Bringing agriculture to the market

chapter 5

Far-reaching changes in domestic and global markets are creating big opportunities for farmers and agribusiness entrepreneurs. The demand for high-value primary and processed products is rapidly increasing, driven by rising incomes, faster urbanization, liberalized trade, foreign investment, and advancing technology. These developments are expanding market opportunities, which is important for faster agricultural and nonfarm growth and for greater employment and rural incomes. But the new markets demand quality, timely deliveries, and economies of scale, posing special challenges for smallholders.

Still in many agriculture-based and transforming countries, food staples remain a mainstay for a major share of households, many of them poor. But the performance of food staple markets is often hampered by poor infrastructure, inadequate support services, and weak institutions, pushing up transaction costs and price volatility. How markets for food staples function thus affects livelihoods, welfare, and food security, especially for poor households.

Well-functioning agricultural marketing systems can reduce the cost of food and the uncertainty of supply, improving the food security of poor and nonpoor households. By linking farmers more closely to consumers, these marketing systems transmit signals to farmers on new market opportunities and guide their production to meet changing consumer preferences for quantity, quality, variety, and food safety.

Efficient markets require good governance and public policy—infrastructure, institutions, and services that provide market information, establish grades and standards, manage risks, and enforce contracts—a continuing challenge in many countries. However, efficient markets alone do not promote equitable outcomes. So smallholders may need to build their bargaining power through their producer organizations, assisted by public policy.

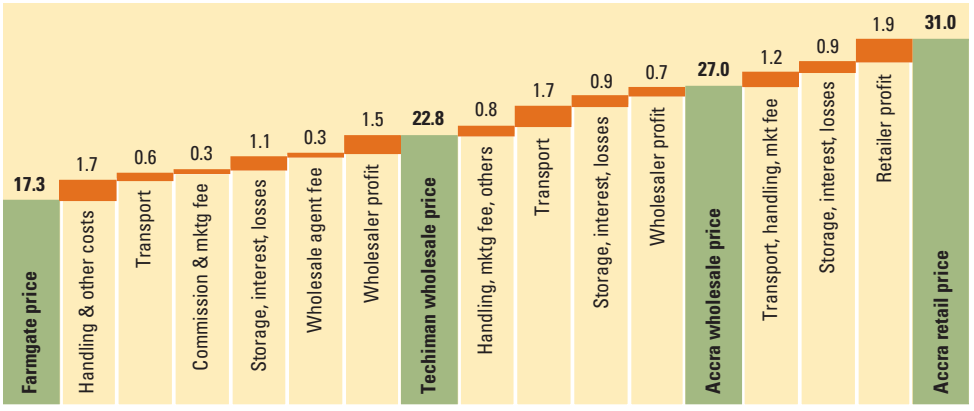
The nature and pace of market development differs across food staples (cereals), traditional bulk export commodities (coffee, cocoa, tea, cotton), and higher-value products for domestic and export markets (dairy, meat, fruits, vegetables). This chapter examines the new opportunities and challenges for smallholders in the markets for each of these important commodity groups. It highlights the broad array of private, public, and civil society initiatives that have been pursued to make markets work better for development and poverty reduction.

Food staples: improving commodity trading and risk management

The market for food staples remains by far the most important in many agriculture-based and transforming countries, because staples take up a major share of household food expenditures and account for the bulk of agricultural gross domestic product (GDP). Growing populations sustain demand, supplemented by the rapidly growing demand for livestock feed in middle-income countries. Inhibiting the market for food staples are high transaction costs, product wastage and losses, wide marketing margins, poor market integration, limited access to trade finance, and weak regulatory institutions. Better markets for food staples have broad implications for agricultural growth because they raise farmgate prices, build the confidence of farmers in their reliability, and allow farmers to diversify to higher-value products.

Figure 5.1 Layers of intermediaries characterize Ghana's maize markets

$ per 100 kilograms, 1998



Source: Natural Resources Institute, personal communication 2006.

In agriculture-based and transforming countries, small and medium-size traders and layers of intermediaries are common in the marketing of food staples and other agricultural commodities (figure 5.1). Often one-person businesses dealing in several commodities, the traders and intermediaries are mainly self-funded because of limited access to credit. They maximize the returns on their working capital by rapidly turning over small quantities, with little storage. Quality grades are rarely standardized, nor are weights and measures, making personal inspection by buyers essential. This requires that traders travel extensively, increasing transaction costs.

Improving and modernizing the marketing system can increase market efficiency, foster competitiveness with imports, and reduce losses and risks. Market modernization, beyond improving basic transport, includes marketing information systems, commodity exchanges, and price-risk management.

Poor road connections

Inadequate transport infrastructure and services in rural areas push up marketing costs, undermining local markets and exports. This is particularly the case in Africa, where less than 50 percent of the rural population lives close to an all-season road. Trader surveys in Benin, Madagascar, and Malawi find that transport costs account for 50–60 percent of total marketing costs.[1] Improving road connections is thus critical to strengthening the links of farmers and the rural economy to local, regional, and international markets (box 5.1).

Market information systems

Market information keeps farmers and traders attuned to the demands and changing preferences of consumers, guiding farming, marketing, and investing. Market information encompasses timely and accurate prices, buyer contacts, distribution channels, buyer and producer trends, import regulations, competitor profiles, grade and standards specifications, post-harvest handling advice, and storage and transport recommendations.[2]

Public market information systems have often been disappointing, with information disseminated too slowly, in the wrong form, or too infrequently to be of real use to market participants.[3] Several innovative approaches are being piloted in different parts of the world, building on advances in communications technology (radio, cell phone, television, Internet) and the liberalization of telecommunications and broadcasting. In India, the Ministry of Agriculture operates AgMark Net, which collects price information from wholesale markets nationwide and disseminates it through the Internet. The private sector in India is investing in telecommunications infrastructure, such as mobile phone networks and Internet-linked rural kiosks, which aid in strengthening

BOX 5.1 *Impacts of road infrastructure on markets and productivity*

Rural road development has the potential to reduce transport costs and generate market activity. In Vietnam, road rehabilitation increased the variety of goods that households sold in the market—primary fruits, vegetables, and meat—and encouraged greater participation in trade and services. In Georgia, the construction and rehabilitation of roads increased the opportunities for off-farm and female employment. In Madagascar, simulations suggest that a 50 percent reduction in travel time per kilometer on roads would increase rice production by 1 percent.

However, these effects will be mediated by specific geographic, political, and economic settings. Complementary inputs and policies may be required to achieve the full benefits from improved roads. Even if aggregate output gains are forthcoming, there will almost certainly be losers too. How one weighs the gains and losses and whether poverty falls is ultimately an empirical question. Recent work using impact evaluation methods shows mixed results, suggesting that to be effective, rural road policy needs to adapt to context and setting.

Policy should focus more on the complementary role of rural roads. Past policy has fixated on the supply of rural roads as a catalyst to development and market activity. Poor road conditions often coincide with a number of other bottlenecks inhibiting agricultural productivity and economic development, including poor agroclimatic endowments, low population density, no transport services, low education levels, a lack of electricity, and risk, credit, and other market failures. Road benefits depend heavily on interactions with other infrastructure and geographical, community, and household characteristics. For example, one study in Vietnam found that four to six years after road rehabilitation, road transport services were more likely to respond where markets were already established and natural disasters were relatively infrequent. Policy needs to consider more than the absence or dire condition of a road before deciding that a new road is critical. In each specific case, policy should ask whether roads are the right instrument for overcoming the constraints to a given welfare outcome and if so, what other policy initiatives and investments are needed.

