

III AGRICULTURAL DIVERSIFICATION AND COMMERCIALIZATION

INTRODUCTION

The onset of rapid economic growth in Asia, stimulated in significant part by agricultural growth, in turn initiated a process of transformation of the structure of production across sectors. As the share of manufacturing and services has expanded, the share of agriculture in the value of total output has declined. The transformation of the structure of output has been accompanied by a decline in the share of employment in agriculture. In addition, the decline in the relative size of agriculture in Asian economies has been accompanied by the commercialization and diversification of agriculture. As economies grow, there is a gradual movement from subsistence food-crop production to a diversified market-oriented production system. Many observers have expressed concerns about possible adverse effects of this process of diversification and commercialization on the poor, but for the most part, these concerns are not borne out by recent evidence.

STRUCTURAL CHANGE IN AGRICULTURE

The rapid economic development in most of Asia, which was described in Chapter I, fundamentally changed the relative position of agriculture in the region. A central and nearly universal characteristic of economic development is the

structural change in the productive sectors, with a relative decline in the size of the agricultural sector in the economy. A number of factors contribute to this relative decline, including

- the effects of income and expenditure growth on food demand and food prices relative to other goods and services, in particular Engel's Law, which states that as real expenditures increase, the share of expenditures on food declines;
- differential rates of technical change, with more rapid growth in technical change in the nonagricultural sector leading to a decline in the share of agriculture in the economy; and
- capital accumulation and the resultant change in capital and labor endowments, leading to a decline in the share of total output of the relatively labor-intensive agricultural sector, countered by a relative increase in the output share of the capital-intensive nonagricultural sector.

The relative importance of these effects will depend on the structure and dynamics of development in each economy. Although Engel's Law has typically received most attention in the literature as a determinant of agriculture's decline, Martin and Warr (1992), for example, found that in Thailand, capital accumulation and technical change are far more important in explaining the decline of agriculture relative to the nonagricultural sector. In Indonesia, on the other hand, capital accumulation was by far the dominant cause for agriculture's relative decline, while changes in relative prices played only a small role; technical change was actually biased in favor of agriculture, slowing the decline in its relative size (Martin and Warr 1991).

The decline in the relative size of agriculture has proceeded rapidly in much of Asia, as can be seen in the share of agricultural value added in total GDP, in the share of agriculture in exports, and in the share of agricultural labor in total labor. The rate of relative decline in agriculture has been a direct function of the

rate of GDP growth, with the rate of agriculture's relative decline faster in the rapidly growing countries. As can be seen in Figure III.1 and Table III.1, the share of agriculture in GDP in the Republic of Korea, the most rapidly industrializing of the countries shown here, declined from 34 percent in 1966 to 15 percent in 1980 and to under 7 percent by 1995. In 30 years, the share of agriculture in GDP declined by two thirds in Indonesia and Thailand, to 17 percent and 11 percent respectively, while in the PRC and Malaysia, the share was more or less cut in half, to 20 percent and 13 percent respectively. Viet Nam's share of agriculture in GDP significantly declined as economic growth boomed during the 1990s, to 28 percent in 1995, after variable increases and declines in the late 1980s.

The South Asian countries also experienced a substantial decline in the share of agriculture, although from a higher initial level and not as rapidly as the East and Southeast Asian countries. The share of agriculture in GDP in Bangladesh was variable, with no trend decrease, in the range of 50–60 percent during the stagnant growth period of 1966–78, before commencing a steady decline to 31 percent in 1995 as economic growth accelerated. The decline in India's share of agriculture in GDP began in the early 1970s; the value added to GDP by the agriculture sector declined from about 45 percent to 28 percent in 1995. Both Pakistan and Sri Lanka experienced relatively slow declines in the share of agriculture in GDP, from 37 percent to 26 percent, and from 28 percent to 23 percent, respectively, over the 30-year period. Nepal's structural change was more rapid, with a shift in the contribution to GDP by agriculture from 71 percent in the mid-1960s to 42 percent by 1995.

