

# The Nonfarm Sector and Rural Development

Review of Issues and Evidence

*Nurul Islam*

“A 2020 Vision for Food, Agriculture, and the Environment” is an initiative of the International Food Policy Research Institute (IFPRI) to develop a shared vision and a consensus for action on how to meet future world food needs while reducing poverty and protecting the environment. It grew out of a concern that the international community is setting priorities for addressing these problems based on incomplete information. Through the 2020 Vision initiative, IFPRI is bringing together divergent schools of thought on these issues, generating research, and identifying recommendations.

This discussion paper series presents technical research results that encompass a wide range of subjects drawn from research on policy-relevant aspects of agriculture, poverty, nutrition, and the environment. The discussion papers contain material that IFPRI believes is of key interest to those involved in addressing emerging Third World food and development problems. These discussion papers undergo review but typically do not present final research results and should be considered as works in progress.

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**The Nonfarm Sector and  
Rural Development**  
**Review of Issues and Evidence**

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## *Foreword*

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As part of the 2020 Vision initiative, IFPRI has identified key issues for which better knowledge is required if poverty and hunger in developing countries are to be alleviated by 2020. IFPRI is addressing the issue of rural poverty and unemployment from many different directions, including research on policies to encourage rural development, rural credit and savings programs, safety nets for those left behind by economic growth, and the role of government policy when emphasis is on market-led development. One of the most urgent issues to be addressed is the future direction of the nonfarm rural sector in the context of overall rural development.

In most developing countries, the rural labor force is growing rapidly, but employment opportunities are dwindling. As land available for expansion of agriculture becomes increasingly scarce, opportunities for nonfarm employment must expand if deepening rural poverty is to be avoided. Given the expected growth and composition of large-scale urban industries, they are unlikely to be able to absorb the rising tide of workers migrating from the countryside to the cities. Looking toward 2020, we must slow the process of urban spread, with its high social and environmental costs such as congestion, pollution, and skyrocketing land costs. Expansion of the rural nonfarm sector, with its emphasis on labor-intensive and small-scale enterprises, widens income opportunities for the poor, including small farmers, the landless, and women, enabling them to even out extreme fluctuations in their incomes.

This paper brings together much-needed empirical evidence on the nonfarm sector and provides a systematic analysis of policies for its future development that may be needed in individual developing countries and regions. It reviews what is now occurring in activities ranging from rural trade and services to cottage industries to small-scale industries. It provides insights on the linkages between the nonfarm and the farm sectors, and between the nonfarm sector and urban enterprises, and considers ways the government can assist in promoting the sector through education, training, credit, infrastructure, and local government programs. We at IFPRI hope that the paper will stimulate further research and analysis and help policymakers in identifying critical issues for public action in this important area.

Per Pinstrup-Andersen  
Director General, IFPRI

## *1. Introduction*

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In recent years, the rural nonfarm sector has received considerable attention from both policymakers and analysts. This attention has sprung from two major lines of analyses. One is the analysis of agricultural and nonagricultural (intersectoral) linkages in the economy as a whole or within a region of a country. The other is the analysis of overall rural development in which the role of nonagricultural activities in rural areas is examined. At the same time, analysis of the behavior of rural households in diversifying their sources of income and employment has added impetus to the examination of the role of the rural nonfarm sector.

There are, at least, four arguments in favor of promotion of the rural nonfarm sector: (1) it provides employment for a growing labor force; (2) it contributes to growth; (3) it slows rural-urban migration and helps control urban congestion and pollution; and (4) it promotes an equitable distribution of income and contributes to the alleviation of poverty.

The rural labor force in most developing countries is growing rapidly. Given the limited land frontier in most countries, agriculture cannot absorb all of these workers. In the early years of the Green Revolution, employment in agriculture increased because many modern inputs such as fertilizer, high-yielding seeds, and irrigation required more labor than traditional methods. However, this increase in employment in response to output growth is slowing over time. Present and future growth in agricultural productivity not only will require increasing levels of skill, training, and management, but will also involve use of agricultural machinery. In most densely populated rural areas with a rising person-land ratio, the possibility of providing employment to small farmers and landless labor through redistribution of land is severely limited. Many farm areas are faced with a growing contingent of landless labor. The rural nonfarm sec-

tor is gaining in importance because it is organized on a small scale and provides employment opportunities, many of which are labor-intensive. Large-scale urban industrialization is unlikely to provide enough employment, since the industrial sector is not expected to expand at a high enough rate, nor is it sufficiently labor-intensive to absorb the rapidly increasing labor force.

In the 1950s and 1960s, during the heyday of import substitution and industrialization in most developing countries, the attitude prevailed that the rural nonfarm sector, especially rural industry, was a low-productivity sector producing inferior goods. Hence, it was considered a transitional phenomenon that would disappear or become insignificant as the process of industrialization achieved full momentum. Attitudes have changed, however, as historical experience in developing countries has shown that small industries have persisted or even expanded.

Therefore, as concern about employment expansion and poverty alleviation in rural areas has grown and it has become clear that urban-based industrialization cannot provide a solution, attention has increasingly shifted toward the rural nonfarm sector, which, as an intermediate sector, straddles the urban economy, on the one hand, and the rural agricultural economy, on the other.

