PART IV

The Driving Forces of Commercialization

6 Commercialization of Agriculture and Food Security: Development Strategy and Trade Policy Issues

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Introduction

The choice between subsistence food crops, on the one hand, and cash crops, especially nonfood cash crops predominantly meant for exports, on the other hand, is a subject of considerable debate among policymakers as well as development specialists. The debate raises issues not only at the level of farming households but also at the level of national and international policies, including macroeconomic policies such as trade and exchange rate policies. This chapter reviews and focuses on those aspects of principal relevance in the context of an overall agricultural development strategy and food security.

The controversy regarding cash or export crops versus food crops is part of a bigger debate relating to the commercialization of agriculture in developing countries. Commercialization can broadly be defined as a rise in the share of marketed output or of purchased inputs per unit of output. A shift from basic food crops, which are produced and predominantly consumed on the farm, to cash crops, which are produced mainly for sale in the market, is therefore viewed as part of the commercialization of agriculture process. It is associated with an extension of the market or of the exchange economy, leading to increased specialization and division of labor. Cash crops can be both food and nonfood crops. Even though nonfood crops have been the principal component of cash crops, their relative importance has been on the decline recently.

Choice Between Food Crops and Nonfood Cash Crops

To put the debate at the national policy-making level in its proper perspective, it is important to stress a few salient factors influencing the choice between food crops and nonfood cash crops. First, there are constraints on allocation of land and other resources between various

crops; not all lands are agro-ecologically suitable for all crops. Second, different crops are frequently grown in different seasons and are, therefore, grown in combination over the year. Mixed farming, hence, is often common. Third, mixed farming, including a combination of different crops, is often preferred because monoculture leads to soil degradation or, at least, does not contribute to renewal or maintenance of soil fertility without a supply of additional nutrients. Therefore, cash or export crops and food crops can both, in certain agro-ecological environments, be necessary components of a crop rotation.

Fourth, food crops, including basic staples (cereals, roots, tubers, and pulses) and cash food crops (sugar, fruits, vegetables, oils, and oilseeds), constitute the largest share of the value of total crop output in developing countries. In 93 developing countries, excluding China, food crops of both types constituted 89 percent of the total crop output in 1983–85, whereas the share of nonfood cash crops was 11 percent (table 6.1). Basic food crops constituted 50 percent of the total crop output in the same period; Asia and Africa had the highest share, 59 and 57 percent, respectively. Africa and Latin America had the highest share of

TABLE 6.1 Distribution of total crop output between basic food crops and cash crops, developing country regions, 1961–63 and 1983–85

Region/Year	Basic Food[a]	Cash Crops	
		Food[b] (percent)	Nonfood[c]
Sub-Saharan Africa			
1961–63	54	30	16
1983–85	57	27	15
Near East and North Africa			
1961–63	42	49	9
1983–85	38	54	8
Latin America			
1961–63	36	40	24
1983–85	34	51	15
Asia (excluding China)			
1961–63	59	31	9
1983–85	59	33	8
Developing countries (excluding China)			
1961–63	51	35	14
1983–85	50	39	11

SOURCE: FAO production data tapes.

[a]Cereals, roots and tubers, and pulses.
[b]Sugar, vegetables, bananas, fruits, vegetable oils, and oilseeds.
[c]Tea, tobacco, coffee, cocoa, jute, cotton, fiber, rubber, and so forth.

nonfood cash crops, but this was no more than 15 percent. Over the last 25 years, the proportion of basic food crops in the total crop output has hardly changed. However, within the group of cash crops, the share of food cash crops has expanded from 35 to 39 percent, whereas that of nonfood cash crops has declined from 14 to 11 percent.