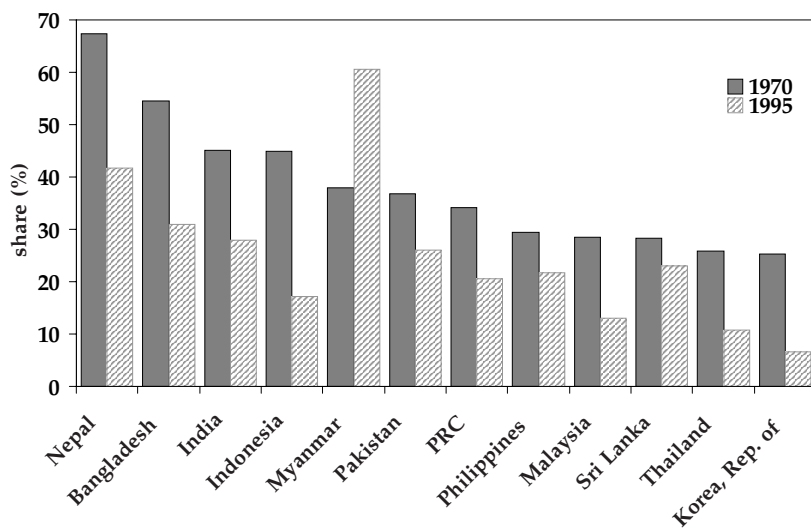
In the Philippines, structural shifts in the economy had already taken place by the mid-1960s; consequently, the decline in the value added to GDP by agriculture was rather modest during the last 30 years, from 26 percent in 1966 to 22 percent in 1995. Myanmar is the only exception in this group of Asian developing countries, with very slow growth in the nonagricultural sector leading to an increase in the share of agriculture in GDP from 34 percent in 1966 to 61 percent in 1995.

The declining share of agricultural exports in total exports in the region is directly linked with the declining contribution of agriculture to total GDP. Thus, despite the sometimes very rapid annual rates of growth in agricultural exports of some Asian developing economies over the 1967–95 period (for example, Viet Nam, 15 percent; Republic of Korea, 14 percent; Indonesia, 10 percent), the share of agricultural exports in total exports declined significantly in each Asian developing country shown in Table III.2. India experienced the slowest decline, at 3.3 percent per year, followed by the rest of the South Asian country group.

In several of the rapidly growing East and Southeast Asian economies, growth in the agriculture sector was the a major source of overall economic growth until the late 1980s. Consequently, the more rapid decline in the share of agricultural exports in total exports in these countries only began in the late 1980s or early 1990s, with agriculture's share in the PRC, Indonesia, Malaysia, Pakistan, Thailand, and Viet Nam declining to between 10 and 13 percent by 1995. The share of agricultural exports in total exports in Bangladesh declined substantially over the 1982–89 period, followed by an even more rapid decline at the beginning of the 1990s to only 4 percent of total exports in 1995. In the Republic of Korea, on the other hand, the agriculture sector already contributed only 10 percent to total exports by 1966 and 6 percent by 1970; the share dropped even further to 1 percent by 1995.

Parallelling the trend of a declining relative importance of agriculture in the economic structure is the share of agriculture in the total labor force, although these shifts are less dramatic. By far the largest structural shift in the labor-force participation over the last 30 years occurred in the Republic of Korea, with labor in agriculture declining almost fourfold, from 54 percent in 1966 to 14 percent in 1995 (Table III.3 and Figure III.2). Only Malaysia experienced a similar decline in the share of the economically active population in agriculture, from 58 percent to 23 percent. In the other East and Southeast Asian economies, the share of the labor force in agriculture has so far remained at or above 50 percent (the PRC, 70 percent; Indonesia, 52 percent;

Figure III.1: Agriculture, value added (% of GDP)



Source: WDI 1998.

Table III.1: Agriculture, Value Added (% of GDP)

Year	1966	1970	1975	1980	1985	1990	1995
Bangladesh	53.95	54.56	61.95	49.64	41.77	36.85	30.88
India	44.94	45.17	40.50	38.10	33.03	30.97	27.87
Indonesia	50.81	44.94	30.18	23.97	23.24	19.41	17.16
Korea, Rep. of	34.12	25.37	24.13	14.53	12.49	8.68	6.54
Malaysia	28.32	28.52	27.98	21.91	19.30	18.72	13.02
Myanmar	34.40	38.00	47.07	46.54	48.20	57.26	60.63
Nepal	70.51	67.29	71.76	61.77	51.71	51.63	41.77
Pakistan	37.07	36.83	32.05	29.52	28.53	25.98	26.02
Philippines	25.69	29.52	30.34	25.12	24.58	21.90	21.62
PRC	36.06	34.13	31.97	30.09	28.35	27.05	20.59
Sri Lanka	28.30	28.30	30.35	27.55	27.69	26.32	23.01
Thailand	33.40	25.92	26.87	23.24	15.81	12.74	10.84
Viet Nam	-	-	-	-	-	37.47	27.55

Source: WDI 1998.