Unlike the urban industrial sector, which is plagued by institutional rigidities and government interventions that cause distortions in factor markets, the rural nonfarm sector faces prices for labor and capital that more truly reflect their social opportunity costs. In other words, a dual structure of factor markets and their relative prices exists between the urban and rural areas. Labor-intensive technologies are likely to be more efficient in view of the relative social opportunity costs of factors of production in developing countries. Therefore, the rural

nonfarm sector provides an efficient path to expansion of the economy in a socially cost-effective manner, if output is produced at minimum “social opportunity” costs.<sup>1</sup>

Development of the rural nonfarm sector can also help slow the growth of large urban agglomerations. When a large number of enterprises come together in an area, they tend to exchange technical information and reduce the cost of inputs because they create a larger demand, thus lowering the cost of supply. But they also incur high social costs. By slowing urbanization, the development of the rural nonfarm sector would save on the high social costs of congestion, pollution, and high land values. Urban agglomeration is frequently encouraged by government policies through a preferential provision of infrastructure. For example, location of the seats of government that administer regulations and controls (such as access to foreign exchange credit or licenses) in large urban centers provides easy and convenient access to resources and opportunities to those near the urban centers. A decentralization of institutions and infrastructure would provide scope for growth of the nonfarm sector.

There are at least three ways in which the nonfarm rural sector can improve distribution of income. First, it provides employment and income for the marginal farmers and landless laborers who cannot obtain enough income and sustenance from agriculture. Lack of flexibility in agricultural wages prevents agricultural workers from finding employment at the going market wage; therefore, they suffer from involuntary unemployment. Nutritional requirements, efficiency considerations, lack of perfect information about the market wage, and trade union pressure may result in this lack of flexibility (Dasgupta 1993; Binswanger and Rosenzweig 1984). Where there are such rigidities (a hypothesis that requires fuller and more extensive empirical verification), rural nonfarm employment, even at wages lower than agricultural wages, provides employment and income that otherwise would not be available to them. During slack seasons, involuntary

unemployment in agriculture is rampant; hence nonfarm employment, however low the wage or the returns from it, supplements the income of farmers and is especially important to the poorer farmers and landless laborers.

The relative importance of seasonal farm employment opportunities depends on the kind of employment, however. Highly labor-intensive activities are more suitable for off-season employment opportunities. At the same time, there is a limit to the extent to which the seasonal pattern of nonfarm employment can be varied to fit the pattern of agricultural slack seasons. Nonfarm activities that require large amounts of capital may be too costly if their capital stock investment is kept idle during agricultural peak seasons. Rural industries are often faced with low capital utilization and high costs as a result of labor absenteeism when farm workers return to agricultural operations during high seasons. Activities such as earth work, housing construction, and road building—important sources of nonfarm income—cannot be carried out during periods of heavy rains, which also occur during the slack season in agriculture in many parts of monsoon Asia.

While the role of nonfarm income in alleviating poverty or in providing additional sources of income for the poor is clear, it may not necessarily improve the distribution of rural income: to the extent that nonfarm income contributes a higher proportion of income to rich farmers, it may aggravate inequality. In many cases, the share of nonfarm income in farm household income is higher for the small farmers than for the larger farmers, and hence it reduces inequality (Bagachwa and Stewart 1992), but reverse examples are also available (White 1991). The types and patterns of nonfarm employment are different for the richer farming households than for the poorer ones. The poor engage in low-paid employment, often as wage laborers, or they are self-employed at home. The rich often are engaged in industry, commerce, and trade as entrepreneurs and employers. The rural nonfarm sector provides an opportunity for women to combine household obli-

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<sup>1</sup>However, it may not always be true insofar as high capital costs in rural areas may reflect high transaction costs and risks of lending to rural areas; on the other hand, the opportunity costs of small savings of rural households may be very low because they have no alternative investment outlets or readily available financial instruments in which to invest their savings. Rural nonfarm enterprises may be the only investment outlet available to them.

gations and work, including care of children, with additional employment and income, especially if these activities can be carried out at or near the home. This is especially important for the poorer households.

Second, the nonfarm rural sector enables the poor to smooth out or offset fluctuations of agricultural income that occur from one year or season to the next by allowing a diversification of sources of income. This is especially true where institutions or mechanisms do not exist for the rural poor to offset such fluctuations through savings, credit, or insurance. Thus, the nonfarm sector provides a way of offsetting the risks and uncertainties associated with fluctuations in agricultural income between years, caused by weather-induced variations in output, pests and diseases, or variations in external trade in agricultural commodities that are important sources of income. Farmers often diversify their cropping pattern to offset fluctuations in the production of individual crops and to maintain income. Rather than specializing in a crop that yields the highest return but is highly variable, they choose lower average returns but a more stable income by planting some crops that are less variable but have lower returns. Access to nonfarm income obviates the need to resort to a pattern of crop diversification that yields lower average returns; by providing a means of stabilizing income, it enables the farmer to choose the crop that yields the highest return. To the extent that demand for the output of the nonfarm sector depends on income in the farm sector, the level of nonfarm activities will be low when agricultural income is low; hence, the role of nonfarm employment in offsetting the fluctuations in agricultural income is circumscribed. The effectiveness of the nonfarm sector in stabilizing income over the different seasons or consecutive years depends on the strength and nature of the linkage and the types of nonfarm activities that are involved.