Heterogeneities across households will determine who gains and who loses. Holding community characteristics constant, some households will be better placed to take advantage of a new road, based on their endowments and the nature of their occupations. Households differ in what they buy and sell and hence how much they will gain or lose from the changes in prices induced by better roads. Poor households are more likely to rely on the production of nontraded goods and services that may actually be displaced by better roads fomenting increased competition. On the other hand, road improvement has a general income effect that could generate demand for services from poor providers. The net effect is an empirical question. The picture that emerges from recent, more methodologically rigorous impact evaluations is a complex one. In Nepal, better road access benefited the poor and the nonpoor, but the proportionate gains were higher for the nonpoor. Dercon and others (2006) find that access to all-weather roads in 15 villages in Ethiopia reduced the incidence of poverty by 6.7 percent. Given the heterogeneity of impacts, more attention needs to go to beneficiary selection, recognizing that tradeoffs exist. Moreover, roads may need to be provided as part of a package of interventions that helps certain groups benefit more than they would have and that protects or compensates those who may lose.

The governance and institutional settings are also important in determining impacts. Road project funds may not end up funding what was intended and hence have no impact. Infrastructure expenditures present opportunities for graft and the diversion of resources. This can change when incentives change. One study found that the threat of an audit on road projects in Indonesia significantly increased the actual amounts spent on labor and building materials for roads, thereby bringing the quality of the roads nearer to that originally intended. Fungibility can also dull impacts, as aid or central government funding for road projects may substitute for local government infrastructure spending. Finally, the lack of funding and institutional arrangements for routine maintenance can significantly reduce the impacts of newly improved roads.

How much roads matter depends on a range of factors. Of course, roads matter to economic development, but how much they matter depends on a number of other factors. Comprehensive approaches are needed that are compatible with how local institutions work in practice, including what they are capable of delivering. This may require fashioning a whole package of cross-sectoral investments (roads *and* complementary investments) and policy changes that will ensure a higher efficiency impact, as well as more desirable poverty and equity outcomes.

Sources: Limao and Venables 2001; Van der Walle 2007.

market information, extension, and other services to farmers. In West Africa, a public-private partnership set up TradeNet, a trading platform that allows sellers and buyers to get into contact over the Internet and by cell phones (box 5.2).

Market information systems also disseminate price information in Kenya, Mozambique, and Senegal, using a mix of Internet, short message service (SMS), voicemail, radio, and market chalkboards.[4] Local FM radio broadcasts market information in Mali and Uganda.[5] It is still too early to judge the long-term viability and impact, but anecdotal evidence points to the interest of farmers (with rising use of SMS) and the willingness of mobile phone companies to invest in these systems, supported by initial donor funding. The new systems have the potential to significantly reduce transaction costs, especially search and transport costs, and warrant continued investment and evaluation.

Commodity exchanges: fast and low cost

Commodity exchanges offer a fast and low-cost mechanism for discovering prices, trading, and resolving contractual disputes. A physical exchange is often a first step to more sophisticated trading contracts—initially contracts for forward

BOX 5.2 *Innovative uses of information technology to link farmers to markets in India and West Africa*

E-Choupal and its rural Internet kiosks

Between 2000 and 2007, the agribusiness division of ITC Limited set up 6,400 Internet kiosks called e-Choupals in nine Indian states, reaching about 38,000 villages and 4 million farmers. ITC establishes an Internet facility in a village and appoints and trains an operator (*sanchalak)* from among the farmers in the village. The *sanchalak* operates the computer to enable farmers to get free information on local and global market prices, weather, and farming practices. The e-Choupal also allows farmers to buy a range of consumer goods and agricultural inputs and services (sourced from other companies).

The e-Choupal serves as a purchase center for ITC for 13 agricultural commodities, with the *sanchalak* acting as the commission agent in purchasing the produce and organizing its delivery to ITC. In 2006/07 ITC purchased about 2 million tons of wheat, soybeans, coffee, shrimp, and pulses valued at $400 million through the e-Choupal network. This direct purchasing cuts marketing costs for both farmers and ITC. It improves price transparency and allows better grading of produce. It also allows farmers to realize a bigger share of the final price.

TradeNet, a West African trading platform with Internet and mobile phones

TradeNet, a Ghana-based trading platform, allows users to sign up for short message service (SMS) alerts for commodities and markets of their choice and receive instant alerts for offers to buy or sell as soon as anyone else on the network has submitted an offer on their mobile phone. Users can also request and receive real-time prices for more than 80 commodities from 400 markets across West Africa. Individual users can advertise their goods and offers on free Web sites with their own Internet addresses, and farmer and trader groups can set up Web sites to manage all these services for their members.

The Ghana Agricultural Producers and Traders Organization (www.tradenet.biz/gapto) is a major beneficiary. In 2006 it concluded trade deals worth $60,000 with other producer and trader organizations in Burkina Faso, Mali, and Nigeria. These deals involved purchasing tomatoes, onions, and potatoes without middlemen, reducing the transaction costs substantially.

Source: Kofi Debrah, personal communication, 2007; DeMaagd and Moore 2006; Shivakumar, personal communication, 2007.

delivery, and perhaps later, contracts for futures, options, and swaps. China, India, South Africa, and Thailand have agricultural futures exchanges to facilitate a wider range of financing and risk management transactions.[6] All four have large domestic markets and fairly well-developed financial sectors.

India's commodity futures exchanges expanded rapidly after the government eliminated the ban on their operations in 2004.[7] Three national electronic and 21 regional futures exchanges trade contracts for cereals, sugar, cotton, potatoes, oilseeds, and spices.[8] The fortnightly turnover totaled $8.7 billion on the three national exchanges in a two-week period in September 2005.[9] The South Africa Futures Exchange (SAFEX) offers futures contracts on white and yellow maize, wheat, sunflower, and soybeans, and it traded more than 1.9 million contracts in 2006. Traders throughout southern Africa use SAFEX as a benchmark for pricing physical trades. In 2006 the government of Malawi used a SAFEX-based call option to protect itself from the risk of international price increases when a bad harvest would require significant imports.[10]

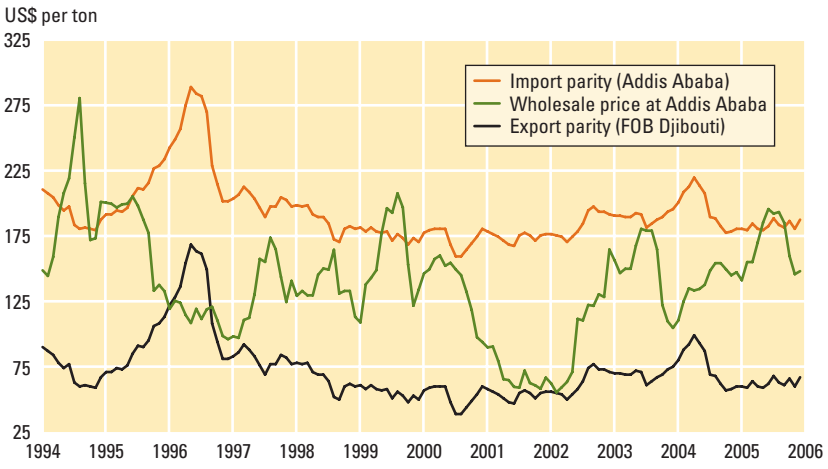
Futures trading requires good financial and legal structures and supportive government policies. The benefits diminish if the markets for smallholders are separated from the exchange by high transport and transaction costs or by quality differences. Establishing exchanges in Africa is challenging because of continuing government intervention in grain markets, small markets, and weak systems for warehouse receipts and grades and standards.