**Table III.2: Agricultural Exports as Share of Total Exports (%)
and Annual Growth in Agricultural Exports as Share of
Total Exports (%/year)**

Year	1970	1995	1967-82	1982-95	1982-89	1989-95	1967-95
Bangladesh	39.57	3.51	-5.99	-11.73	-9.06	-14.74	-8.70
India	30.97	13.85	-2.52	-4.14	-7.01	-0.67	-3.28
Indonesia	36.9	10.33	-12.19	2.36	6.92	-2.71	-5.71
Korea, Rep. of	6.31	1.09	-8.10	-4.77	-4.83	-4.70	-6.57
Malaysia	42.26	10.1	-3.54	-6.75	-4.38	-9.45	-5.05
Nepal*	105.73	6.47	-12.17	-9.27	-6.19	-12.73	-10.84
Pakistan	26.2	10.23	-1.78	-7.23	-3.03	-11.89	-4.35
Philippines	33.53	6.98	-3.58	-8.95	-9.37	-8.47	-6.11
PRC	45.43	9.83	-3.16	-6.83	-2.13	-12.03	-4.88
Sri Lanka	55.07	14.49	-1.31	-8.80	-4.63	-13.44	-4.86
Thailand	46.49	12.85	-0.94	-9.19	-9.70	-8.59	-4.86
Viet Nam	—	21.10	—	—	—	-13.09	—

Note: Percentages above 100 percent in Nepal are due to data inconsistencies.

Source: (of agricultural exports) FAO FAOSTAT 1998. Agricultural Trade; total exports: WDI 1998.

Thailand, 60 percent). In Viet Nam, the share has also declined only slowly, from 79 percent to 69 percent over the 30-year period. Both Pakistan and Sri Lanka experienced rates of decline in the share of labor in agriculture similar to the rapidly developing East and Southeast Asian countries, with shares of agricultural labor in 1995 of 49 percent and 47 percent, respectively.

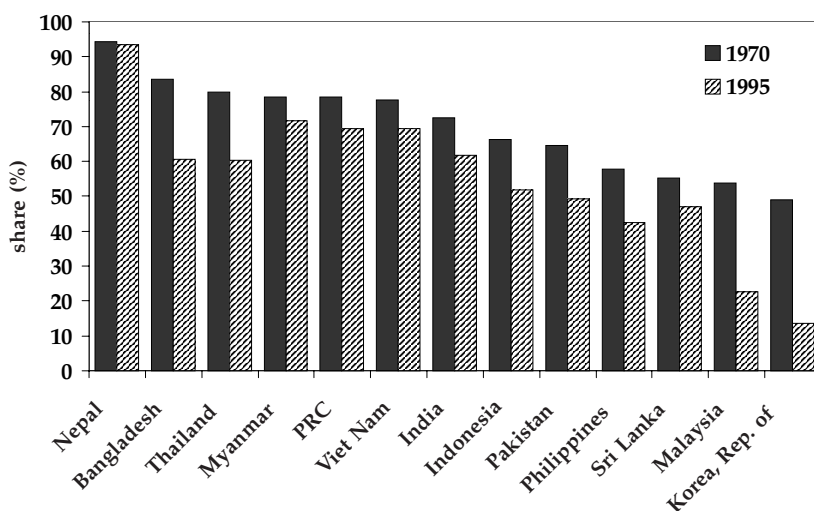
The share of the labor force in agriculture declined more slowly in Bangladesh and India, to slightly more than 60 percent by 1995. In Nepal, almost the entire active population, 93 percent, is still employed in the agriculture sector, with virtually no change during the 1966–95 period. Although agriculture only contributed between 20 and 25 percent to GDP in the Philippines during the last thirty years, the sector still employed 43 percent of the labor force in 1995, down from 60 percent in 1966. In Myanmar, the increasing contribution of agriculture to GDP is not reflected in the employment structure. On the contrary, the share of labor in agriculture declined over the 30-year period, albeit not markedly, from 79 to 72 percent.

Table III.3: Share of Agricultural Labor in Total Labor Force (%)

Year	1966	1970	1975	1980	1985	1990	1995
Bangladesh	85.16	83.50	78.01	72.60	68.90	65.23	60.56
India	73.73	72.64	71.08	69.53	66.74	64.02	61.87
Indonesia	69.70	66.30	62.08	57.82	56.46	55.18	51.78
Korea, Rep. of	53.90	49.14	43.17	37.12	27.64	18.11	13.53
Malaysia	57.57	53.75	47.30	40.79	34.15	27.33	22.68
Myanmar	79.42	78.39	77.09	75.81	74.55	73.27	71.77
Nepal	94.65	94.41	94.09	93.78	93.67	93.65	93.37
Pakistan	65.03	64.55	63.92	63.16	57.50	51.80	49.40
Philippines	60.20	57.91	55.14	52.30	49.03	45.76	42.63
PRC	80.25	78.34	76.26	74.24	73.24	72.24	69.54
Sri Lanka	55.81	55.28	53.57	51.88	50.26	48.50	47.03
Thailand	81.37	79.82	75.37	70.91	67.48	64.06	60.32
Viet Nam	79.13	77.49	75.34	73.20	72.25	71.30	69.36

Source: FAO FAOSTAT 1998. <http://faostat.fao.org>. Population DataBase.

Figure III.2: Share of Agricultural Labor in Total Labor Force (%)



Source: FAO FAOSTAT 1998. Population DataBase.

