutrition, 8, 25-43, 254
 causes of, 36-9
 health and, 37-8
 measurement of, 34-6
 Malthus, Thomas, 113
 marasmus, 34
 Marginal Rate of Technical Substitution (MRTS), 157-8
 marginal
 cost curve, 230
 lands, farming of, 12
 output gain, 97-8
 product, 95, 97-9, 99f, 118
 Markandaya, Kamala, 25, 184
 marker-assisted breeding, 243, 246
 market, -ing
 agencies, boards, 340
 -based interventions, 361-2
 deficiencies, failures, 172, 311-5
 distortions, government-induced, 312
 functions, 311-15, 312f
 government role in, 316-8

- market, -ing, *continued*
 organizations, 315
 supply, defined, 61
 systems, 311–15
 transformation, 319–20
- marketing and planning committees, (MPCs), Nepal, 320b
- Marx, Karl, 114–5
- Marxist perspective, 119
- Masai, pastoral nomads, 150
- Masefield, G. B., 149–50
- Mauritania, 361, 367
- MDC = more developed countries, 338
- MDRI = Multilateral Debt Relief Initiative
- measles, 37–8
- meat, 306t, 333
 demand, 142
 provided by livestock, 139, 153
- mechanical innovation, 108b
- Mellor, John W., 47, 131
- mercantilism, 113–4, 328b
- meta project function, 214
- methane digesters, 139
- Mexico, 20t, 51t, 166, 188, 201, 247, 271, 305, 306t, 319, 332, 356, 382, 385, 386, 388, 398b
 City, 83b
- MFIs = Micro-finance institutions, 295
- microbial degradation research, 243
- microcredit, 292–3
- micro-finance, 292–3, 295–6, 398b, 401
- Middle East, 22b, 246, 284, 405
- MIGA = Multilateral Investment Guarantee Association
- migration
 causes of, 81–2
 consequences of, 82–4
 rural-to-urban, 81–4, 83b
 seasonal, 134–5, 135b
- milk
 demand, 142
 provided by livestock, 139, 153
- Mill, John Stuart, 113
- millet, 51t, 150, 247
- minifundia*, 263
- minimum wage legislation, 374–5
- mixed farming, 151f, 152–3
- Moldova, 20t, 398b
- monetary
 measures 27
 policy, 368–70
- money
 -markets, rural, 289–93
 supply, 370b
- Mongolia, 150
- monoclonal antibodies research, 243
- monopoly rights, 335
- monopsonistic power, 310
- Morocco, 306t
- mortality
 child, 8, 9f
 infant, 8, 15
- MPCs = marketing and planning committees, Nepal, 320b
- MRTS = Marginal Rate of Technical Substitution
- Mugabe, Robert, 272b
- Multilateral
 Debt Relief Initiative (MDRI), 386
 Investment Guarantee Association (MIGA), 402
- multi-
 cropping, 154b
 lateral lending agencies, 386
- multiple exchange rate system, 341–2
- multiplier effects, 288
- Myanmar, 167
- N**
- NAFTA = North American Free Trade Area
- National
 Agricultural Research Institution, Ecuador, 233b
 Integration Program, 179b
 national savings, 116
- natural
 disaster, 31b
 monopolies, 126
- natural resource(s), 103–4
 degradation, 15, 170–6
 environmental influences on, 103–4
- Near East, 6f, 166
- negative externalities, 126
- Nepal, 13f, 129, 135b, 139, 164, 167f, 191f, 192, 320b
- Netherlands, 400
- New International Economic Order (NIEO), 353, 354, 357
- New Zealand, 343t
- NGO = non-governmental organization
- Nicaragua, 396t