Third, to the extent that rural industry produces inferior goods at a cheaper price than large-scale urban industry, it helps maintain the real income of the poor, who have limited purchasing power.

The synergistic interaction between the farm and the nonfarm rural sectors and their contribution

to overall rural development are greatly strengthened by the development of human capital through the spread of education and the improvement of health. Education, including both primary and secondary education, improves productivity of agriculture, enhances the impact and effectiveness of agricultural extension and training, facilitates the diffusion of technological innovations, and improves efficiency in the management and husbandry of modern inputs. The latter is assuming increasing importance as marginal returns from a rising use of inputs start to decline. Also, education facilitates the expansion and improvement of productivity of the nonfarm sector through the development of skill, managerial capacity, and the capacity to perceive market possibilities and profit opportunities in the nonfarm sector arising from linkages with the farm sector. No less important is investment in health, through the extension of health and sanitation facilities that reduce morbidity, enhance the benefits of food intake, improve nutritional status, and increase labor productivity. The expansion of rural health facilities linked with family planning programs has led to declines in infant and child mortality. When further strengthened by the spread of education, especially of women, the nonfarm sector helps reduce the fertility rate and population growth rate in poor countries where the growth rate is high. The slowdown in population growth accelerates the rate of growth in per capita income in agriculture. It also provides a stimulus to growth of the nonfarm sector and reduces the growth rate of the rural labor force and hence the pressure of rural un- or underemployment. Growth of the rural nonfarm sector, in turn, expands rural employment opportunities, including those for women, whose increasing participation in income-earning activities strengthens their decisionmaking power in the household, helps limit family size, and improves children's nutrition and education. This sets in place a beneficent circle of interaction between agricultural growth, growth of the nonfarm sector, and the improvement of human capital.

## 2. *Size, Composition, and Characteristics of the Nonfarm Sector*

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A detailed analysis of the rural nonfarm sector is handicapped by the lack of readily available, adequate, and relevant data that will allow a test of the various hypotheses advanced in this paper. Analysis to date has relied on broad aggregate data by country or region, or a limited number of micro studies. In recent years, however, there has been an increase in district and regional data as well as micro studies; these are frequently not published or not widely known except at the individual country level. They are undertaken specifically in response to needs of a government agency or to suit the programs of nongovernmental organizations (NGOs) involved in the nonfarm sector.

There are several questions about data and terms or definitions that must be asked. First, what is rural? Second, what is to be included in nonfarm activities? Differences over time and across countries in defining these two concepts greatly hinder comparability and hence attempts to arrive at generalizations. Therefore, it is necessary to disaggregate the data in order to make intertemporal or interspatial comparisons. Third, published statistics or studies frequently include data on rural nonfarm employment but not on rural nonfarm income. Even when data on both are available, they are not related because they do not belong to the same categories of activities or groups of individuals. While rural nonfarm employment data for regions and districts are available, nonfarm income data are available for sources of income of particular sets of rural house-

holds and do not relate to the regions or districts. The data on household income do not cover all the households in a region, nor do they cover a representative sample. Also, when employment data are used to analyze the nonfarm sector, it is the primary occupation of the households that is used; subsidiary occupation in the nonfarm sector is frequently excluded. Moreover, in national surveys of productive enterprises, as distinguished from households, small enterprises or household enterprises are often missed or ignored.

The definition of "rural" in Asia is often any settlement with 5,000 or fewer inhabitants. In Latin America, the cutoff point is often 2,000 to 2,500 inhabitants. There are also occasions when urban and rural areas are defined not only by size, but also by kinds of activity—agricultural or industrial activities that are carried out in a settlement.<sup>2</sup> Thus, the definition of rural areas varies among developing regions and among countries within a developing region. In some countries, rural areas include rural towns, often defined as settlements with populations of 200,000–250,000.

For both analytical and policy purposes, it is necessary to define the rural nonfarm sector with as much clarity as possible. Most definitions of economic sectors or regions have some "fuzziness" because conceptual categories do not always fit perfectly with reality, but it is important that fuzziness be kept to a minimum. The definition of the rural nonfarm sector brings it to the intersection of two

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<sup>2</sup>In India, the Census of Population defines an urban area as follows: (1) its population should exceed 5,000; (2) population density should exceed 400 per square kilometer; (3) more than three-fourths of the workers should be engaged in nonagricultural activities; and (4) other factors that might induce the Census authorities to declare an area as urban even when the other three criteria have not been met. The "cutoff" is thus necessarily arbitrary. Also, there are semi-urban settlements or market towns, but they are not designated as urban areas. These are primarily market places with shops, go-downs, hotels, and brick houses, as well as a number of government offices or establishments—easily accessible by roads, highways, and railways—often containing more than 5,000 people. These entities play a major role in the life of the surrounding villages as centers of commercial, cultural, educational, and governmental activities (Dasgupta 1987).

sets of categories. One set consists of farm and non-farm sectors and the other consists of rural and urban sectors. There are nonfarm or nonagricultural activities in the rural areas, and there are farm or agricultural activities in the urban areas. Increasing attention is being paid to what is called urban agriculture. The definition of an urban or rural area sometimes changes over time and across countries and continents; therefore intertemporal and inter-country comparison of the relative magnitudes of, for example, the extent of the rural nonfarm sector becomes difficult. In most—but not all—discussions of the rural nonfarm sector, the economic activities in the so-called small, rural towns are included. Again, the definition of a small, rural town varies widely among countries.