Price-risk management: a role for governments?

Because of the vulnerability of poor producers and consumers to price shocks for food staples, governments often seek to stabilize prices, countering efforts to liberalize markets. The variability in world grain prices remains significant, with coefficients of variation 20–30 percent for rice, wheat, and white maize. Domestic price instability tends to be high in Africa, especially in land-locked countries (such as Ethiopia), where the wedge between the export and import parity price is large and drought increases the impact of domestic shocks (figure 5.2).[11]

The appropriate role of government in managing food-price risk continues to be debated. Opponents of government intervention note that price stabilization policies often lead to economically inefficient production decisions and discourage incentives to search for cost-reducing technical and institutional innovations. Most

Figure 5.2 Wholesale prices in Ethiopia fluctuate within a wide import-export parity band



Source: Rashid, Assefa, and Ayele 2006.

often, the government agencies implementing the policies are subject to inefficiencies, corruption, and vested interests, resulting in huge fiscal costs.[12] Proponents of government intervention, by contrast, show that the net welfare effects of food-price instability can be significant for economic growth and for household food and nutrition security.[13]

Another view is that the nature and extent of price-stabilization interventions will depend on country-specific factors.[14] Food-price stabilization is more relevant in low-income countries where food staples are a large share of the incomes of poor producers and the expenditures of poor consumers, where one food staple dominates, where domestic production is highly variable, and where poor infrastructure and location restrict tradability.

Lessons over several decades suggest that the design of food-price risk interventions should be part of a long-term strategy that emphasizes measures to raise productivity of food staples, improve the efficiency of markets (infrastructure, market information, grades and standards, warehouse receipts), and minimize the impact of price shocks (weather-based insurance and safety nets) (chapter 6).[15] Liberalizing trade, especially by promoting regional trade, can be a source of "quick wins" for reducing price volatility, especially in small and medium-size countries (box 5.3).

Many developing countries have agencies to maintain publicly owned strategic reserves that aim to reduce price instability, but the agencies instead often destabilize prices through unpredictable market interventions, border closings, and poorly timed imports.[16] Safeguards are needed to prevent this. They include arm's length, central bank–type autonomy; highly professional management and analytical capacity; strict rule-based and transparent market operations to meet a narrowly defined objective; and tendering procurement and storage to the private sector.[17]

Traditional bulk export commodities: maintaining international competitiveness

Maintaining international competitiveness in bulk agricultural commodity exports is a major challenge for many low-income countries, especially in Africa. Competitiveness is important, because exports of coffee, cocoa, tea, cotton, and other bulk commodities are their main source of foreign exchange. For Benin, Burkina Faso, Burundi, and Mali, one such commodity accounts for more than half of the value of total exports.

Producers of these commodities, however, have faced a long-term downward trend in prices as global supply outpaced demand (figure 5.3). Productivity increased among traditional producers and exporters, and new players, such as Vietnam in coffee and tea, further expanded supply.[18] Increasing productivity to cope with declining prices helped some countries in the short term but added to the long-term downward pressure on world prices, with consumption stagnating in the major markets (Western countries) and growth limited in the "new" markets (Eastern Europe, the Middle East, and the former Soviet Union).[19] Cotton subsidies in member countries of the Organisation for Economic Co-operation and Development (OECD) further depressed prices (chapter 4). Projections for coffee, cocoa, and tea indicate continuing price declines.[20]

Another major challenge is the declining global demand for higher-priced grades

of cocoa, coffee, and tea, as demand shifts to lower-quality products. Technological advances in processing technology and bulk transport permit international cocoa grinders to use, and cost-effectively compensate for, lower-quality cocoa beans.[21] And the technology advances in roasting lower-quality robusta coffee allow its substitution for higher-quality arabica. Changing consumer preferences, such as the shift toward instant and flavored coffees and convenience teas, further shift demand toward lower-quality products. Cotton is the exception, where the importance attached to lint quality has risen in recent years with the widespread use of high-speed spinning machines with demanding quality requirements.

Specialty markets (organic, gourmet, Fair Trade) offer an alternative higher-priced market, but they account for only a small share of the global market (see section on specialty markets). Currently, the specialty coffee sector accounts for only about 6–8 percent of global consumption.[22] Many countries, such as Tanzania and its Kilimanjaro specialty coffee or KILLICAFE initiative, are targeting these markets to expand export markets and increase revenues.[23]

Different paths to liberalizing domestic markets

Bulk export commodity markets in Africa were traditionally controlled by parastatal agencies, which often had monopoly powers in domestic marketing, exporting, and providing inputs to farmers (seeds, fertilizer, credit, extension services). The parastatals also aimed to stabilize prices received by farmers. In many instances the vertical coordination arrangements in production and marketing enabled farmers to overcome market failures in the input, credit, and insurance markets. They also ensured a steady supply of products of assured quality for export. But the agencies were widely criticized for inefficiencies and mismanagement that lowered the prices paid to farmers and raised the fiscal costs to government.[24] To redress these failures, the bulk commodity markets in many countries in Africa were liberalized in the 1980s and 1990s, and many parastatal agencies were abolished or restructured.

African countries that restructured their bulk commodity markets followed different paths, ranging from restructuring the parastatal ownership to include the private sector and farmers (for example, cotton in

BOX 5.3 *Price stabilization through international trade: saving $200 million in Bangladesh*

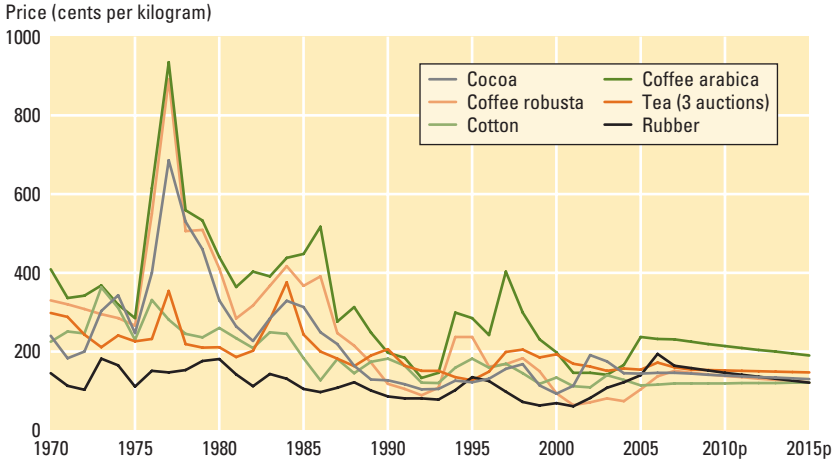
To stabilize domestic prices and the availability of food, many countries have accumulated large national stocks as emergency reserves. But market development and trade liberalization provide another option, potentially less costly and more effective.

As floods spread across much of Bangladesh in mid-1998, rice prices rose to import parity levels (the export price of rice in the exporting country plus transport and normal marketing costs). The liberalization of rice trade induced massive imports of rice by hundreds of small traders. Private rice imports, estimated at 2.42 million tons, were 6.1 times larger than government rice distributions. If the government had imported this grain, the added cost of the imported rice delivered to local delivery points would have been $50–100 million. And if the government had subsidized this rice by selling it at the price used for limited government sales in urban centers, the total fiscal cost would have been $160–210 million.

The liberal trade policy helped the government stabilize prices without large government stocks. Other factors were also important. The large expansion in the winter season *boro* rice and wheat harvests over more than two decades helped reduce the importance of the monsoon rice crop in total domestic production and minimize the time between major domestic harvests. Moreover, large-scale imports would not have been possible without market infrastructure, particularly roads and bridges. Nor would they have been possible without pro-market policies, including no limits on private stocks and no restrictions on movement and access to foreign exchange.