- NIEO = New International Economic Order
- Niger, 72t
- Nigeria, 51t, 71t, 167, 228, 229t, 314t, 316b, 341, 386, 395, 396t, 397
- nitrogen fertilizers, 283
- Nobel Peace Prize, 236b
- non-governmental organization (NGO), 400, 401, 412
- normal goods, 52
- North
- America, 14, 71, 114, 208
 - Korea, 30-1, 42, 409
- North American Free Trade Area (NAFTA), 357-8
- nutritional
- assessment, 35-6, 37f
 - education, 42
 - implications of ag research, 237-8
- O**
- ODA = Official Development Assistance, 397-8, 400, 412
- OECD = Organization for Economic Cooperation and Development, 397
- OECD, Development Assistance Committee of, 397
- Official Development Assistance (ODA), 397-8, 400, 412
- oil, 103, 306t, 344t, 386
- OPEC = Organization of Petroleum Exporting Countries, 400
- Oportunidades (Mexico), 201
- opportunity cost, 329
- optimality, economic, 95
- options markets, 361
- oral rehydration therapy, 42
- Organization for Economic Cooperation and Development (OECD), 397, 400
- Organization of Petroleum Exporting Countries (OPEC), 400
- organized money markets, 289, 291-3
- output levels, 98-100
- overgrazing, 12, 152, 170
- overvalued currency, 341
- Oxfam, 401
- P**
- Pacific, 142, 253t, 361
- Pakistan, 71t, 166, 201, 236b, 284, 306t, 396t
- Pan-American Agricultural School, 188
- Papua New Guinea, 198
- Paraguayan Chaco, 264
- parastatal(s), 315
- marketing agencies, 340
- Pardey, Philip G., 69
- Paris Club, 386, 387b, 388, 421
- pastoral nomadism, 150-2
- patents, 121, 241, 355
- Payments for Environmental Services (PES), 181
- PBRs = Plant Breeders' Rights
- Peace Corps, 425
- peanuts, 153, 358, 361
- Pearson, Scott R., 3
- peas, 153, 249t
- peasant associations, 274
- perennial crops, 153
- permanent labor, 276-7
- Peru, 87, 257f, 271, 385, 387, 396t
- PES = Payments for Environmental Services
- pesticides, 12, 170, 178f, 194b, 282, 284-5
 - health problems from, 284
 - pollution, 238
 - resistance to, 170, 284
- philanthropy, 401
- Philippines, 20t, 51t, 178f, 188, 194b, 205f, 247, 264, 271, 277, 306t, 314t, 333, 334t, 383, 396t, 397, 398b
- phosphate(s), 283
- P.L. (Public Law) 480, 407-8, 409b
- Plant Breeders' Rights (PBRs), 240, 241
- plant genetic material, 249t
- Poland, 72t
- political
- power shifts, 303
 - rents, defined, 376
 - self-interest, 394
 - system, effect on agriculture, 155
- pollution
- chemical, 170
- population, 69-86, 400
- distribution of, 70-2
 - growth, 10, 69-76, 100-1
 - projections, 80, 80f
- portfolio investment, 395
- Portugal, 71, 72t
- Posada, Rafael T., 235
- positive externalities, 126
- potash, 283