Fifth, over the last 25 years—that is, during the 1961–85 period—basic food crop output increased at a rate of 2.7 percent per year, a much higher rate than the 1.4 percent rate of growth of output of nonfood cash crops (FAO production data tapes). However, food cash crops grew at 3.4 percent per year during this period, and the annual rate of growth of all cash crops was about 2.9 percent. During the 1960s, the output of basic food crops increased at a faster rate than cash crops (both food and nonfood), but this situation was reversed during 1976–85, mainly because of an acceleration in the growth rate of food cash crops from 3.0 percent to 3.8 percent per year.

Sixth, is there an association between growth in food production and growth in cash crop production? Do countries that do well in cash crop production also do well in food production? A cross-section study of 78 countries over the 1968–82 period found that growth in acreage under cash crops was positively associated with growth in staple food production, and that, moreover, growth in the proportion of total crop area devoted to cash crops was associated with growth in per capita staple food production (von Braun and Kennedy 1986).[1] Many countries that achieved positive growth rates in basic food production also had positive growth rates in nonfood cash crop production and vice versa. Fifty-seven of the 60 countries that achieved positive growth rates in total nonfood output between 1961–85 also attained positive rates of growth in basic food production. Similarly, of 82 countries that recorded positive growth rates in food production over the same period, 57 countries (70 percent) also attained positive rates of growth in nonfood production. Therefore, on the whole even though high growth rates in basic food production were not necessarily associated with high growth rates in nonfood production, the direction of change was correlated.

Seventh, what is the relationship between growth in production of nonfood crops and growth in overall food supply? Is an increase in nonfood crop production associated with a decrease in total or per capita food supply? In 89 of 90 developing countries for which data are available (FAO data tapes), aggregate food supply (domestic food production

1. It should also be noted that in 1982, cash crops—both food and nonfood—occupied more than 3 percent of the cropland in 28 out of 78 developing countries, whereas nonfood cash crops occupied more than 30 percent of cropland in only 3 countries.

plus food imports) increased during the 1961–85 period regardless of change in nonfood production. However, the situation was different as far as per capita food supply was concerned. In the majority of 60 countries that recorded an increase in nonfood production, per capita basic food supply increased; only in 23 countries did per capita food supply decrease.

The foregoing analysis indicates that food crops, including both basic and cash crops, dominate crop production. In the last several years, food cash crops have increased in importance, but total cash crop production has remained unchanged in relative importance due to a decline in the importance of nonfood cash crops. The decline in the relative importance of nonfood cash crops was most significant in Latin America, where the share declined from 24 to 15 percent of total crop output between 1961 and 1985, although it was observed in almost all regions of the developing world. The analysis also indicates that the relative rates of growth in food and nonfood production were not the dominant factors determining overall food supply. Food supply in countries with inadequate domestic food production was a function of access to food imports. Access to food imports was, in turn, a function of food aid, foreign exchange availability, and food import policies of various countries.

At the national development strategy level, a number of arguments have been advanced to explain why specialization in export crops may be undesirable. First, export crops face a long-run adverse trend in the terms of trade. Second, export prices of cash crops are highly unstable and, therefore, have an adverse effect on development, as well as on the stability and availability of food supplies to be obtained in exchange of export crops. Third, long-run dynamic comparative advantage does not seem to favor export crops. Fourth, export crop production habitually tends to be large scale and capital intensive and, therefore, does not promote employment or equitable distribution of income. Finally, an emphasis on export crops as opposed to food crops may detract from household food security in terms of food consumption and nutritional status of poor families. The following sections investigate the validity of these arguments.

Long-Run Trends in Relative Prices in World Markets

It is argued by "food first" advocates that production of basic food crops deserves to be accorded higher priority even if nonfood export or cash crops enjoy a comparative advantage and yield higher returns. The reason usually advanced for such a proposition is that export crops, especially agricultural raw materials and tropical beverages (the principal

exports of developing countries), tend to suffer from a long-term decline in the terms of trade and do not have bright market prospects in the future. Although much has been written on long-run movements or trends in the international terms of trade of agricultural exports in general, the evidence is not conclusive about whether a decline, if it occurs, is due to adverse demand conditions or reductions in cost.