Sources: Del Ninno and others 2001; Dorosh 2001.

Figure 5.3 World prices for traditional bulk exports continue to decline



Source: World Bank data group.
Note: Prices are in constant 1990 dollars. Prices from 2007 onward are projected.

Burkina Faso), to market zoning (for example, cotton in Ghana), to full market liberalization (cotton in Uganda, and cocoa and coffee in Cameroon and Côte d'Ivoire).[25] Overall the liberalization programs generated immediate benefits: an influx of private capital, management, and marketing expertise; and market competition reducing transaction costs, increasing prices received by farmers and typically leading to prompter payment for crops purchased.[26] One study found that 85 percent of coffee producers in Tanzania were better off as the gains from higher producer prices more than offset the loss from reduced access to credit through public sources.[27]

After liberalizing: addressing second-generation problems

In many countries, the restructuring of the market brought second-generation problems, aptly illustrated by cotton in major producing countries in Africa. The absence of a clear legal and regulatory framework to guide private sector and farmer behavior in the context of free market competition or weak contract enforcement created confusion and allowed some malpractices to persist (box 5.4). To help private traders enforce contracts, Côte d'Ivoire and Zambia adopted zoning arrangements to regulate cotton marketing that have worked reasonably well.[28] However, competition from new buyers in Zimbabwe and Tanzania weakened quality enforcement.[29]

What contributed to these second-generation problems? The weaknesses and lack of credibility of public institutions to enforce appropriate rules of behavior for the private sector is part of it. Public intervention in grades and standards and in contract enforcement is essential to ensure that private markets work. Liberalization also exposed the underdevelopment of rural financial systems, which need to be addressed (chapter 6). The African experience also highlights the potential for associations and professional organizations (farmer groups in Tanzania) to overcome the shortsightedness of individual farmers and buyers.[30] Partial privatization in Burkina Faso has given farmers more ownership, but it led to heavy fiscal outlays (box 5.4).

BOX 5.4 *Zambia and Burkina Faso: contrasting experiences in liberalizing domestic cotton markets*

Zambia—production triples, after some fixes. Zambia's cotton sector continues to evolve after market liberalization, with significant impacts on productivity and quality. In 1995 the government sold the Lint Company of Zambia, the government parastatal, to two private companies, Clark Cotton and Lornho, later acquired by Dunavant. To ensure access by participating farmers to extension services and inputs (on loan), the two companies implemented outgrower schemes, contracting with smallholders. The costs of the inputs were to be paid by farmers upon sale of their seed cotton. But the rapid entry of other buyers created overcapacity in ginning and fierce buyer competition. The outgrower schemes began to fail because of rampant side-selling by farmers to other traders offering high prices without grading and defaults on input loans. As the defaults increased, the cost of credit increased, which led to more defaults or exits from the outgrower program. Production in 2000 was less than half that in 1998.

After 2000 many agents and buyers exited the industry, leaving two dominant companies. Dunavant used distributors to improve credit repayments. Distributors were responsible for identifying farmers, providing inputs and technical advice, and collecting produce on behalf of Dunavant. The distributor's remuneration was directly tied to the amount of credit recovered, on an increasing scale. Dunavant established inspection points in all buying stations to enforce quality standards. National production tripled between 2000 and 2003, and credit repayments improved from about 65 percent to more than 90 percent. There are now more than 300,000 cotton-producing farmers in Zambia.

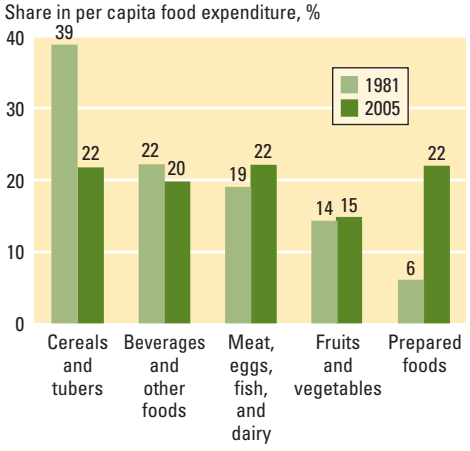
Burkina Faso—losses of $128 million. The government tried to reduce inefficiencies by changing the structure of ownership of SOFITEX, the cotton parastatal, in 1999. It allowed producers, represented by the *Union Nationale des Producteurs de Coton du Burkina Faso,* to take up 30 percent ownership, empowering farmers to oversee the management of SOFITEX and ensure professional management. But the institutional changes at SOFITEX did not improve its financial position. Supporting and stabilizing domestic cotton prices as world prices declined produced financial losses of $128 million from 2004/05 to 2006/07.

Sources: Bonjean, Combes, and Sturgess 2003; Food Security Research Project (FSRP) 2000; Christopher Gilbert, personal communication, 2007; Tschirley, Zulu, and Shaffer 2004.

Higher-value urban markets: linking producers to modern supply chains

Rising incomes, urbanization, greater female participation in the workforce, wider media penetration—all are driving the demand for higher-value products, semiprocessed and processed products, and convenience foods (figure 5.4). They are also increasing consumer attention to food quality and safety. Diets are globalizing too, with local consumer preferences influenced by international tastes. These trends open new markets for a wide range of higher-value agricultural products and propel the evolution of the marketing system in many developing countries, with the entry and rapid growth of supermarket chains and the food processing and food service industries.

Figure 5.4 Food consumption expenditures in Indonesia are shifting from cereals to higher-value and prepared foods



Source: Badan Pusat Statistik Indonesia, http://www.bps.go.id.

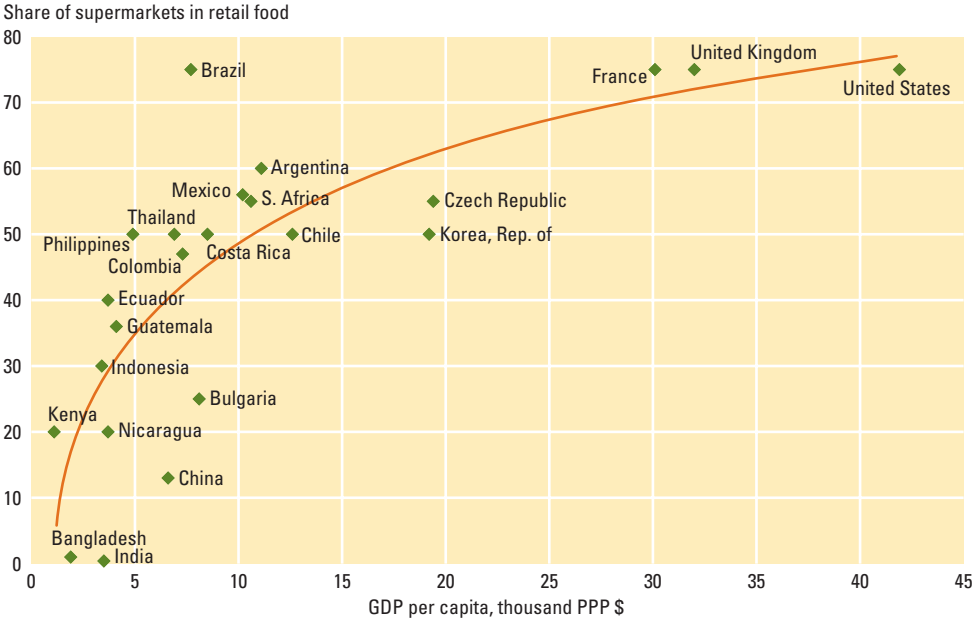
For many developing countries, the supermarket revolution began in the early to mid-1990s. By the early 2000s, retail food sales in supermarkets exceeded 50 percent of total retail food sales in many countries in Latin America and in major urban centers elsewhere (figure 5.5). Accelerating the expansion: significant foreign direct investment by multinational supermarket chains in developing countries, either directly or through joint ventures with local firms.