- potatoe(s), 53, 132, 201f, 247, 249t, 285b
 pests of, 285b
- potatoes, sweet, 133b, 137, 249t
- poverty, 10, 17b, 25–43, 78, 385
 alleviation of, 39–43, 127
 causes of, 36–9
 chronic, 27–9
 defined, 17b, 26, 28
 index, 28b
 lending approach, 295–6
 measurement of, 17b, 27, 28b
 monetary indices of, 28b
 -related problems, 4–5
 rural, 29
 transitory, 27–9
 traps, 29
- power, provided by livestock, 141
- PPF = Production Possibilities Frontier
- Prebish, Raul, 119
- pressure groups, 376–7
- price
 ceilings or floors, 303–4, 304f
 efficiency, 100
 elasticity of demand, 52–4, 91–2
 intervention, 302–9
 policy, 57b, 155
- pricing policies, 301–11
 effects of, 309–11
 influences on, 301–2
- Production Possibilities Frontier (PPF), 158
- production
 choices, 95–100
 function, defined, 95
 function(s), 95–7, 96f, 97f, 101b
- productivity, 91, 118, 185
 effect, 230
 growth rate, 252
 improvements, 228–31
 input, 229f
 measures of, 136
- program food aid, 409–10
- PROGRESA program, 201
- project food aid, 410
- property rights, 172, 178, 275
- protectionism, 119–20, 328b
- protein
 animal, 423
 deficiency, 32t
- Public Law 480, 407
- public
 goods, 125
 public, continued
 marketing agencies, 340
 sanitation, 10
 pulses, 51t, 153
 pumpkins, 133b
 purchased inputs, 155
- Q**
- quota(s)
 quantitative restrictions, 351
 rights, 345
 trade, 338, 341, 359
- R**
- random migration, 150
- Ranis, Gustav, 116
- rationality, 136–7
- rationing, 305
- Raup, Philip M., 260
- Reardon, Thomas, 319, 320
- recession, 385, 390
- recombinant DNA research, 243
- redistribution of land, 270–4
- regional
 development banks, 402
 disparities, 234–5
- relative price of food, 6
- remittances, 395–7, 398b
- research, agricultural, 227–58
 activities in Ecuador, 233b
 biological and soils, 240
 categories of, 241–3
 effects
 distributional, 231–38
 nutritional, 231–38
 impacts, 228–31
 mechanical/chemical, 240
 outputs, 227
 public vs private, 240
 results, 227–8, 237–8
- resource
 sustainability, 161–83
 use, 161–83
- respiratory diseases, 10
- results of aid, 404–5
- Ricardo, David, 113–4, 329
- rice, 6, 7f, 41, 51t, 57b, 61, 87, 142, 150, 153, 208, 210, 234, 247, 249t, 257, 303, 306t, 314t, 317, 423
 African variety, 228
 fertilizer-responsive varieties, 217b

- rice, *continued*
 harvesting systems, 217b
 rate of return, 232t
 research program benefits, 235
 semi-dwarf, 236b
 ripper tiller, Tanzania, 196b
 risk, 12–3, 136–7, 226–7, 291
 Robinson, Sherman, 349
 Rockefeller Foundation, 247, 401
 Romania, 72t, 268b
 Romer, Paul, 120
 roots and tubers, 51t, 150, 153, 249t, 333
 Rosegrant, Mark W., 69
 Rostow, Walt W., 115
 rotational grazing, 177f
 rubber, 333, 344t
 ruminants, 153
 run-off, caused by livestock, 141
 Runge, C. Ford, 69
 rural
 finance, 289–97
 labor markets, 278
 rural-to-urban migration, 81–4
 causes of, 81–2
 consequences of, 82–4
 Russia, 71t, 72t, 372, 388
 Ruttan, Vernon W., 207
 rye, 22b
- S**
- Sachs, Jeffrey, 112, 113, 393
 safety nets, 40
 Sahel, The, 51t, 164, 166, 284, 424
 salinity, salinization, 166, 283
 sanitary, -tation, 10, 41–2, 355
 and phyto-sanitary measures (SPS), 355
 savage growth stage, 114
 savings (credit source), 289
 schistosomiasis, 283
 school fees, 189
 schooling, years of, 15
 Schramm, Gunter, 161
 Schultz, Theodore W., 136, 211, 227
 Scobie, Grant M., 235
 seasonality, 134–5, 276
 seed(s) as input, 282–3, 2287
 Senauer, Benjamin, 24, 69
 Senegal, 361
 Serbia, 72t
 settled agriculture, 151f, 152–3, 195
 share lease, tenure, 216, 264
 sharecropping, 265b, 277
 sheep (ruminant), 139, 153, 249t
 shifting cultivation, 150, 151f, 195
 short
 fallow cultivation, 154b
 leases, 175
 Schultz, Theodore W., 227
 siltation, 162–4
 caused by livestock, 141
 Singapore, 333, 334t
 Singer, Hans, 119
 slash and burn cultivation, 150
 Smartwood, 180
 Smith, Adam, 106, 113
 social
 institutions, 102
 justice, 197–9
 safety nets, 27, 29
 science research, 223
 soil
 degradation, 162–4
 erosion, 12, 150, 162–4, 167f
 caused by livestock, 141
 Solow, Robert, 116, 120
 Solow model of development, 120, 127
 Somalia, 8, 396t
 sorghum, 150, 153, 193b, 249t, 314t, 344t
 Soros, George, 401
 South
 Africa, 278, 319
 America, 34, 71, 166, 194b, 208, 319,
 358
 Asia, 148, 166
 Korea (Republic of), 20t, 51t, 266, 270,
 332, 333, 334t, 372, 396t, 399
 Vietnam, 408
 Soviet Union, 164, 264, 270, 408
 soybeans, 60, 61, 333
 specialization, 92, 105–6
 Spriggs, John, 317
 SPS = sanitary and phyto-sanitary
 measures, 355
 Sri Lanka, 13, 40–1, 79, 198, 306t
 Staatz, John M., 24
 STABEX, 361
 stabilization, 345–6
 stages of development, 114–5
 State Bank of Bangladesh, 292
 state farms, 266b
 structural adjustment, 342, 378
 structuralist perspective, 119–20, 329