A recent comprehensive study (Grilli and Yang 1988) of long-run trends in terms of trade of different groups of agricultural commodities found that from the beginning of this century up to 1986, the real prices or terms of trade of agricultural raw materials, nonbeverage food commodities, and cereals have declined by about -0.82 to -0.77 percent, -0.54 to -0.51 percent, and -0.68 to -0.62 percent, respectively, per year (trend rate of change) (Grilli and Yang 1988). The largest decline was in the real price of agricultural raw materials and, hence, there was a downward trend in the real price of agricultural raw materials vis-à-vis that of food and cereals. However, the annual decline was very small. Furthermore, the real price of beverages rose over the 1900–86 period at about 0.6–0.7 percent per year, with the result that the terms of trade of beverages with respect to agricultural raw materials, nonbeverage food, and cereals moved in its favor over the period. Thus, the long-run movements in the terms of trade of the two groups of export crops vis-à-vis food and cereals crops were very different.

In more recent years, 1962–86, the real prices of nonbeverage foods and cereals have fallen faster than in earlier years (table 6.2). During the 1962–86 period, the rate of decline in the price of cereals was faster than that of agricultural raw materials and other food. Therefore, the terms of trade of agricultural raw materials, tropical beverages and other food all improved vis-à-vis cereals during that period.

TABLE 6.2 Recent trends in terms of trade of different commodity groups, 1948–86 and 1962–86

Commodity Group	Trend Rate of Change Per Year (percent)	
	1948–86	1962–86
Agricultural raw materials	−2.17	−1.83
Tropical beverages	—[a]	—[a]
Other food	−0.64	−1.12
Cereals	−1.85	−2.46

SOURCE: Computed from data provided in World Bank (1988a).

[a]No significant trend.

Neither the long-run decline in the relative price of agricultural raw materials vis-à-vis food and cereals nor the faster decline in cereal price in recent years (1962–86) necessarily provides a signal or guide for long-run investment in any one crop. First, the relative decline in the price of an export crop may have been due to falling costs rather than to declining demand. Second, even if net returns from export crops—for example, agricultural raw materials—declined over time, they may still be higher than those obtained from other crops, such as cereals. A decline in food (cereal) prices in recent years relative to other crops does not suggest reliance upon food imports in exchange for agricultural export crops. The depressed prices of cereals in recent years are mainly due to heavy export subsidies by developed, exporting countries such as the United States and the European Community (EC) that are vying with each other to dispose of the large surpluses generated by domestic price and other support programs. Therefore, the low world food prices of the 1980s, which may not endure with cessation of competitive export subsidies and reduction of surpluses in the developed, exporting countries, do not provide an appropriate signal for long-run allocation of resources between food and export commodities in developing countries.

Also, agricultural exports, which face long-run stagnation or slow growth in world demand, do not provide a viable avenue for specialization on developing countries. Many commodities are faced with the threat of synthetic substitutes; others, especially agriculture raw materials, face a decline in demand due to increased economy in their use per unit of finished output. Trade restrictions in importing countries, mostly developed countries, further constrain the expansion of agricultural exports.

Countries that face inelastic export demand in response to price changes can improve their combined real income by acting in unison to manage or restrict export supply. However, such cooperation among agricultural exporting countries has been rare. In fact, they frequently compete aggressively to secure a larger share of an inelastic and slowly growing export market; the resulting fall in prices tends to reduce aggregate export earnings for all of them. In such situations, the less efficient producers are confronted with the need to diversify their exports to focus on commodities that face an expanding future world demand, while at the same time to strengthen their competitive advantage through cost-reducing innovations and technological progress. While traditional agricultural exports such as sugar and hard fibers do not hold out prospects for rapidly expanding world demand, commodities such as horticultural products, oilseeds, and livestock products show brighter market prospects (Islam 1990).