COMMERCIALIZATION AND DIVERSIFICATION

The process of general economic growth with concomitant decline of the relative size of agriculture in the economy has been accompanied by the commercialization and diversification of Asian agriculture. As economies grow, there is a gradual movement out of subsistence food-crop production (mostly of basic staple crops) to a diversified market-oriented production system. The process of diversification out of staple-food production is triggered by rapid technological change in agricultural production, by improved rural infrastructure, and by diversification in food-demand patterns. The slowdown in income-induced demand growth for staple foods is accompanied by a shift of diets to higher-value foods such as meats, fish, fruits, and vegetables. These dietary transitions are induced by declining income elasticities of demand for staples as per capita incomes rise and by the rapid migration of population to urban areas (see also Chapter VI).

The pace of diet diversification is directly related to growth in income. In fast-growing Malaysia, the share of rice in per capita food-consumption expenditures declined from 24.1 percent in 1973 to 9.6 percent in 1993, while the share of fish increased from 13.8 percent to 20.2 percent (Lin 1998). In India, where incomes grew more slowly, the share of rice in per capita food-consumption expenditures declined from 15.1 percent in 1973 to 9.7 percent in 1994, while the share of meat, eggs, and fish increased from 1.8 percent to 2.1 percent (Kumar 1998).

As agricultural commercialization proceeds, the marketed share of agricultural output increases; product-choice and input-use decisions are increasingly based on the principles of profit maximization. Commercial reorientation of agricultural production occurs for the primary staple cereals as well as for higher-value crops. Commercialization of agricultural systems leads to greater market orientation of farm production; progressive substitution out of nontraded inputs in favor of purchased inputs; and the gradual decline of integrated farming systems and their replacement by specialized enterprises for

crop, livestock, poultry, and aquaculture products. The farm-level determinants of increasing commercialization are the rising opportunity costs of family labor and increased market demand for food and other agricultural products. Family labor costs rise because of increasing off-farm employment opportunities, while positive shifts in market demand are triggered by urbanization and/or trade liberalization (Pingali and Rosegrant 1995).

This diversification in production in Asia can be seen at the aggregate level by the pattern of production growth of staple cereals compared to other, higher-value crops. For all Asian countries, livestock production grew at 6.4 percent per year and production of vegetables, fruits, and treenuts grew at 4.4 percent per year, whereas cereal production only increased at 2.7 percent annually during 1973–96 (Delgado and Ammar 1997). The process of commercialization has been accelerating in recent years, with the East Asian countries at the high end of this agricultural transformation process, the Southeast Asian countries moving rapidly towards commercialization, and the South Asian countries advancing more slowly. In East Asia, livestock production grew at 8.5 percent per year during 1989–95, while cereal production grew at 2.4 percent per year. In Southeast Asia, livestock production increased at 5.8 percent per year and cereal production grew at 2.8 percent per year during the same period. In South Asia, finally, livestock production grew at 4.3 percent per year and cereal production increased at 2.6 percent per year during 1989–95.

The rapid pace of production diversification is even more apparent in the pattern of change in value of output. In Asia as a whole, the value of vegetable production as a proportion of the value of cereal production increased from 17 percent in 1980 to 30 percent in 1993. Moreover, diversification is more rapid in the fast-growing East Asian economies than in South Asia. In East Asia, the value of vegetable production as a percentage of value of cereal production increased from 22 percent in 1980 to almost 40 percent in 1993, while in South Asia, the percentages changed from 10 percent to 15 percent over the same period (Kumar 1998).

Initially, diversification implies the addition of other crops and other enterprises at the farm-household level. As

commercial orientation increases, however, diversification at the agricultural-sector level is created by household-level specialization, as households shift away from traditional self-sufficiency goals and towards profit- and income-oriented decision making, with increased responsiveness of farm outputs to market needs. Mixed farming systems give way to specialized production units that can respond more quickly to market price and product quality signals. The returns on intensive subsistence production systems that require high levels of family labor generally decline relative to the returns on market-oriented production. In addition, family labor is increasingly replaced with hired labor, as family members find more lucrative nonagricultural employment opportunities. The increasing opportunity costs of family labor due to the increase in off-farm employment opportunities lead to a substitution of traded inputs for the more labor-intensive nontraded inputs.

Thus, mechanical power substitutes for human and animal power, chemical fertilizer for manure and other organic fertilizers, and commercial feed for farm-produced fodder (Pingali and Rosegrant 1995; McIntire, Bourzat, and Pingali 1992; Han 1992). These household-level changes in the organization of production are facilitated

- by agricultural research that generates new technologies to increase productivity and farmer incomes;
- by economic liberalization that opens up new opportunities;
- by the development of rural financial markets that provide the credit for the expansion of commercial agriculture;
- by public investments in rural infrastructure; and
- by establishment of secure property rights.