What is to be included in nonfarm activities and hence in nonfarm income? Several sources of nonfarm rural income can be distinguished depending on their location: for example, (1) income earned from nonagricultural activities in rural areas, either earned within the household or outside, in self-employment or in wage employment; (2) income earned from nonagricultural activities in the small, rural towns through self-employment or wage employment; (3) income earned by rural households through commuting to work in large cities; (4) income obtained through remittances from household members located in cities; and (5) income obtained through remittances from household members located overseas. In the analysis of nonfarm rural income, all of these elements are not always included, which hinders comparability of different studies. Data on the various components of the nonfarm sector are often not given separately but are lumped together.

In addition to differences in location, there is also the question of what is considered a nonfarm activity. In a few cases, all noncrop sector activities are included in the nonfarm sector; forestry, fishery, and livestock are considered nonfarm (Lanjouw et al. 1993). In most analyses, focus on the rural nonfarm sector is on 1, 2, and 3 above. The policy implications for the nonfarm sector vary depending on how and where the nonfarm income is earned. The policy for the development of rural income and

employment in category 1 is different from that in category 2. The latter belongs to the overall national policy concerned with urbanization or the degree of decentralization of urban activities that is considered feasible or desirable for equity and efficiency. There is an increasing tendency toward a decentralized pattern of urbanization in preference to the development of “megacities” with attendant high economic and social costs. The development of a decentralized pattern of urbanization again is closely related to the decentralization of the structure of the government and administration, that is, the development of local governments.

On the basis of a quick survey of readily available data (given the limitations of data and definitions referred to earlier), the following tentative conclusions emerge on the size of the rural nonfarm sector. The percentage of the rural labor force<sup>3</sup> in nonfarm sector employment is higher in Latin America and Asia (26–28 percent) than in Africa (14 percent). In rural towns, the percentages for Latin America and Asia are 80–85 percent and for Africa 59 percent (Hazell and Haggblade 1993). In Asia, the percentage of nonfarm employment in rural employment during the period 1970–90 (different years for the 11 different countries in the sample) varied from a high of 67 percent in Taiwan in 1980 to a low of 20 percent in China, whereas most of the 11 countries in Asia had percentages of 30 to 50 percent in different years. Of the 10 countries in Africa, western Nigeria had the largest share at 60 percent and Rwanda the lowest at 5 percent. In Latin America, nonfarm employment as a percentage of rural employment varied from 32 to 43 percent (Lanjouw and Lanjouw 1995).

In published materials, data on income from the nonfarm sector are scantier than data on employment. In some countries, nonfarm income constituted 23 to 50 percent of total income of rural households. In many cases, rural nonfarm employment and income data are available only from micro studies of households at the village level.

Data on the subsectoral breakdown of rural nonfarm employment are difficult to come by, especially income data. Trade, transportation, construction, services, and manufacturing activities are often

<sup>3</sup>The rural labor force includes the unemployed and therefore is a larger number than the rural employment figure.

not distinguished clearly. For example, manufacturing activities are sometimes separately indicated, whereas all the other subsectors are lumped together. The relative importance of various subsectors in the rural nonfarm sector for a number of Asian countries is shown in the Appendix, Table 6.

In a few Asian countries, the percentage of manufacturing employment in total nonfarm rural employment ranges from 10 to 55 percent. This includes both household manufacturing activities and activities undertaken in independent establishments in villages or rural towns. In villages, household manufacturing activities and services frequently dominate, and in rural towns, commerce, trade, or small-scale industries and services are more important. The importance of employment in public and private services (including education, health, administrative services, and personal services), compared with employment in commerce, trade, and transportation, varied greatly from country to country. For example, a micro study in Bangladesh found that borrowers from nongovernmental rural financial programs such as the Grameen Bank, Bangladesh Rural Activities Commission (BRAC), and Bangladesh Rural Development Board (BRDB) were largely involved in trade and commerce, followed by manufacturing, transport, and services. The proportion of commerce and trade in nonfarm employment was 51 percent; manufacturing, 20 percent; transport, 17.5 percent; and services, 12.5 percent (Khandker 1995). In Bangladesh, other micro studies found that the percentage of commerce and trade in rural nonfarm employment was 23 percent and that in transport and communications was 25 percent, whereas services provided 17 percent of employment (Hossain 1988). In China, there is a divergence between the subsectoral distribution of the labor force and that of output in the rural areas. Industry's share in rural output increased from 65 percent to 78 percent between 1985 and 1992, whereas that of services and trade declined from 10 percent to 7 percent. The proportion of industry in total employment decreased from 41 percent to 35 percent and that of trade and services decreased from 20 percent to 16 percent (Lanjouw and Lanjouw 1995).