Relative Prices and Food and Export Crops in Domestic Markets

Even though relative prices of different agricultural commodities in world markets, in relation to their relative domestic costs of production, are expected to provide guidance for selection of an appropriate combination of crops, most developing countries, in fact, intervene through border measures so that domestic relative prices differ, sometimes significantly, from relative prices in world markets. The relative prices of food and export or cash crops confronting producers in their domestic market are of relevance to their decision-making process.

Most developing countries traditionally discriminated against agriculture, including both food and export crops, through a combination of economy-wide and sector-specific policies. Frequently, an overvalued exchange rate, combined with a high level of industrial protection, reduced relative returns from agriculture vis-à-vis nonagriculture, which kept the real prices of both food and export crops low.

The economy-wide policies that tended to discriminate against agriculture were reinforced in the case of export crops by export taxes, the incidence of which often fell on producers, and by export marketing boards, which paid farmers less than export prices or world prices. In several countries, export taxes and export marketing boards were a major source of revenue for the government. At the same time, food price policies pursued through state interventions in food marketing kept prices to farmers low in the interest of urban consumers.

Discrimination against agriculture has been most acute in Africa and, to a lesser extent, in Asia and Latin America. The relative domestic prices of food versus export crops have, however, varied widely among countries, depending on the net result of a multiplicity of policies that impinge on the agricultural sector. In recent years, there has been some decline in the discrimination against agriculture, especially against food crops, in many countries, which can be seen from changes in producer prices of food and export crops and in nominal rates of protection (table 6.3). Discrimination against food crops has declined faster than against export crops. Increases in the nominal rate of protection have been slower for export crops than for food crops (table 6.4). The increase in the nominal rate of protection for cereals has been fastest in Africa, followed by Latin America and the Near East.

A different measure of nominal protection for different crops is expressed in terms of the relative domestic price of each crop vis-à-vis that of nonagricultural commodities, where the world price is converted into domestic price at an equilibrium rate of exchange, rather than at a nominal rate of exchange (Krueger, Schiff, and Valdés 1988). Data from

TABLE 6.3 Changes in farmgate prices in selected developing countries

	Index of Farmgate Price (1969–71 = 100)			Percentage Change[a]
Crop Group	1973–75	1978–80	1981–83	1969–83
Cereals	121	114	120	+18
Export crops[b]	110	117	100	not significant

SOURCE: FAO (1987).

NOTE: Thirty-eight developing countries, including thirteen in Africa, nine in Asia, ten in Latin America, and six in the Near East, are included in this analysis.

[a]The percentage change is calculated on the basis of a trend equation for 1969–83.

[b]Coffee, cocoa, tea, cotton, rubber, jute, soybean, palm oil, and tobacco are included in this group.

16 countries indicate that food crops enjoyed a positive rate of direct nominal protection[2] in 1975–79 and that this continued roughly at the same level, 20 percent, in 1981–83 (Krueger, Schiff, and Valdés 1988). Export crops suffered from a negative rate of direct nominal protection of roughly the same magnitude, − 10 percent, in both periods, 1975–79 and 1981–83. The positive direct nominal protection for food crops was more than offset by the exchange rate overvaluation, resulting in a negative, though small, total protection of about − 5 percent. In the case of export crops, the exchange rate overvaluation aggravated the direct negative protection, so that the total protection was not only negative but also more than five or six times higher than in the case of food crops. Furthermore, the total protection against export crops increased over the years, from − 36 percent to − 40 percent.

Why did export crops suffer greater discrimination in terms of direct as well as total negative protection than staple foods? There were three main reasons. First, as mentioned earlier, developing countries faced with limited sources of revenue found taxes on export crops to be an attractive source of revenue and one that could be relatively easily collected, either directly through export taxes or indirectly through

2. The *total nominal rate of protection* is defined as the percentage difference between the relative domestic price (ratio of prices of agricultural commodities to those of nonagricultural commodities) and the relative border price at the equilibrium nominal rate of exchange. The *indirect nominal rate of protection* is the percentage difference between the relative border price at the official nominal rate of exchange and the relative border price at the equilibrium nominal rate of exchange. The *direct nominal rate of protection* is the difference between the total and the indirect nominal rate of protection.