Changing consumer demand is also driving the growth of the food processing and food service industries. Processed foods account for about 80 percent of global food sales, estimated at $3.2 trillion in 2002.[31] Although spending on processed foods is still low in developing countries ($143 per capita per year in lower-middle-income countries and $63 per capita in low-income countries), it is growing fastest in these countries—28 percent a year in lower-middle-income countries and 13 percent a year in low-income countries. "Eating out" is also becoming popular. For example, spending on food services now accounts for 22 percent of food budgets in Brazil and Indonesia and 15 percent of urban food spending in China.

Infrastructure impediments

The perishability of most high-value agricultural products requires careful handling, special facilities (packhouses, cold storage, and refrigerated transport), and rapid delivery to consumers to maintain quality and reduce physical and nutritional losses. In many developing countries, the long supply

Figure 5.5 Rising per capita incomes drive supermarket growth



Sources: Reardon and Berdegué 2006; World Bank 2006y.

chain, poor access to roads and electricity, and inadequate infrastructure and services in physical markets add to the transaction costs and cause quality deterioration and high spoilage losses. In India it is estimated that fruit and vegetable postharvest losses amount to about 40 percent of total annual production, equal to a year's consumption in the United Kingdom.[32]

Market infrastructure and facilities in developing countries are often limited and congested, increasing the difficulty of trading perishable goods. A survey of wholesale markets handling fresh produce in four states in India found that 17 percent had no covered shops, about half did not have paved roads in the market yard, about 40 percent of the shops had no electricity, and only 6 percent of the markets had a cold-storage facility.[33] In Tamil Nadu, India, a related study found that wealthier farmers tend to capture a disproportionate share of the benefits of facilities in congested wholesale markets.[34] Nonetheless, investments in market facilities would be pro-poor because sales by poorer farmers would increase proportionally more than those by the wealthy farmers.

Modern procurement systems

Supermarket growth in most countries follows similar diffusion patterns across space, consumer segments, and product categories.[35] From a base in large cities, supermarkets initially spread to intermediate cities and towns, and later to small towns in rural areas—in response to market competition and saturation. They often first target the upper-income consumer (national and expatriate), followed by the middle class and later the urban lower-income households.

Dominating the supermarket's product selection in the early stages are processed foods (canned, dry, and packaged food items), motivated by economies of scale in procurement and direct relations with processed-food manufacturers. Product selection gradually expands to semiprocessed foods (dairy, meat, and fruit products). The last category to be added is fresh fruits and vegetables, as consumer preference for fresh produce and the proximity and convenience of small produce shops and wet markets offer a competitive alternative. Fresh fruits and vegetables generally account for the lowest share in supermarket sales, and small shops and wet markets will likely remain important marketing channels for these products for years to come.[36]

Significant inefficiencies in the traditional wholesale marketing systems and competition encourage supermarkets, food processors, and food service providers to use supply chains to reduce coordination costs, capture economies of scale, and increase food safety and quality. This is profoundly changing the structure of production and wholesale marketing in many developing countries. Recent studies show that procurement systems change earliest for processed foods, meat, and dairy products, eventually extending to fresh fruits and vegetables.[37]

Procurement takes many forms, varying by supermarket chain, product, and country.[38] It can involve centralized procurement, which shifts from fragmented per-store purchases to operating a distribution center catering to a district (as in China), the whole country (as in Mexico), or whole region (as in Central America). It can also involve shifting from purchases in traditional spot wholesale markets to relying on specialized or dedicated wholesalers and logistics firms (as in Central America and East Asia) or to direct contracting (as in East Asia and Eastern Europe)—to cut transaction, coordination, and search costs and ensure greater control over quality and consistency of supply.[39] China Resources Enterprise estimates that it is saving 40 percent in distribution costs by combining modern logistics with centralized distribution in its two large new centers in southern China.[40]

Modern procurement can also involve contracting with processors and farmers or using preferred-supplier lists. This is often done where farmers or processors are grouped or are individually large (as in the Philippines, Russia, and Thailand).[41] The contracts are incentives for suppliers to stay with the buyer and invest in assets that fit the retailer's specifications for products. The arrangements may include direct or indirect assistance for farmers to invest in training,

management, inputs, and basic equipment.

Modern procurement also often involves private standards and their enforcement—standards that serve two main functions.[42] They help coordinate supply chains by standardizing product requirements for suppliers over many regions or countries, enhancing efficiency and lowering transaction costs. And they help ensure that public food-safety standards are met in all markets served by the retail chain or food-processing firm, distinguishing one's products from competitors through signaling.[43] As these private standards are more widely adopted, there is growing concern about the capacity of small farmers to meet them.

Impact on smallholders and retailers

The modernization of procurement systems affects farmers differently across countries and products. Some recent studies of selected commodities find that the modern procurement systems exclude asset-poor farmers. Supermarket buying agents prefer to source from large and medium-size farmers if they can (for example, for tomatoes in Mexico and potatoes in Indonesia); if large and medium-size farmers have sufficient quantities, smallholders are not included.[44] Where small farms are the dominant structure, supermarkets have no choice but to source their produce from them. Supermarkets may also rely on small farmers to satisfy consumers' demand for specialty or niche products that only small farmers with abundant labor produce. Sometimes supermarkets need an advertising tool to promote sales with socially conscious consumers: "buying local, from smallholders."[45]

The most important determinant of small farmers' participation is not always farm size. Instead, it can be access to physical, human, and social assets: to education, irrigation, transport, roads, and such other physical assets as wells, cold chains, greenhouses, good quality irrigation water (free of contaminants), vehicles, and packing sheds.[46] An effective producer organization—another major asset—can also help small farmers enter the high-value supply chains.

Most farmers lacking these assets are excluded.[47] In Guatemala, lettuce farmers participating in modern supply chains have twice the farm size (two hectares versus one) and 40 percent more education than nonparticipating farmers, and are nearly twice as likely to have irrigation, four times as likely to have a truck, and twice as likely to be close to paved roads and be in a farmer organization. Participating farmers use much more labor-intensive practices because of requirements for field practices, sorting, and packing. Because they are more likely to double-crop over the year, participating farmers hire 2.5 times more labor (typically from local asset-poor households). So even if small farmers do not participate directly, they can benefit through farm employment (chapter 9). Studies of tomato growers in Indonesia and kale growers in Kenya find similar results.

Participation in modern supply chains can increase farmer income by 10 to 100 percent (Guatemala, Indonesia, Kenya).[48] Recent studies of contract farmers show that they have significantly higher incomes than other farmers.[49] Because participating farmers tend to reap substantial benefits, the payoff from assisting farmers to make the necessary "threshold investments" can be high.