The more decentralized are the public-sector expenditures on various services, the greater the importance of nonfarm services in the rural areas,

including the small towns. This, in turn, creates the demand for locally produced manufactured goods. As the rural nonfarm sector grows in size and importance, the various components or subsectors of the rural nonfarm sector start to create intrasectoral demand for each other's goods and services.

An important question is, as growth accelerates over time, in both the rural agricultural and the urban industrial sectors, will the absolute or relative size of the rural nonfarm sector decline in relation to the rest of the rural economy? What is the empirical evidence regarding the absolute and relative importance of the rural nonfarm sector among countries at different stages of agricultural or industrial development and income levels? Time series data are not readily available. For example, scanty evidence regarding the share of the nonfarm sector in rural employment in a group of five countries indicates that in four of them the share increased over time, significantly in China and Taiwan, and in one country the share stayed about the same (Lanjouw and Lanjouw 1995). In this study, data on nonfarm employment included nonfarm work by rural households as independent producers at home, subcontracting of work to farm families by urban-based enterprises, work in village or small town enterprises, and commuting to work in urban centers.

In most countries, the structure of manufacturing has changed in the course of development. The relative importance of household or cottage industry seems to have declined over time, whereas small-scale industries have survived, at least in a few branches or subsectors.

Varma and Kumar (1996) find that in Bangladesh labor productivity in various manufacturing activities carried out in permanent, small-scale rural establishments is higher—sometimes considerably higher—than that in rural cottage industries, except for a few activities such as weaving apparel or marking pottery. The small-scale manufacturing sector, which employs 10 percent of the rural labor force, has a productivity level double that of the household manufacturing sector. Also, there is a low correlation between productivity levels in households and permanent rural establishments. This may indicate that there are significant differences in technology, factor proportions, and skills between the two sectors.

A related question concerns the productivity of the nonfarm sector and its contribution to equity and to rural poverty alleviation. How does the productivity of nonfarm activities compare with that of agriculture or urban activities? Not much evidence is available about the relative productivity of the different subsectors in the nonfarm sector. Much has been written, however, comparing small or cottage industry with large-scale industry: since many small or cottage industries are located in rural areas, this work may provide guidance on differences between productivity levels in rural and urban manufacturing. It is also necessary to evaluate relative productivity in other nonfarm sectors, such as trade and services, because their relative size is often greater than that of the manufacturing sector.

There are likely to be wide divergences in the levels of productivity in the nonfarm sector, not only within the various branches of manufacturing, but also between manufacturing and other activities and among trade, service, and construction sectors. There may be some activities in which productivity is lower than that in agriculture or in urban employment, and there will be other nonfarm activities in which productivity is comparable (Hossain 1988; Smith 1988). In Bangladesh, labor productivity (value added per unit of labor) is highest in rural trade (both wholesale and retail)—much higher than in manufacturing activities, irrespective of whether they are carried out by household establishments or small-scale permanent rural establishments. Moreover, the value added per unit of labor is much higher in wholesale than in retail trade—sometimes twice as high. Income from services is

frequently as high as in the manufacturing activities (Varma and Kumar 1996).

Measures of labor or capital productivity in isolation, which have often been used in the various comparisons mentioned above, are not adequate. Lower labor productivity is often associated with higher capital productivity or vice versa. Comparisons of small- and large-scale enterprises using partial efficiency measures such as capital or labor output ratios produce mixed results regarding the relationship between capital or labor productivity and size. Moreover, available evidence frequently excludes rural small industries and nonindustrial enterprises. In any case, partial efficiency measures do not include all scarce resources (with nonzero opportunity costs) used per unit of output (Tomich, Kilby, and Johnston 1995). To obtain an aggregate measure of productivity, it is necessary to obtain a combined index of labor and capital productivities by appropriately weighting labor and capital inputs per unit of output by their opportunity costs or scarcity prices. This provides some measure of the social cost-benefit ratios. Very few studies of social cost-benefit analysis are available. In an analysis of a few broad categories, industrial products evaluated at domestic prices produced mixed results. In two of the three cases of wearing apparel, the benefit-cost ratios were higher in the small-scale than in the large-scale industries, and in one case, it was lower. In the two cases of shoe manufacturing, small-scale industry had a higher benefit-cost ratio in one and a lower ratio in another; in furniture, the ratio was higher in two cases and lower in the third (Tomich, Kilby, and Johnson 1995).

### *3. Demand for the Goods and Services of the Nonfarm Sector*

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The demand for the goods and services produced by the rural nonfarm sector is derived from several sources: (1) demand of the farm households for consumer goods, including consumer durables for household use; (2) demand for manufactured inputs (intermediate inputs and capital goods) provided by the rural nonfarm sector for use in agricultural production; and (3) demand of the urban sector for both consumer goods and processed agricultural commodities produced by the rural nonfarm sector. Analysis of the demand for the output of the rural nonfarm sector constitutes an important component of the wider analysis of farm-nonfarm linkages, which has spawned a considerable body of literature in the past (Mellor 1995). This analysis also includes an examination of the flow of capital or savings and labor between the two sectors. Consumption linkages are hypothesized to be the strongest linkages between the rural farm and nonfarm sectors. The nonfarm sector in turn generates demand for agricultural commodities to be processed into semifinished or finished manufactured goods. The marginal budget share in expenditures on nonfarm goods, for example, varies from 24 percent in Nigeria, to 33 percent in Sierra Leone, to 39 percent in South India, to 62 percent in Malaysia. The marginal budget share of locally produced nonfood goods ranges from 37 percent in Malaysia, to 30 percent in South India, to 18 percent in Sierra Leone, to 11 percent in Nigeria (Appendix Table 7).