- subject-matter specialists (extension), 255
- Sub-Saharan Africa, 4, 5, 8, 10, 28b, 30, 51t, 71, 142, 148, 169, 195, 229, 253t, 286, 313, 316b, 381–2, 385, 390, 395, 415, 423
- subsidized
 credit, effects of, 294–5
 irrigation water, 175
- subsidy, -ies, 345, 369
 fertilizer, 287
 food, 305
 price, 304, 339
- subsistence family farms, 262
- substitutes, defined, 53
- substitution effect, 53
- Sudan, 306t, 361, 396t, 409
- sugar, 41, 57b, 192, 306t, 331, 333, 338, 358, 359
- sugarcane, 60, 140, 153, 175, 335
- superior goods, 52
- supermarkets, growth of, 321
- supply
 curve, 61, 62f, 63f
 interactions with demand, 61–5
 shifts (food), 7
 -side factor, 92
- surplus labor model, 116–9
- sustainable development, defined, 14
- sustainability, 161–82
- Swaziland, 10, 1138
- sweet potatoes, 133b, 137
- Syria, 166
- T**
- T&V system, 255
 = training and visit system
- Taiwan, 138, 248, 266, 270, 396t
- Tajikistan, 398, 399
- Tanzania, 150, 167, 196b, 198, 314t, 340, 341, 361
- tariff(s), e338, 341, 354, 357, 359
- taxes, taxation
 collection, 368–9
 export, 155, 307, 308f, 341–5, 343t
 indirect, 341
- tea, 41, 306t, 333, 341
- technological
 innovation theory, 120–1
 progress, 105, 417–20
- telecommunications, 313–5
- tenancy, tenant farmers, 234, 264–5, 266b
- testing research, 243, 252
- Thailand, 13, 20t, 51t, 57b, 141f, 208, 254, 306t, 371, 388
- Thorbecke, E., 28b
- Tigris River basin, 166
- Timmer, C. Peter, 3, 301, 319, 320
- Togo, 340
- total product curve, 95
- trade, 105–6, 327–46
 agreements, 124, 357–8
 barriers, 255, 349–511, 354
 deficit, 371
 developing country experience, 332–6
 effects, 335, 336b
 external constraints to, 351–8
 historical roots of, 328b
 impediments, 227–46
 liberalization, 356, 358
 need for, 327–8
 negotiations, 352–5, 356
 policy, 331–2
 protectionism, 119–20
 quotas, 359
 restrictions, 329–32, 338–42, 344–5
 terms of, 119–20, 358
- trademarks, 240
- trading blocs, 353
- traditional agriculture, farms, 131–43
 size of, 132–4
- Tragedy of the Commons, 152
- training and visit system (T&V), 255
- transaction costs, 113–21, 126, 216–24, 267, 291–3, 419
 defined, 218
- transferability of research, 250
- transformation, economic, 89–95
 causes of, 90–2
- Transforming Traditional Agriculture*, 211
- transgenics
 crops, 245
 research, 243
- transparency in government, 350
- tree crops, 232t, 333
- tropical pastures, 249t
- Truman, President Harry S., 398–9
- Turkey, 51t, 164, 166, 201, 372, 396t
- Turner, Ted, 401
- Twain, Mark, 14
- two-gap model of development, 116