Agricultural Research

Agricultural research can provide farmers with increased flexibility to make crop choice decisions and to move relatively

freely between crops. Both substantial crop-specific research and system-level research efforts contribute to flexibility of crop choice. Crop-specific research includes increases in yield potential, shorter-duration cultivars, improved quality characteristics, and greater tolerance to pest stresses. System-level research includes land-management and tillage systems that allow for shifts of cropping patterns in response to changing incentives and farm-level water-management systems that can accommodate a variety of crops within a season.

Economic Liberalization

Liberalization of domestic markets is often a key step in starting or accelerating the process of commercialization. The main components of economic liberalization are a reduction in trade restrictions (elimination of quantitative restrictions, uniformization and reduction of import tariffs); realignment of macro policies (reduction of fiscal deficits, elimination of multiple exchange rates, easing of exchange controls); and a liberalization of markets in general, including financial markets and asset markets. This reform process opens up international trade opportunities and provides price signals to guide producer decisions, thus encouraging a diversification of the economy. The opening of domestic markets, however, may expose producers to increased risk due to the greater volatility of world prices, although the evidence is mixed (see Chapter VII). Governments have historically intervened heavily in domestic markets to protect and stabilize the prices of agricultural commodities; when effective, stabilization policies have reduced domestic producer price variability relative to international price variability (Islam and Thomas 1996).

The relationship between diversification and risk is thus crucial in the context of trade and macroeconomic reforms designed to align domestic prices more closely with international prices. Diversification can be an efficient mechanism for reducing the impact of risk on producers' welfare. Diversification of the crop mix at the household level

is unlikely to greatly reduce the price risk, however; the prices of agricultural commodities are highly correlated, because of their common reaction patterns to aggregate, worldwide, and macroeconomic shocks. Furthermore, the process of diversification is itself likely to increase the correlation of prices. On the consumption side, the increasing flexibility of diets (as discussed above) means that more substitution in consumption will occur, resulting in higher correlation of prices. On the supply side, to the extent that investments in infrastructure and increased market integration make a more diversified output mix possible, there will be increased substitution possibilities in production, resulting again in higher price correlation. A strategy aimed at household-level diversification is likely to be self-defeating: the more each unit of production is diversified, the more positive the correlation between prices and the lower the gains from diversification.

Rural Financial Markets

Liberalization and integration of rural and other, broader financial markets can reduce the costs of increased price variability through risk pooling on an economy-wide basis. Financial integration for risk spreading is critical at the rural household level as well. In order to exploit the income-enhancing potential of commercialization of agriculture, financial markets must accommodate the increased ability of households to save and build up productive asset bases and improve human resources. Rapid development of rural finance systems at the grass-roots level is an impetus to commercialization, particularly since commercialization of agriculture often leads to large, lumpy payments of cash a few times a year. The process of commercialization itself can provide the critical market size required for efficient, unsubsidized rural banking with low overhead costs.

In addition, technological changes often require complementary investments that increase demands for working and investment capital. Some of these demands will be self-

financed, others will be serviced by informal sources, but still others will require longer-term loans provided by formal institutions. Supplying reasonably priced loans, therefore, can speed the adoption of technology, expand the production of food supplies, and increase farm incomes. Effective rural financial institutions can assist in spreading the benefits of commercialization more widely across the community and region.

The strong complementarity between commercialization (and rural development in general) and rural financial-market development has led governments to intervene heavily to influence the availability and cost of credit to farmers. Five main types of government interventions have been used:

- lending requirements imposed on banks;
- refinance schemes;
- loans at preferential interest rates;
- credit guarantees; and
- lending by government-operated development finance institutions.

In a comprehensive review of rural financial markets in Asia that constitutes a complementary volume in this Rural Asia series, Meyer and Nagarajan (1999) note that the benefits from directed and subsidized credit and other government interventions have been small. The BIMAS project in Indonesia and Masagana 99 in the Philippines were typical. These programs had a limited impact on adoption of new technology but seriously impaired the banks, cooperatives, and specialized agricultural development banks that tried to implement them. The rapid expansion of government credit to agriculture in India, Bangladesh, and the PRC in the 1970s and 1980s similarly appears to have had little impact on agricultural production.

There was a myriad of other and largely unintended consequences. Government interventions in rural financial markets failed to provide savings and other financial services demanded by farmers. Middlemen and banks often captured the subsidies intended for borrowers. Interest rates were low but borrower transaction costs were high, banks earned low returns

on their capital, and credit allocation may have worsened income distribution if the credit was skewed in favor of larger farms.

The clearest impact has been found in the damage that directed credit inflicted on rural financial systems. Many subsidized credits became nonperforming loans because cheap interest encouraged unprofitable investments. In some cases borrowers intentionally defaulted because they believed that governments would waive the loans or not take action against those in the priority sectors. Financial discipline was damaged and intermediaries weakened. Repayment rates often deteriorated over time, as occurred in the BIMAS program in Indonesia. Loans were frequently forgiven, especially in India and Bangladesh. Many credit institutions were weakened and failed or required refinancing; refinance schemes discouraged savings mobilization, leading to lower financial intermediation. Clearly the relatively small economic benefits that were realized from directed and subsidized credit came at a high cost to financial systems (Meyer and Nagarajan 1999).