TABLE 6.4 Indices of nominal rates of protection, 1969–71 = 100

Region	1973–75		1978–80		1981–83	
	Cereals	Export Crops	Cereals	Export Crops	Cereals	Export Crops
Africa[a]	91	89	161	91	170	109
Africa[b]	80	95	134	94	143	101
Asia	69	90	92	100	117	103
Latin America	70	100	117	97	137	105
Near East	74	88	116	91	128	102
Total[c]	74	94	116	96	133	103

SOURCE: FAO (1987), 193–195.

NOTE: Nominal rate of protection is defined as the ratio of farmgate price to border price. Border price, in the case of an export competing crop, is f.o.b. price minus transport, handling, and marketing costs between the border and the farmgate. In the case of an import competing crop, the border price is c.i.f. price plus transport, handling, and marketing costs from the border to the farmgate.

[a]Includes countries that favored higher food prices.

[b]Includes countries that relatively favored higher export crop prices.

[c]Thirty-eight developing countries.

profits of the export marketing boards. In several instances, surpluses siphoned off by parastatals or marketing boards ended up largely paying for the inefficient management and high overhead costs of these bodies. Second, in several countries it was presumed that export demand for such crops was price inelastic, and, hence, taxation of exports, by limiting supply, would contribute towards increased export earnings. For individual countries, it was seldom that price elasticity of export demand was low. Third, in recent years there has been an increasing emphasis on food self-sufficiency and the need to increase domestic food production in the context of rising food imports, as a consequence of increasing population and rising per capita income, especially in middle-income countries. This has led many countries to raise domestic prices either through higher procurement prices of the public marketing agencies or through taxes on imports of food or cereals.

Price and Income Instability: Food Versus Export Crops

The instability of prices of both export and food crops in the world market has been advanced as an additional argument against dependence on the world market for a basic need such as food. Prices of, and

earnings from, export crops, which determine the capacity to import food, have been highly unstable. This has been aggravated by fluctuations in world prices (table 6.5) and supplies of food. These two tendencies do not necessarily offset or compensate each other.

Differences in price instability are observed among the commodity groups: agricultural raw materials, in general, seem to have a lower degree of price instability than do cereals and tropical beverages. However, there are variations within each commodity group. For example, price variability around the trend for maize is considerably lower than that for rice. Price variability for sugar is as high as 74 percent around the trend, whereas for soybeans it is 21 percent and for bananas it is 16 percent. Among tropical beverages, the index of instability of cocoa prices is as high as 33 percent. Among raw materials, the index of instability of prices for rubber is as high as 25 percent and for sisal it is 37 percent (UNCTAD 1987).

There is no prima facie reason why the choice between alternative crops at the margin should depend on the relative degree of price instability, even though returns from less stable products are often higher than from more stable products. Risk aversion may lead farmers to discount the higher returns from more unstable crops by a margin determined by their subjective evaluation of risk. Evaluating the risk of instability depends upon the sources of instability. Price instabilities originating from supply fluctuation offset each other and, as supply and income fluctuations are inversely related, stabilize income. This is usually the case with agricultural commodities. Uncertainty or instability of relative prices would make farmers adopt a certain degree of diversification of farm products but would not result in farmers' specializing to the extent warranted by average comparative cost considerations.