#### **Intersectoral Demand Linkages**

The volume and composition or nature of demand originating from the farm sector for the outputs of the rural nonfarm sector depend not only on the rate and pattern of growth in the farm sector, but also on distribution of land and income in the farming sector and the production technology that is used. The higher the rate of growth of income in the farming

sector, the higher the volume of consumption demand for the output of the nonfarm sector. The average and marginal budget shares of expenditures on nonfarm goods are higher among the groups with more land or income. At the same time, the proportion of consumption demand for nonfarm goods that is met by consumer goods produced in urban areas or imported from abroad is higher among the higher-income groups. The poorest income group among the farming households has the highest average and marginal budget share devoted to the purchase of food, principally cereals or other staple foods. In fact, with an increase in income, demand for livestock and fishery products goes up rapidly, as does cereal demand. The stimulating impact on the rural nonfarm sector is, therefore, likely to be felt most strongly via the consumption demand of the medium- and small-scale farmers, and not through the demand of the poorest or marginal farmers. For the small and medium farmers, the average and marginal budget shares are higher for nonfarm consumption goods; the share of urban-produced consumption goods in their consumption basket is likely to be smaller than that of large farmers. Details of average and marginal budget shares, by individual commodities and groups of commodities, by income groups, and by farm sizes, are given in Appendix Table 8 for Bangladesh and in Table 9 for North Arcot, India.

In the underdeveloped villages in Bangladesh in 1982, for example, the marginal budget share for nonfood goods for the first quartile was 12 percent, rising to 22 percent for the third quartile. In more developed villages in Bangladesh, which have benefited from the rapid spread of the Green Revolution and enjoyed substantial agricultural income growth, the marginal budget shares of nonfood goods were even higher (Appendix Table 8). For example, the share was 24 percent for the first quartile, going up

to 43 percent in the third quartile and 46 percent in the fourth quartile. Among the manufactured goods, textiles and clothing constituted 13 percent of the consumption demand of the poorest quartile of the households and 24 percent of the richest quartile; furniture and fixtures and wood products constituted 3 percent for the poorest and 7 percent for the richest groups (Deb and Hossain 1984).

Some data also exist on the relative importance of nonfarm goods of rural origin in the consumption basket of small and medium farmers. In Sierra Leone, for example, the marginal budget share for locally produced nonfood goods went up from 3 percent for the second and third income deciles to 10 percent for the sixth and seventh income deciles and to more than 20 percent for the tenth income decile. The marginal budget share in a rural area in Malaysia for locally produced nonfood groups rose from about 16 percent for the first income decile to 35 percent for the sixth income decile. In Bangladesh, the marginal budget share for manufactures of rural origin was as high as 12.4 percent in underdeveloped villages, compared with 10.3 percent in more developed villages, whereas the marginal budget share for manufactures of urban origin was 10.5 percent in underdeveloped villages and 12.4 percent in more developed villages (Appendix Table 10).

Of the manufactured goods, items that are actually and potentially competitive with urban goods constituted about 4 percent for the poorest and 7 percent for the highest-income households. They include such items as mill cloth, mill-made garments, cigarettes, edible oil and sugar, and metallic utensils (Deb and Hossain 1984). The rurally produced consumer goods have a niche market in the rural areas because of their lower price, even though they are of inferior quality compared with urban consumption goods. Rural nonfarm goods are not only protected by specialized rural demand for such goods, but also by transport costs involved in marketing in rural areas. The marginal budget shares for nonfood items are highest in Malaysia for both low- and high-income groups, which reflects the fact that Malaysia has the highest average level of income (Hazell 1983).

High marginal budget shares for nonfarm goods are associated with high expenditure elasticities. For example, in Zambia, the expenditure elasticity varies from 1.53 for clothing and footwear to 2.25

for housing and durables and 2.81 for transport, whereas the corresponding elasticities are 0.58 for cereals, 0.95 for meat and fish, and 1.07 for fruits and vegetables (Hazell and Hojjati 1995). In Bangladesh, the expenditure elasticities are 0.84 for cereals, 1.62 for fruits, and 1.29 for livestock products, whereas the corresponding elasticities are 1.37 for manufactures and 1.79 for services (Hossain 1988).

Whether the consumption pattern of medium and small farmers with a high budget share of nonfarm consumption goods but with a lower urban or import content will have a stronger impact on the rural nonfarm sector than that of the high-income groups (with an even higher budget share for nonfarm consumption goods but also a higher urban or imported content) depends on a country's particular circumstances (Deb and Hossain 1984). With the spread of radio and television in the rural areas in developing countries, familiarity with urban consumption style is spreading fast. Therefore, the possibility that urban-produced consumer goods will be substituted for rurally produced ones is stronger than before.