The general failure of directed and subsidized credit has caused a shift in approach that limits the role of financial markets to financial intermediation rather than as a tool to stimulate production, compensate for distortions in other markets, and alleviate poverty. First, the appropriate role for government is seen as creating an environment in which competitive financial institutions can emerge. Among other things, this means macroeconomic stability, reasonably low levels of inflation, procedures to enforce contracts, the protection of property rights, and a regulatory and supervisory system to ensure prudent financial operations.

Second, governments need to avoid the temptation of attempting to use financial institutions to carry out social policies, such as subsidizing particular economic activities or groups within society. Financial-market interventions are a poor second-best approach for dealing with important social problems that require more direct policies to encourage human capital formation and improve access to productive assets. The new approach is shown by the move of a number of Asian governments to financial-market liberalization, reduced

targeting of loans, and the setting of interest rates at high enough levels to cover costs.

Due to the success of some microfinance organizations (MFOs), such as the Grameen Bank in Bangladesh, these have been held up as possible models for this new approach. But the applicability of microlending techniques to specialized farmers who have highly seasonal cash flows or long-term capital requirements may be limited. Most MFOs use group lending to reduce their transaction costs, but group lending may not be effective in sparsely populated areas where group members have less information about each other and monitoring is more costly. Financial markets for the poor are highly segmented, with each microlender serving a small market niche; high information and transaction costs discourage competition and constrain the MFOs from rapidly expanding to serve new clients and regions. In addition, many MFOs obtain their resources from subsidized sources and have little experience in mobilizing savings.

Lessons for agricultural lending might better be drawn from the experience of the unit desas of Bank Rakyat Indonesia (BRI-UD). Unit desas are village banking units that channel loans to farmers. BRI-UD was reorganized in 1983/84, following the collapse of BIMAS, with the objective of serving rural low- and middle-income households. BRI-UD makes only individual loans, has millions of clients, provides loans at high, market-determined interest rates, and has been very successful at mobilizing rural savings (Meyer and Nagarajan 1999).

Considerable progress has been made in some Asian countries to improve the economic environment for rural financial markets, but many policies still discourage rural finance. Even in the relatively successful case of Thailand's Bank for Agriculture and Agricultural Cooperatives (BAAC), the government continues to impose subsidized interest rates on BAAC farm lending and restricts its ability to serve nonfarm clients in rural areas. Likewise, the huge Integrated Rural Development Program in India uses massive public funds and discourages the emergence of unsubsidized institutions to serve poor clients.

Interest rates set at low levels discourage innovation and competition, so interest-rate liberalization is a necessary first step if countries want to create an environment in which financial markets can flourish. Portfolio restrictions must be carefully examined because they limit the lenders' ability to reduce risks through portfolio diversification (Meyer and Nagarajan 1999). Finally, the recent financial and economic crisis in East and Southeast Asia has revealed serious problems in regulation and oversight of financial institutions generally, which indicate the need for significant reforms in prudential oversight. These broader financial oversight issues are discussed in more detail in Chapter IX.

Rural Infrastructure

Infrastructure investments play a crucial role in inducing farmers to move toward a commercial agricultural system. Government investments in infrastructure should emphasize genuine public goods, such as improving general transport, communications, and market infrastructure, while allowing the private sector to invest in commodity-specific processing, storage, and marketing facilities. Governments should not preempt private-sector decisions by taking a "pick-the-winner" attitude towards diversification. As in the case of research, however, it is often impossible to avoid some degree of picking winners (or at least giving differential support) across commodities. Investment in rural infrastructure is commodity-group specific, and often commodity-specific, because of the three-way correlation among regions, agro-ecological zones, and agricultural production. A decision to build a road in a specific location is also a decision about the mix of products to be produced and marketed. The priority-setting process is further complicated because infrastructural investments take time to implement and demand careful attention to sequencing. Adjustment of investment strategies to major changes in relative prices must also be consistent with macroeconomic adjustment objectives. The importance of rural

infrastructure to agricultural growth and equity is discussed in more detail in Chapter II, Chapter V and Chapter XI.