Some studies have found that smaller processing firms were left out of the supply chain, with medium-size and large processors preferred for long-term contracts.[50] The number of small retail stores often declined with rising market share for supermarkets—with implications for employment. In urban Argentina, from 1984 to 1993, the most intense period of supermarket takeoff, the number of small food shops declined from 209,000 to 145,000.[51] But the competition is also driving some small retail stores and processors to grow and upgrade their services (as in India).[52]

Helping smallholders keep up with the requirements

The government and the private sector can help smallholders expand and upgrade their range of assets and practices to meet the new requirements of supermarkets and other coordinated supply chains (table 5.1). The options include public good investments to increase farmers' productivity and connectivity to markets, policy changes to facilitate

Table 5.1 Public and private options for strengthening farmer links to the market

Issue	Public sector		Private sector
	Public investments	Policy environment	
Lack of access to markets	Invest in education, rural infrastructure (roads, markets, electricity, irrigation); support formation of producer organizations	Liberalize domestic trade; foster development of input and credit markets	Assist farmers in forming producer organizations
Weak technical capacity	Support market-oriented extension	Foster environment for private extension to emerge	Provide extension and key inputs to farmers
Meeting quality standards	Support farmer training on good agricultural practices for quality enhancement and food safety	Establish grades and standards	Supply inputs and train farmers on quality management and food safety
Meeting contract conditions	Train firms in contract design and management; train farmers on their rights and obligations	Foster institutions for dispute resolution; strengthen producer organizations	Foster trust; develop contracts that are self-enforcing
Farmer exposure to risk	Foster development of commodity and futures exchanges; train firms on use of market instruments to hedge risk	Create enabling environment for insurance market	Use contracts that share risk equally among parties; assist farmers to access insurance

Source: Adapted from World Bank 2007e.

trade and market development, and public-private efforts to promote collective action and build the technical capacity of farmers to meet the new standards.

Some supermarkets and processors or their agents help farmers overcome their asset constraints and improve their business image by providing technical assistance, in some instances through public-private partnerships.[53] Examples include joint extension by supermarket field staff and government extension officers, technical assistance to acquire inputs and obtain certification, and training to improve product quality and food safety.

Other supermarkets and processors enter into production contracts, which sometimes include the supply of inputs, credit, and extension services (for example, in Madagascar and Slovakia).[54] For many small farmers, these contracts are the only means to acquire inputs and use support services. By supplying inputs and providing assured markets and prices, contracting firms share production and marketing risks with farmers. Reducing these risks helps stabilize farmers' incomes, critical in the absence of insurance markets. The technical assistance to farmers also generates indirect benefits, as farmers apply the improved farm practices for the contract crops to other crops, increasing their productivity.

Supermarkets also procure through preferred suppliers or wholesalers that contract with producer organizations or commercial farmer "leaders" that supplement their own production with that from individual small farmers (box 5.5). The producer organizations or farmer leaders provide technical assistance to ensure quality, quantity, and timing of delivery. In addition, the preferred supplier or wholesaler often expects the producer organizations or farmer leaders to assemble the products (washing, sorting, grading, packaging, and labeling), ready to be placed on supermarket shelves.

Many producer organizations do not have the capacity to provide their members with the technical assistance required for ensuring collective compliance with quality, quantities, and timing (chapter 6). Well-targeted technical and financial support from donors, governments, or nongovernmental organizations is often necessary for producer organizations to overcome these initial hurdles and become professional entrepreneurs.[55] The support must be provided with a long-term commitment but with a clear phase-out strategy and a view to empower (chapter 6).

Higher-value exports: meeting product standards

Agricultural exports diversified significantly in the last two decades, particularly into high-value fresh and processed products, fueled by changing consumer tastes

BOX 5.5 *Linking small farmers to high-value chains: Three approaches*

The Philippines: a farmer leader and small-farmer clusters

NorminVeggies is a multistakeholder association supplying vegetables to the fast-food industry, supermarkets, and vegetable processors in the Philippines. In December 2003 it started Normincorp, a marketing company that links the farmer directly to the buyer, in exchange for a 6 percent facilitation fee. The farmer, liable for the product, retains ownership over it all along the chain. Normincorp forms production clusters: a group of 10 small farmers allied with a commercial lead farmer who helps jump-start quality production. The clusters commit to undertake a common production and marketing plan for a particular product for an identified market. The lead farmer coordinates the production processes of the cluster farmers and is responsible for training them to ensure the quality specified by the market. Normincorp has become the preferred supplier for several clients thanks to its ability to respond to changes in market requirements. It doubled monthly sales of assorted vegetables—from 30 to 40 tons when it started to operate in May 2006, to 80 tons two months later.

China: farmer marketing through a cooperative

Supported by local government, a group of small-scale growers registered the brand "Yulin" for their watermelons, with production standardized through coordinated planting, quality inspection, and packaging. They formed the Ruoheng watermelon cooperative to ensure their proprietary techniques and expand their marketing network. The cooperative sells directly to wholesalers (40 percent), supermarkets (25 percent), and retailers (35 percent), which buy from the cooperative because it can deliver large volumes on a regular and timely basis and ensures food safety and quality standards. The "Yulin" watermelon high-quality brand image commanded a higher price than other watermelons (3.0 yuan per kilogram versus 1.2 yuan per kilogram), increasing the income of the cooperative's members. With its marketing success, the cooperative's membership increased from 29 to 152, its farmed area increased from 0.2 hectare in 1992 to thousands of hectares in 2005, with total capitalization reaching RMB 21 million in 2005.

Croatia: supermarket assists farmers to obtain investment loans

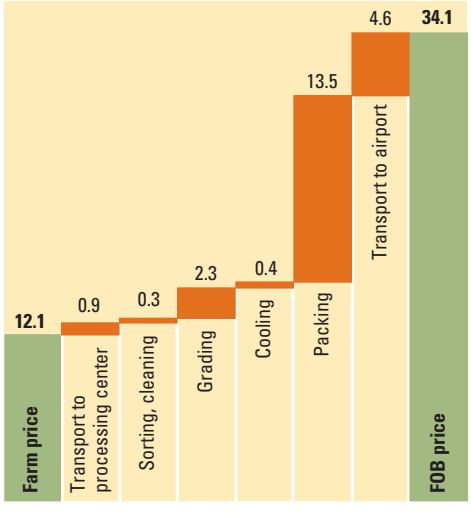
In Croatia the supermarket chain Konzum established preferred-supplier programs to procure strawberries. It encourages suppliers to use irrigation and greenhouses to reduce the seasonality of strawberry production and improve the quality of produce. Such investments require significant capital, which many farmers did not have, nor did they possess enough collateral to secure bank loans. So Konzum negotiated with the local banks to use the farmers' contracts with the supermarket as a "collateral substitute."

Sources: Concepcion, Digal, and Uy 2006; Dries, Reardon, and Swinnen 2004; Zuhui, Qiao, and Yu 2006.

and advances in production, transport, and other supply-chain technologies (chapter 2). Comparatively low and declining tariff barriers and year-round supplies also increased the competitiveness of developing-country exports.[56] Fresh and processed fruits and vegetables, fish and fish products, meat, nuts, spices, and floriculture account for about 47 percent of the agricultural exports from developing countries, which in 2004 amounted to $138 billion (chapter 2). Continued growth of these high-value exports will require efficient value chains, particularly domestic transport, handling, and packaging, which make up a large share of the final costs (figure 5.6).

Figure 5.6 Transport, handling, and packaging are major costs for French bean exports in Bangladesh

$ per 100 kilograms, 2004



Source: Global Development Solutions LLC data 2004.

Meeting sanitary and phytosanitary standards

For agrofood products, sanitary and phytosanitary (SPS) standards govern international trade to address food safety and agricultural health risks associated with pests (fruit flies), food-borne and zoonotic diseases (foot and mouth and mad cow diseases), and microbial pathogens and other contaminants (mycotoxins and pesticides). The rapid growth and diversification in agricultural exports focus attention to how widely the standards for food safety and animal and plant health diverge across countries—and the different capacities of governments and commercial supply chains to manage them.