The backward production linkage that generates agricultural demand for production inputs and implements produced by the rural nonfarm sector depends on the technology and scale of production used in farming. Technological progress based on new seeds, fertilizer, and irrigation increases farmers' profits and encourages the purchase of equipment, thus increasing productivity and profits. The use of capital-intensive technology on large-scale farms will generate demand for a wide variety of agricultural implements, tractors, threshers, and harvesters. Small and medium farmers use such machines sparingly, but both large and small farmers use labor-intensive inputs including irrigation, water, fertilizer, and pesticides, generating a demand for irrigation equipment and chemical inputs. The demand generated by backward production linkages is therefore dependent on the extent and nature of the modern technology that is adopted by the agriculture sector.

The purchase of farm tools and machinery by a modernizing agriculture provides an important linkage to the nonfarm sector. Moreover, the organizational and technological improvement that occurs in connection with the production of farm tools may

eventually favorably affect a country's capacity to produce other capital goods. To start with, the use of elementary tools produced by rural artisans, blacksmiths, and carpenters is accelerated; at a later stage, there is an increasing demand for improved implements such as threshers, dryers, and mechanical plows and for light-processing equipment, irrigation pumps, and motors fabricated by light engineering workshops. These workshops are mostly located in the rural nonfarm sector rather than in the large-scale urban industrial sector, which produces large tractors and combines. In the course of time, however, the large urban manufacturers subcontract parts and components to the light engineering workshops located in the rural areas or rural towns. The interrelationships between light engineering workshops and the large-scale equipment industry tend to develop over time in many ways. As productivity and per capita income growth in agriculture accelerates, demand for equipment increases. The capacity of the equipment sector, if it is strengthened by education, training, and research, will improve and adjust in order to provide farm equipment to meet the changing requirements of the farm sector and in response to changes in relative factor prices.

Experiences in Taiwan, and to some extent in India and Pakistan, indicate how the sector grows in inventiveness and in the ability to sustain and interact with the farm sector in designing equipment to suit different crop requirements, local circumstances, and factor prices. In some cases, the government-sponsored research institutions for agriculture and small-scale industry have succeeded in developing prototypes for use in engineering workshops (Tomich, Kilby, and Johnston 1995).

Mechanization displaces labor in some operations and increases the productivity of labor in agricultural operations. Thus it may improve the economic position of the medium or large farmers and enable them to rapidly expand their income per capita. Given their high marginal propensities to consume nonfarm goods, this would stimulate demand for them. At the same time, increasing use of mechanical implements in agriculture stimulates rural activities such as repair of mechanical implements and production of parts and components. As the rural market expands, manufacturing of complete mechanical implements may also be stimulated. The

increased employment in the rural nonfarm sector may thus compensate in the short run for the displacement of labor; in the long run, it may more than compensate for such displacement through expansion of trade, transportation, and services, as well as rurally produced consumer goods. This is apart from the fact that mechanization that relieves labor shortages during agricultural peak seasons would increase agricultural income without displacing labor; thus it would stimulate the rural nonfarm sector.

The location of manufacturing activities engaged in the processing of agricultural raw materials depends partly on the location of raw materials and the cost of transportation of raw materials in relation to that of final output; it also partly depends on the extent to which raw material loses weight in the process of its transformation into final product. In Bangladesh, consumption of agricultural raw materials constitutes 74 percent of the gross value of manufacturing output. Agricultural raw materials are locally processed if the demand for processed products is primarily local; otherwise, the labor costs and cost of transportation are likely to determine the location of processing activities. In the case of food processing, the demand and therefore the location are likely to be local, whereas industrial raw materials and export crops are likely to be located in urban areas where processing is carried out on a large scale for use by industries or for export.

Frequently, the output of small producers is processed locally in the rural nonfarm sector, whereas agricultural commodities produced on large plantations are processed in large-scale, capital-intensive industries. In Taiwan, pineapples that are produced by small farmers are processed by small rural enterprise and exported by the national traders. Because they are not of superior quality, however, they cannot compete with the products of multinational companies. They are traded mainly at the low end of the overseas market where low-priced products of inferior quality are sold. In the Philippines, the multinational corporations process the pineapples that are produced on large farms and plantations and export the pineapples to major markets overseas.

The linkages between the farm and nonfarm sectors have been quantified in various ways using

methods ranging from semi-input/output to economic base input/output models. Most models assume that rural nontradables in the nonagriculture sector are perfectly elastic in supply and that their input coefficients (intermediate inputs) are Leontief fixed coefficients. They are all fixed price models and explained in detail below (Haggblade, Hammer, and Hazell 1991). The semi-input/output model assumes that the agriculture sector is tradable but fixed by resource constraints or technology, and, therefore, supply is inelastic to price changes.