Property Rights

General economic liberalization provides opportunities for diversification and commercialization, but also places a premium on flexible farmer response in allocation of water, land and other resources in response to changing prices, comparative advantage, and economic opportunities (Rosegrant, Gazmuri Schleyer, and Yadav, 1995). If rights to the basic resources such as land and water are poorly secured and enforced, these resources can remain locked into inefficient uses. Efficient land markets and secure property rights are critical for the efficiency gains that spur commercialization and agricultural growth (Feder et al. 1988; Binswanger, Deininger, and Feder 1993). Secure rights to land create the incentives farmers need to invest in land improvements that conserve and increase the long-term productivity growth that can be induced by the start of commercialization. Secure land rights are complementary to policies that aim at liberalizing and integrating capital markets, because secure rights increase the probability that farmers can recoup the benefits from long-term investments, thereby increasing their willingness to make them. Because they can serve as collateral for loans, secure land rights also increase lender willingness to offer credit, leading to easier financing of purchased inputs and land improvements (Feder et al. 1988).

AGRICULTURAL COMMERCIALIZATION AND DIVERSIFICATION AND THE POOR

Concerns have been raised over possible adverse consequences of agricultural commercialization and diversification on the welfare of the poor. Critics have focused on three areas of concern: first, that the uptake of modern

technologies associated with commercialization may be an inequitable process that at least worsens rural inequality and more likely increases absolute poverty; second, that in the shift to cash cropping, small-scale farmers might sacrifice their own food crops and expose their families to greater food insecurity; and third, that commercialization might worsen regional inequities because it favors areas that have greater agricultural-production potential. These critiques are considered in turn in the following sections.

Impact of Technological Change

Concerns about the adverse impact of modern agricultural technologies on the poor reached their zenith in the 1970s, when critics debated the negative impacts of the green revolution. Critics argued that, because of their better access to irrigation water, fertilizers, seeds, and credit, large farmers were the main adopters of the new technology; smaller farmers were either left unaffected or were made worse off because the green revolution resulted in lower prices, higher input prices, and efforts by larger farmers to increase rents or force tenants off the land. It was also argued that the green revolution encouraged unnecessary mechanization, with a resulting reduction in rural wages and employment. The net result, some critics argued, was an increase in the inequality of income and land distribution, an increase in landlessness, and a worsening of absolute poverty in areas affected by the green revolution (see, for example, Griffin 1972, 1979; Frankel 1976; Farmer 1977; ILO 1977; Pearse 1980).

Although a number of village- and household-based studies conducted soon after the green-revolution technologies were released lent some support to the critics (e.g., Farmer 1986), the conclusions have not proved valid when subjected to more recent scrutiny (Barker and Herdt 1978; Blyn 1983; Pinstруп-Andersen and Hazell 1985; Hazell and Ramasamy 1991; Lipton 1998). Small farmers may have lagged behind large farmers in adopting the green revolution technologies, but most of them

eventually did adopt them and benefited from increased production as well as from greater employment opportunities and higher wages in the agricultural and nonfarm sectors (This very important carryover from agricultural growth to the rural nonfarm economy is discussed in Chapter IV).

Nor did the distribution of land worsen in most cases, as is also shown in Chapter IV. Large numbers of other poor people also benefited from the green revolution through increased employment and business earnings in the farm and nonfarm sectors, and from lower food prices (Pinstrup-Andersen and Hazell 1985). This is not to say that the green revolution was equitable everywhere, but the conditions under which it and other yield-enhancing technologies are likely to be equitable are now reasonably well understood. These conditions, which also promote poverty reduction, are described in Chapter II.

Impact of Commercialization

Critics of commercialization also feared that small farms would be left out of the commercialization process and would be unable to compete in the market as competition increased and prices fell. Moreover, concerns were also raised that if small farm households should forgo some or all of their traditional food crops in order to grow more cash crops for the market, this would (a) increase their dependence on purchased foods, exposing the household to greater food-security risk because of volatile market prices and uncertain income from cash crops; and (b) lead to a reallocation of income within the household in favor of men (who typically grow cash crops), with possibly adverse nutritional consequences for women and children.

A recent study summarized by Von Braun (1995) and Von Braun and Kennedy (1994) largely refutes these critics of commercialization. The study examines a series of comparative studies of selected sites (including study sites in five Asian countries) where farm households had recently switched from semisubsistence staple-food production with low levels of external inputs to production of more crops for sale in the market

or to production with more purchased inputs. These studies found that, with few exceptions, commercialization of agriculture benefits the poor by directly generating employment and increasing agricultural labor productivity. Both the households that were commercializing their production and the hired laborers received direct income benefits. Furthermore, at all but one study site, the increased household income generated by commercialization was associated with an improvement in nutritional status for children in the household.

Commercialization is less likely to lead to adverse outcomes for the poor if farmers have secure property rights over their resources. Some of the worst apparent failures of commercialization cited in the literature, such as evictions of farmer-tenants, can be traced mainly to poorly defined land rights, rather than to the process of commercialization itself (Von Braun 1995). In addition to secure property rights, the provision of social-support services increases the benefits and reduces the probability of adverse consequences from the process (see also Chapter II). Foremost among these social-support policies are health and nutritional services (Von Braun 1995). Nutritional improvements are determined by both health and food consumption. Negative health effects from poor household and community health and sanitation can overcome potential positive effects of income growth from commercialization. Increased income and food consumption help to reduce hunger but cannot solve the problem of preschool children's malnutrition, which results from a complex interaction of lack of food and morbidity. Health and sanitation in rural areas can be promoted through improvement of community-level health services to exploit fully the welfare effects of agricultural commercialization.