However, more pertinent questions may be raised at the national policy level. Should world prices, in view of their volatile and fluctuating

TABLE 6.5 Instability of world market prices, 1962–87

Commodity Group	Percentage Variation from Trend
Food	29
Rice	31
Wheat	23
Maize	20
Tropical beverages	25
Agricultural raw materials	18

SOURCE: UNCTAD (1987).

nature, be used as a guide to long-term allocation of resources among different crops? How should the long-term trend in prices be determined? The pragmatic answer is to rely on three- or five-year moving averages of prices. There is scope for developing-country governments to intervene to stabilize prices around such moving averages to provide appropriate price signals to farmers. Intervention can be in the form of import taxes, import subsidies, or stocks, the latter being more costly. Most countries have taken domestic measures to achieve a degree of stability of domestic prices that is greater than that of corresponding world prices. Such a policy of "exporting" domestic instability contributes to world market destabilization. The policy measures adopted for achieving such domestic price stabilization vary widely in terms of resource costs. The greater the desired degree of price stability, the higher the cost, for example, of the stocks that have to be held, or the higher the loss in efficiency in diverting from relative prices as a guide to resource allocation (Pinckney 1989; Ahmed and Bernard 1989).

Subject to the provision of using long-term or medium-term prices, either comparative costs or domestic resource costs of earning or saving foreign exchange should continue to be used as a guide for resource allocation. Long-term projections of relative prices are needed for making long-term investment decisions such as investment in irrigation or in mechanization projects.

To the extent that price instability leads to instability in export earnings and, hence, in the ability to procure food supplies from abroad, it creates instability in the access to food supplies. Stable food supplies are essential for food security. Food insecurity may result from a rise in world prices of imported food, thus reducing food imports and, hence, food supplies, given unchanged foreign exchange earnings to import food and given typically low short-term supply response.

Even if prices of nonfood exports and food imports move in opposite directions, they do not necessarily compensate each other. Countries confronted with the need to import food or cereals from a highly volatile world market, on the basis of fluctuating agricultural export earnings, tend to emphasize the production of food beyond the point that is warranted by comparative cost considerations. However, reliance on domestic production does not eliminate or necessarily reduce fluctuations in food supply that originate from weather-induced or policy-related fluctuations (Sahn and von Braun 1989). Countries, however, feel more secure dealing with variability in domestic food production than with uncertain supplies and prices in the world market.

The risk of reliance on the world market arising from volatility of export prices or earnings or from food import prices can be reduced or

mitigated by an assurance of access to foreign exchange resources to meet rises in food import prices or shortfalls in domestic food production. The Cereal Financing Facility of the International Monetary Fund (IMF) was originally conceived to meet such a need. However, it has been greatly reduced in scope in recent years, partly by its integration with the IMF's Compensatory Financing Facilities for Export Shortfalls and partly by the introduction of "conditionalities" for economic policy reforms. Alternatively, international commodity agreements may be used to stabilize prices in world markets, either by internationally coordinated, nationally held stocks or by supply management by exporting countries through allocation of export quotas among themselves with a view to adjusting supply to expected demand, along the long-run price trend.

The risks of dependence on the world market arise not only from variability of prices but also from disruption of supplies due to war or civil unrest, breakdown of international shipping and transportation arrangements, or export embargoes initiated to overcome domestic shortages in exporting countries or to achieve political and strategic objectives.

The need for assured and uninterrupted access to food supplies has been a powerful motivation behind the search for greater food self-sufficiency and the build-up of large domestic food stocks in both developed and developing countries. In order to encourage developing countries to depend on world trade to an optimal extent, it is necessary to ensure an open and liberal world trading regime so that import restrictions and export subsidies or embargoes do not reduce the level and stability of agricultural export earnings or of world agricultural prices.

Long-Run Dynamic Comparative Costs

The reliance on comparative costs needs to be viewed dynamically by individual countries: relative costs change across countries and commodities in response to technological change fueled by research and development efforts, both national and international. These dynamics raise a difficult question about investment strategy in commodities that are currently in excess supply in the world market—and expected to be in the future—resulting in a long-run downward trend in prices. Countries whose domestic costs of production exceed long-run export or world prices should gradually move out of production of these commodities unless they expect their costs to go down in the future due to cost-reducing innovations and increased productivity. There would be short-term costs of unemployment and income loss on the part of those employed in

the unprofitable sector. There is, thus, scope for structural adjustment assistance for the sector in transition.