In reaction to the periodic "food scares" in industrial countries, coupled with better scientific knowledge and greater public concern about these various risks, many countries tightened their SPS standards or extended their coverage to new areas. Public standards were also introduced to ensure fair competition, reduce information costs to consumers (organic foods), and promote competition based on quality.[57] In parallel, the private sector developed standards and supplier protocols to ensure compliance with official regulations, fill perceived gaps in such regulations, differentiate their brands in a competitive market place, and otherwise manage their commercial and reputational risks.[58] These standards tend to blend food safety and quality management concerns—or to have protocols that combine food safety, environmental, and social parameters (child labor, labor conditions, and animal welfare). An example is protocols developed by the transnational Euro-retailer, Produce Working Group for Good Agricultural Practices, which includes 33 retail and food service companies in Europe and Japan.[59]

A concern for developing countries is the proliferation and stringency of food-safety and health measures being adopted in export markets. Many fear that the emerging standards will be discriminatory and protectionist. Developing countries worry that they will be excluded from the export markets because they lack in-country administrative and technical capacities to comply with the requirements or that the costs of compliance will erode their competitive advantage. The standards could further marginalize weaker economic players, including smaller countries, enterprises, and farmers. Both anecdotal cases and research lend some evidence to support this "standards as barriers" perspective.[60]

An alternative view highlights the opportunities in the evolving standards environment and the scope for capitalizing on them.[61] Common public and private standards across international markets can reduce transaction costs. Standards can also provide incentives for modernizing developing-country supply chains and help clarify the necessary and appropriate risk management functions of government. The greater attention to good practices in agriculture and food processing may not only improve export competitiveness, but also generate spillover benefits to domestic consumers. Although there will inevitably be winners and losers, this view suggests that enhanced capacity to comply with stricter standards can provide the basis for more sustainable and profitable agrofood exports in the long term.

There is general agreement that SPS standards affect agrofood trade, but there is no consensus on the relative importance of individual measures in relation to other trade-distorting measures, or on the aggregate net effects of those measures. The lack of consensus is not surprising, because estimating the impact of such standards presents enormous empirical difficulties. Several studies based on econometric models have estimated very large potential losses in trade.[62] In contrast, most industry case studies identify an array of competitive factors affecting trade (of which standards are only one) and typically point to both "winners" and "losers," not to absolute declines in trade. When the Guatemalan raspberry industry faced official and private market-access problems following an outbreak of food-borne illness in the United States, many leading operators shifted their production base across the border into Mexico. While the Guatemalan industry has never recovered, exports from Mexico and Chile have served an expanding market.[63]

Meeting the costs of compliance

Despite the worry that SPS standards and the cost of compliance will disadvantage developing countries, recent studies find that compliance costs[64] tend to be small relative to the scale of most export industries. Fixed, nonrecurrent costs are generally 0.5 percent to 5.0 percent of three-to-five-year exports, while recurrent costs tend to be 1 percent to 3 percent of annual exports.[65] The focus on compliance costs can distract countries from the benefits, many of them long term and intangible. Productivity gains, reduced wastage, worker safety, environmental benefits, and the value of continuing market access can be underestimated or not counted

as benefits. Compliance can also generate spillover benefits to domestic consumers from greater awareness of food-safety risks and access to safer products.

Empirical work on the impact of more stringent standards on smallholder participation in higher-value supply chains show a mixed picture. In theory, there are economies of scale in product traceability, certification, and testing that tend to provide a competitive advantage to larger production units. Yet there are examples from many countries where, because of limits on land acquisition or other features of the agrarian structure, smallholders remain the dominant suppliers for export firms.[66] Consequently, institutional arrangements have been developed to manage the attendant risks and transaction costs of sourcing exports with exacting standards from smallholders.

Also important is the large increase in off-farm work opportunities with expanded agrofood exports. In Senegal, despite tight export standards that led to the shift from smallholder contract farming to large-scale integrated estate production, the higher horticulture exports increased incomes and reduced regional poverty by about 12 percentage points and extreme poverty by half.[67] Poor households benefited more through labor markets than through product markets (box 5.6).

Looking at the benefits and choices

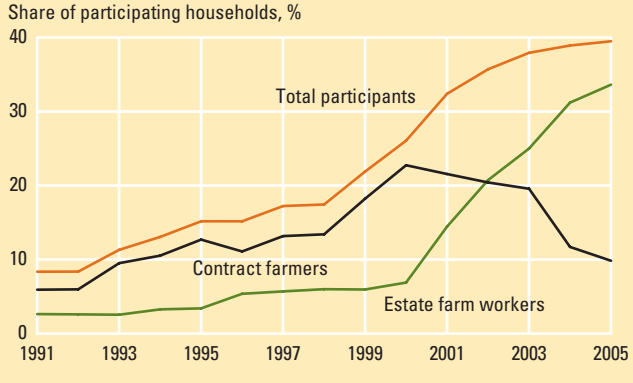
Developing-country suppliers rarely face all-or-nothing choices when determining the changes and investments to conform to emerging standards. They have a range of choices. One is compliance—adopting measures to meet the standards. Another is voice—seeking to influence the rules of the game. A third is redirection—seeking other markets and countries or changing the mix of products.[68] Suppliers need to weigh the costs and advantages for different products and market segments. In some cases, there

BOX 5.6 *Employment gains and reduced poverty in rural Senegal*

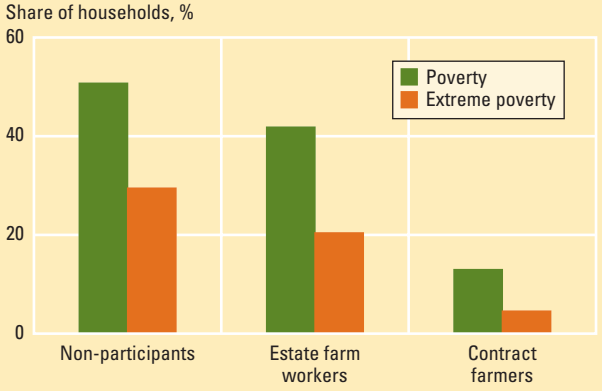
Fresh fruit and vegetable exports from Senegal to the European Union (EU) increased significantly in the last 15 years, despite the tightening of SPS standards. Senegal's main export is French beans, which account for 42 percent of fresh fruit and vegetable exports, more than doubling from 3,000 metric tons in 1991 to 7,000 metric tons in 2005. Changing EU SPS standards put pressure on exporters to invest more to meet these standards and to increase vertical coordination with downstream buyers (to ensure markets) and upstream suppliers (to guarantee food safety, quality, and the timing of production). Increased vertical coordination led to the shift from contract farming with smallholders to large-scale estate production in agroindustrial farms.

The incidence of contract farming declined (from 23 percent of participating households to 10 percent), but employment in estate farms increased (from 10 percent of households to 34 percent). While contract farming favored larger farmers, poorer households participated as farm workers. Participation in fresh fruit and vegetable export production, whether as a worker or contract farmer, raised household incomes (figure below). Estate farm workers had incomes 1.2–2.3 million CFA francs higher than nonparticipating households, while contract farmers had incomes between 2.4 million and 4.1 million CFA francs higher.

Household participation in French bean export production in Senegal



Incidence of poverty and extreme poverty among participating households, 2005



Source: Maertens and Swinnen 2006.