Regional Disparities

Finally, it has been argued that agricultural intensification and commercialization that proceeds in certain regions but not in others can worsen regional disparities, with lagging regions

falling farther behind as commodity prices drop in the wake of increasing productivity in the rapidly growing regions. The widening productivity gap between commercializing regions and slower-growing, subsistence-oriented regions could not only accentuate relative income differences but even cause an increase in absolute poverty in the lagging regions. In the study sites examined in Von Braun (1995), however, indirect-income benefits were generated through the increased demand for goods and services by the direct-income beneficiaries as well as by increased demand for inputs for commercialized agriculture. The wage rate and other employment benefits from commercialization spread to other regions when labor migrated from other regions into scheme areas. The more mobile the labor force, the more the benefits from commercialization spread across the economy and other regions.

Similar results have been found for the spread of modern rice technology in Asia (a classic process of commercialization). In a comprehensive cross-country comparative study, David and Otsuka (1994) found that the differential impact of new rice technology across regions did not worsen income distribution, thanks to the significant indirect effects that worked through labor, land, and product markets. Interregional labor migration from unfavorable to favorable regions tended to equalize wages across regions, allowing landless labor and small farmers in unfavorable areas to benefit too. Landowners in lagging regions were sometimes worse off but also partially protected their incomes through diversification out of rice.

While smoothly functioning product and factor markets help to equalize wages and incomes across regions, they are not always sufficient. In India, for example, poverty levels in many low-potential rainfall areas have improved little, even while irrigated and high-potential rainfall areas have progressed (Fan and Hazell 1999). Regional inequalities have also worsened in the PRC in recent years (Knight and Song 1986). Worsening regional disparities seem most likely to occur when agriculture is still the predominant source of national employment but the nonfarm economy is growing at only moderate rates. In these circumstances, the opportunities for out-migration from, and

rural income diversification in, backward areas are likely to be smaller than needed. Where regional disparities worsen, there is need for increased public investment in backward areas, particularly in roads, agricultural research and development, and education (Fan and Hazell 1999).

CONCLUSION

Rapid economic growth in Asia initiated a period of significant decline in the share of agriculture in the economy. Economic growth also triggered the commercialization and diversification of agricultural systems. While the rate at which this agricultural transformation occurs varies by country, the direction of change is the same across Asia. Structural adjustment and trade liberalization policies that are currently being implemented in much of Asia can be expected to increase the speed at which the commercialization process occurs.

The process of commercialization requires a paradigm shift in agricultural policy formulation and research priority setting. With economic growth, the paradigm of staple-food self-sufficiency, which was the cornerstone of agricultural policy in many developing Asian countries, has become increasingly obsolete. A more relevant development paradigm is one of food self-reliance, where countries import a part of their food requirements in exchange for diverting resources out of subsistence production. A future emphasis of agricultural policy ought to be on maximizing farm household incomes rather than generating food surpluses.

Agricultural commercialization should not be expected to be a frictionless process; significant equity and environmental consequences should be anticipated, at least in the short to medium term and particularly when inappropriate policies are followed. The absorption of the rural poor into the industrial and service sectors has significant costs in terms of learning new skills and of family dislocations. Accompanying investments in education will thus be crucial.

Commercial systems could also face higher environmental health costs, especially in terms of higher chemical input use. Higher opportunity costs of labor could increase farmer reliance on herbicides for weed control for rice and other staple-food crops that are currently managed through hand weeding. Insecticide and fungicide use for high-value crops, such as vegetables and fruits, is substantially higher than for staples; improper use can increase the incidence of pesticide-related illnesses. Also, where property rights are not clearly established, high-value crop production in upland environments could lead to higher risks of soil erosion and land degradation.

Appropriate government policies can alleviate many of the potentially adverse transitional consequences arising from the process of commercialization and diversification. Important long-term strategies to facilitate a smooth transition to commercialization include

- investments in rural markets, transportation, and communications infrastructure to facilitate the integration of markets;
- investments in education to facilitate labor movement across sectors;
- investments in crop improvement research to increase productivity and crop management and extension to increase farmer flexibility and reduce possible environmental problems from high input use;
- establishment of secure rights to land and water to reduce risks to farmers and provide the incentives for investment in productivity- and conservation-enhancing technology;
- development and liberalization of rural financial markets to provide liquidity and to spread the risks as commercialization proceeds; and
- provision of support services, including health, sanitation and nutrition, to transform the income benefits from commercialization into broader human welfare benefits.