New producers with comparative advantages may emerge on the world market, either because of their ability to exploit hitherto untapped agro-ecological advantages or because of their success through research and development efforts in achieving cost-reducing innovations. Increasingly, comparative advantage is less a matter of a given endowment of agro-ecological resources and more a matter of technological innovations that improve or modify cost advantages derived from resource endowments. Also, new crops may be introduced in countries that did not grow them earlier due to lack of domestic demand or unfamiliarity with the world market. The rising comparative advantage of East Africa in tea production to the disadvantage of the traditional tea producers in South Asia, the emergence of Malaysia as a low-cost producer of cocoa, and the shift of palm oil production from Africa to Malaysia and then to Indonesia, are all illustrations of shifts in comparative advantage of different commodities among countries. To freeze the pattern of global production of a particular commodity among its traditional producers would be tantamount to sacrificing the advantages of lower costs and cheaper supplies of agricultural commodities in the future.

In recent years, the focus of international and national agricultural research efforts has tended to shift away from export or cash crops toward food crops in response to pressing food needs in many developing countries. This shift in focus is more true of international than of national research expenditures. During colonial times, research on export crops received high priority in most developing countries. Consequently, while a reallocation or shift of emphasis in research efforts was needed in the postindependence period, given the past neglect of research on food crops, the balance may have shifted too far, thus sacrificing opportunities for efficient export crop production. Research on export crops needs to be strengthened to meet competition from synthetic substitutes, expand new uses or markets, and maintain the market share of developing countries in world trade. This is especially important for those export crops that face low or declining demand or price.

The relative importance of research efforts on various crop groups can be observed from the distribution of crop scientists engaged on different crops in different regions (table 6.6). The dominance of food scientists is obvious in all regions during the 1980s. Even among scientists working on cash crops, those working on food cash crops dominate, except in Asia. A smaller share of scientists work on nonfood cash crops in Latin America and the Near East, whereas, in Africa, the share of scientists working on food and nonfood cash crops does not differ significantly.

TABLE 6.6 Distribution of crop scientists working on different crops in different regions, and importance of respective crop groups, 1980–85

Region	Crop		
	Basic Food	Food Cash (percent)	Nonfood Cash
Asia (excluding China)	54	18	28
	(59)	(33)	(8)
Sub-Saharan Africa	50	27	23
	(57)	(27)	(15)
Near East and North Africa	35	47	18
	(38)	(54)	(8)
Latin America	52	37	11
	(34)	(51)	(15)

SOURCE: Oram (1988).

NOTE: The figures in parentheses represent the percentages of total crop output among different groups of crops.

The distribution of scientists does not suggest a relative diversion of scientists from basic food crops to cash crops. Given the inadequate scientific research efforts in agriculture in many countries, what is needed is an increase in total efforts and, at the same time, an increase in emphasis on cash crops in cases of significant past neglect.

If the relative share of different crops in total output is any guide for the allocation of research efforts as indicated by the distribution of crop scientists, there is no serious incongruence, except in the case of Latin America. But, then, it is highly questionable how far the distribution of scientists is a rational criterion; research expenditures, rather than proportion of scientists, weighted by the efficiency or quality of research efforts, would be a better indicator of relative research efforts on different crops. The relative rates of growth in productivity—that is, yield per hectare—could be a measure of the impact of research and development efforts, on the one hand, and of investment, on the other, on different crops. During the 1960s, the rate of growth in productivity for developing countries as a whole was higher for cash crops than for basic food crops (table 6.7). However, in the 1970–84 period, the rate of growth in productivity increased considerably for basic food crops in all regions and was much higher than that for cash crops. In fact, growth in productivity of cash crops declined for the developing world as a whole during 1970–84, compared with 1962–70. Among the regions, it increased