Table 5.2 Public and private sector roles to enhance trade-related SPS compliance and quality management capacity

Public sector	Private sector
Policy and regulatory environment Pursue international dialogue; adopt domestic food safety legislation and standards consistent with local conditions and preferences, WTO, and other trade obligations	**Good management practices** Implement appropriate management practices (hazard analysis and critical control point, "good" agricultural practices); obtain formal certification where viable
Risk assessment and management Strengthen national or subnational systems for pest, animal disease, and market surveillance; support research on food safety and agricultural health concerns	**Traceability** Develop systems and procedures to enable traceability of raw materials and intermediate and final products
Awareness building and promoting good practices Support consumer awareness campaigns on food safety; promote good agricultural hygiene, and food processing practices to be integrated into extension programs; invest in appropriate laboratory infrastructure; accredit private laboratories	**Develop training, advisory, and conformity assessment services** Strengthen human capital, physical infrastructure and management systems to supply support services to agriculture, industry, and government related to quality and food-safety management
Infrastructure investments Improve water supply and sanitation and marketing facilities	**Collective action and self-regulation** Self-regulate through adoption and oversight of industry "codes of practice"; alert government to emerging issues; advocate for effective government services

Source: Adapted from World Bank (2007e).

may be larger and more profitable opportunities to serve the domestic market, a regional market, or industrial-country segments that impose less stringent standards or allow more time to implement them.

Addressing the export challenges of SPS standards requires joint public and private efforts. The public sector should take the lead in policy (standards and food-safety legislation), in research on risk assessment and good management practices, and in disease surveillance (table 5.2). The private sector should take the lead in building awareness, training, and complying with food-safety and agricultural-chemical-use requirements, either individually or collectively through trade associations.

There is growing evidence that countries staying abreast of technical and commercial requirements and anticipating future changes have repositioned themselves in more remunerative market segments.[69] To strengthen local capacity to meet these standards, developing countries can draw support from the Standards and Trade Development Facility, a global program aimed at providing financial and technical assistance to countries to enhance their expertise and capacity to analyze and implement SPS standards and improve their human, animal, and plant health situation.[70]

Decommodification in specialty markets

The "decommodification" of some traditional agricultural products opens alternative markets for higher-value products from developing countries. Geographic indications (labeling such as Blue Mountain coffee from Jamaica), which capitalizes on local know-how and special agroecological conditions to establish brand identity, are one example. Organic, Fair Trade, and Rainforest Alliance–certified products are others. Organic products are grown without the use of conventional pesticides, artificial fertilizers, or sewage sludge—and processed without ionizing radiation or food additives.[71] Fair Trade seeks greater equity in international trade and aims to contribute to sustainable development by offering better market conditions and securing the rights of marginal producers and workers.[72] Rainforest Alliance–certified products meet stringent environmental and social standards for production.

Retail sales, mainly to meet the growing demand in high-income countries, and area planted under these products have expanded significantly. The area planted to organic crops reached 31 million hectares in 2005, with retail sales reaching $23.9 billion in the EU, Canada, United States, and Asia in 2006.[73] The biggest developing-country producers of organic products are China and middle-income Latin American countries. Sub-Saharan countries account for a large proportion of organic cotton production, while Asia and Latin America dominate production of organic coffee and cocoa. Retail sales of certified Fair Trade products in high-income countries reached $1.4 billion in 2005. Bananas and coffee are the most traded products of Fair Trade.[74]

Fair Trade: How fair?

Most case studies highlight the positive impact of Fair Trade on producer prices, incomes, and well-being. Some benefits of Fair Trade include building capacity (support services, improved market information and awareness), empowering local actors, mitigating gender imbalances, and providing clear environmental benefits.[75] There are concerns, however, about the sustainability of Fair Trade. Producers in some developing countries face problems of rationing, because Fair Trade prices are set above market clearing levels and potential supply is exceeding demand. There are also concerns about long-term effects on investment and productivity and the efficiency of Fair Trade channels. But few evaluations have been carried out.

Recent studies show that the costs and margins for coffee sold through Fair Trade are high, and that intermediaries, not farmers, receive the larger share of the price premium. One estimate is that growers receive 43 percent of the price premium paid by the consumer for Fair Trade roasted coffee and 42 percent for soluble coffee.[76] The higher cost of processing and marketing is partly explained by the diseconomies of scale related to the small volumes and high associated costs: certification of supply-chain actors, membership fees, advertising, and campaigning.[77]

Market saturation: more production at lower prices?

There is also concern about export market saturation for high-value exports, as developing countries jump onto the same export bandwagon, often referred to as the "adding up" or "fallacy of composition" problem. If all countries, and especially large countries, try to substantially increase their exports of a product, there is a risk that they will encounter rising protection from industrial countries—or that the terms of trade will decline so much that the benefits of any increased export volume are more than offset by lower export prices. While there is some evidence that developing countries face protectionist tendencies from industrial (and also some developing) countries when exports pass a threshold, the rules defined by the World Trade Organization reduce this risk. The risk of protection is lowest for tropical products with limited developed-country domestic competition and highest for in-season temperate products.[78]

An expansion of developing-country nontraditional exports could create an adding-up problem if several countries rapidly expand production, perhaps so much that export revenues decline. The potential for this is greatest in commodity markets for unprocessed foods.[79] The potential competition posed by efficient large producers—such as Brazil and China—can also be significant.[80] The Food and Agriculture Organization of the United Nations estimates that an increase in China's exports of green beans is likely to reduce world market prices, with adverse effects on the export revenues of other developing countries.[81] So under some circumstances, the expansion of agricultural exports by some market participants could curtail market potential.

A close eye needs to be kept on export products dominated by one or two countries—or when smaller countries simultaneously expand their export market shares.[82] This emphasizes the need for export-promotion agencies in developing countries to build stronger capacities in market intelligence.

Conclusion

Markets are good for efficiency, and much progress has been made in market development, especially under private sector leadership. But further efficiency gains will require public sector support to deliver the necessary public goods, foster institutional innovation, and secure competitiveness. Because efficient markets do not always secure socially desirable outcomes, complementary policies are often needed to ensure smallholder participation.

A large agenda remains in improving the performance of the marketing systems in developing countries. Public investments to expand access to rural infrastructure and services—such as rural roads and transport services, physical markets, telecommunications, and electricity—will be critical to reducing transaction costs and physical losses

and to enhancing transparency and competitiveness in traditional markets. Technical and institutional innovations reducing transaction costs and risks also show promise, especially the wider use of information technologies (mobile phones, the Internet, and commodity exchanges) and vertical coordination arrangements with individual farmers or producer organizations.

Rapidly growing local and international demand for high-value agricultural products opens important growth opportunities for the agricultural sector in developing countries. However, modern procurement systems for integrated supply chains and supermarkets with stringent food-safety standards raise concerns about how to ensure that developing countries in general, and small farmers in particular, share in these growth opportunities.

International experience highlights the respective roles of the government and the private sector to meet these challenges. A priority area for public action is to establish an enabling policy environment (competition policy, contract enforcement, setting grades and standards, food-safety legislation). It will also involve developing credible public institutions to enforce regulations to guard against opportunistic and uncompetitive behavior in the marketing system. Public-private partnerships can also be important in conducting research and capacity building to develop good agricultural practices, meet the new domestic and international SPS standards, and train and assist farmers to adopt them.

The public sector can facilitate smallholder access to the big opportunities offered by market development. Greater access to assets for smallholders (as has clearly been seen in the procurement preferences of supermarkets), level playing fields, and strong producer organizations to achieve scale and market power are necessary elements. The opportunities offered by major changes in markets will work for the poor only if these complementary policies are in place.

The private sector can enable smallholders to participate as partners in modern procurement systems and exports. It can setup innovative vertical coordination arrangements with farmers or producer groups. It can facilitate farmer access to credit, inputs, extension, and certification. It can support the training of farmers in good agricultural practices to meet quality, food-safety, and international sanitary standards.