U

- Uganda, 20t, 72t, 150
 UK Department for International
 Development (DFID), 399
 Ukraine, 72t
 UNCTAD = United Nations Conference
 on Trade and Development
 UNDP = United Nations Development
 Program
 unemployment, 116–9
 unit elastic, defined, 52
 United Kingdom, see Britain
 United Nations, 353
 agencies for assistance, 403b
 Children's Fund (UNICEF), 403b
 Conference on Trade and Devel-
 opment (UNCTAD), 353, 354, 357
 Development Program (UNDP), 248,
 403b
 Education, Scientific, and Cultural
 Organization (UNESCO), 403b
 Fund for Population Activities
 (UNFPA), 403b
 Millenium Goals, 400
 United States (U.S.), 20t, 28b, 60, 71t, 74f,
 93f, 94, 103, 214, 254, 328b, 331, 333,
 339, 343t, 352, 353b, 356, 371, 371,
 379, 380, 389, 394–5, 408, 425
 Agency for International Develop-
 ment (USAID), 197, 236b, 285b, 399
 Congress, 408
 Department of Agriculture
 (USDA), 28b
 farm products, 385
 Federal Reserve, 390
 urbanization, 10, 80–4
 Uruguay, 251
 Uruguay Round, 353, 354–5
 USAID = United States Agency for
 International Development

V

- vegetable, -s, 133b, 142, 153, 313, 333,
 335, 338, 346
 marketing in Nepal, 320b
 Venezuela, 386
 Vietnam, 337, 396t, 408
 village agent model, 255
 Vitamin A, 41
 deficiency, 32t, 34
 von Braun, Joachim, 415

W

- wage
 employment, 266b
 minimum, 374–5
 rates, 117–18, 374–5
 Wallerstein, Immanuel, 119
 WARDA, see Africa Rice
 Warford, Jeremy J., 161
 water, 283–4
 management, 211, 283
 quality, 10
 supplies, 12
Wealth of Nations, The, 106
 weed control, 285, 424b
 weeding, 133b, 134
 WFP = World Food Programme
 wheat, 6, 7f, 22b, 51t, 153, 164, 191f, 211,
 232t, 234, 247, 249t, 251, 257, 305,
 306t, 314t, 325, 333, 339, 344t, 359,
 424b
 WHO = World Health Organization
 wireless communications, 313–15
 women
 education for, 38
 invisibility of, 192–5
 opportunities for, 79
 World
 Agroforestry, 249t
 Bank, 28b, 36, 197, 255, 351, 386, 402
 Commission on Environment
 and Development, 14
 Fish Center, 249t
 Food Programme (WFP), 403b
 Health Organization (WHO), 10, 32,
 38, 403b, 421
 Trade Organization (WTO), 339, 350,
 352, 353, 355–7, 388
 Vegetable Center, 248
 Vision International, 401
 World War I, 328b
 World War II, 270, 316b, 352, 378, 398
 Wortman, Sterling, 281

X**Y**

- Yellow River basin, China, 164
 Yemen, 72t

Z

- Zambia, 133–4b, 167, 3006t
 Zamorano, Honduras, 188
 Zimbabwe, 180, 272b, 277, 278