TABLE 6.7 Percentage change in yield value per hectare of different crop groups in developing-country regions, 1962–70 and 1970–84

Region	Basic Food	Cash Crops		
		Food	Nonfood	Total
Sub-Saharan Africa				
1962–70	5.4	0.7	15.9	6.1
1970–84	26.2	−35.7	0.2	−24.8
Near East and North Africa				
1962–70	12.2	−13.1	41.1	0.1
1970–84	27.2	11.6	35.5	20.1
Latin America				
1962–70	−2.5	58.9	−4.9	31.2
1970–84	18.8	−10.4	29.1	7.3
Asia (excluding China)				
1962–70	15.3	11.8	11.9	12.4
1970–84	38.3	21.9	18.7	22.2
Developing countries (excluding China)				
1962–70	10.7	17.5	7.2	14.8
1970–84	32.3	2.2	17.6	9.6

SOURCE: FAO data tapes.

NOTE: Values in dollars per hectare in constant prices of 1979–81 are used for the computations.

only in the Near East and Asia; in Africa, there was a decline, and, in Latin America, growth was less than one-third of what it was in the 1960s. Moreover, there was a considerable divergence in performance between food cash crops and nonfood cash crops in different regions.

Implications of Choice Between Food Crops and Export Crops for Employment, Poverty, and Nutrition

Questions have been raised about whether efficiency considerations or comparative costs are the only criteria for determining choice between food crops and export crops. Are the effects of different choices on income distribution, employment, poverty, and nutrition not relevant constraints, and should they not influence the choice? It is generally agreed that multiple objectives, such as growth, equity, alleviation of poverty, and undernutrition, cannot all be achieved by one single policy instrument such as choice of cropping pattern, and a variety of policy instruments would be necessary.

Whether cash or export crops produce more employment than food crops depends on the choice of technique. An export crop may be more labor intensive than a particular food crop—for example, jute versus rice in Bangladesh. Furthermore, it is often argued that food production is predominantly undertaken by small farmers, whereas export crops are frequently produced on large-scale, plantation-type farms. This is not necessarily so; both crops can be produced on large or small farms, depending on the institutional framework of agricultural production in a country. In many countries, export crops are produced by small farmers. Hence, the choice of crops between food and export crops does not necessarily imply a choice of the scale of production. Rarely are economies of scale specific to a particular crop; often they relate to the precise operations, irrespective of whether the crop is an export crop or a food crop. Similarly, intersectoral linkages—that is, the "spread" effects on the overall economy of the production of a particular crop—depend on the choice of technology that determines the nature and amount of purchased inputs, and that in turn determines the backward production linkages through input-output relationships. Consumption linkages, on the other hand, depend on the extent of increase in income and on who receives the increase in income. If the increase in income accrues to the very poor, it would stimulate demand for food, since the poor spend a higher percentage of their income on food. If the increase in income accrues predominantly to the medium-scale farmers, it is more likely to stimulate demand for nonfood items, such as manufactured goods, as well as for hired labor, leading to a higher level of employment for the landless poor.

The overall impact of commercialization, including the expansion of cash or export crops, on food security depends basically on the nature of technology, institutions, infrastructure, and policies, including macroeconomic policies. Commercialization of agriculture based on large-scale, capital-intensive, plantation-type export crop production, as was the case in the past when it was centered on an urban export enclave without intersectoral linkages to the rest of the economy, does not usually enhance food security. This is especially so if enhanced export production is neither associated with a rise in food imports nor with an increased productivity in food production. Commercialization of agriculture that is based on smallholders and on technological progress in food and export crop production leads to an expansion of income and employment directly as well as indirectly in the rest of the economy through intersectoral linkages and can strengthen food security.