The model is elaborated as follows:

$$T = \bar{T} \text{ tradable output (fixed);} \quad (1)$$

$$N = H_n + D_n + \bar{G}_n + \bar{J}_n, \quad (2)$$

where  $N$  is nontradable output,  $H_n$  is household consumption of  $N$ ,  $D$  is intermediate demand for  $N$ ,  $\bar{G}_n$  is government expenditure, and  $\bar{J}_n$  is investment expenditure.

$$H_n = \gamma_n + B_n(Y - L), \quad (3)$$

where  $B_n$  is the marginal budget share for nontradables,  $Y$  is income, and  $L$  is income leakages, the amount not spent on consumption.

$$D_n = a_{nt}T + a_{nn}N, \quad (4)$$

where  $a_{nt}$  and  $a_{nn}$  are input/output coefficients, that is, the amount of  $n$  used per unit of  $T$  and  $N$ .

$$L = sY. \quad (5)$$

$$Y = V_nN + V_t\bar{T}, \quad (6)$$

where  $V_n$  and  $V_t$  are the value added shares of output ( $N$  and  $T$ ).

On the basis of the above system of equations,  $M$ , the multiplier, can be expressed in terms of input coefficients, marginal budget shares, and value-added shares of sectoral outputs:

$$M = \frac{1}{v_t} \times \frac{dY}{d\bar{T}} = \frac{1 - a_{nn} + a_{nt}(V_n/V_t)}{1 - a_{nn} - B_nV_n(1-s)}. \quad (7)$$

The multiplier quantifies the increases in total income as a result of a change or increase in trad-

able output due to technological change or investment. Assuming for simplicity's sake that  $a_{nn} = a_{nt} = a_n$  and  $V_n = V_t = V$ , a not unreasonable assumption in developing countries, equation (7) is reduced:

$$M = \frac{1}{1 - a_n - B_nV(1-s)}. \quad (8)$$

The economic base model is related to the foregoing semi-input/output model as follows. On the assumption that nontradable income  $V_nN$  is a fixed share of total income,  $V_nN = cY$ . Equation 6 can then be written:

$$V_t\bar{T} = Y - V_nN = Y - cY = Y(1-c).$$

Also,

$$\frac{V_nN}{V_t\bar{T}} = \frac{cY}{Y - cY} = \frac{c}{1-c}.$$

The multiplier  $M$  based on the above is

$$\frac{1}{V_t} \times \frac{dY}{d\bar{T}} = \frac{1}{1-c} = 1 + \frac{c}{1-c} = 1 + \frac{V_nN}{V_t\bar{T}}. \quad (9)$$

The input/output model differs from the semi-input/output model in that it assumes that the tradable agriculture sector is perfectly elastic and is constrained by export demand  $E_t$  alone. Instead of  $T = \bar{T}$ , the output of nontradables is

$$T = H_t + D_t + \bar{G}_t + \bar{J}_t + \bar{E}_t. \quad (10)$$

Following an initial increase in tradable output, the model allows  $T$  to increase in successive rounds through increased household and intermediate demand, even though  $E_t$  remains fixed. This additional source of growth cannot occur in the semi-input/output model growth. Thus, the total demand is greater than what occurs in the semi-input/output model. Also,

$$H_t = \gamma_t + B_t(Y - L), \text{ and} \quad (11)$$

$$D_t = a_{nt}T + a_{nn}N. \quad (12)$$

In this formulation, the only exogenous variable in the model is the export of tradable agriculture

outside the rural economy, so that the multiplier is defined as

$$M = \frac{1}{V_t} \times \frac{dY}{d\bar{E}_t} \quad (13)$$

This can be expressed in terms of the coefficients of intermediate demand, marginal budget shares consumption coefficients, and value-added shares of sectoral outputs:

$$M = \left[ \frac{1 - a_{nn} + \left(\frac{V_n}{V_t}\right)a_{nt}}{A} \right]$$

where

$$A = [1 - a_{nn} - B_t(1-s)V_t] \\ [1 - a_{nn} - B_n(1-s)V_n] \\ - [a_{nt} + B_n(1-s)V_t] \\ [a_{nt} + B_t(1-s)V_n]. \quad (14)$$

Equation (14) differs from equation (7) only in the denominator. The denominator is now different because it includes rural demand for tradables. If  $B_t$ ,  $a_{nn}$ , and  $a_{nt}$  are set equal to zero, equation (14) reduces to equation (7).

In all of these models, agriculture has been treated as a tradable sector, whereas the nonfarm sector within the rural economy has been treated as a nontradable sector depending primarily on labor and local inputs, which are highly elastic in supply. Subsequent attempts have been made to relax these assumptions and introduce complications that are more realistic. For example, in the rural economies of developing countries, not all agricultural output is tradable. For example, starchy staples, traditional crops, or perishable foods such as local fruits and vegetables are often nontradable outside the rural areas. Similarly, some products of the rural nonagriculture sector are tradable outside the rural areas, finding markets in urban areas (Delgado et al. 1994).

In this formulation, agricultural nontradables suffer from demand constraints along with nonagricultural nontradables, whereas nonagricultural tradables suffer from supply constraints along with the

agricultural tradables. The demand for both agricultural and nonagricultural nontradables, both consumption and intermediate demand, originates in the tradable agriculture and nonagriculture sectors. The magnitude of such demand is determined by the marginal budget shares in consumption of both agricultural and nonagricultural nontradables and by the increase in income originating in both agriculture and nonagriculture sectors, tradable or nontradable. Intermediate demand, let us say, for labor services for nontradable nonagriculture originates from both tradable and nontradable sectors, both agriculture and nonagriculture; the same is true for intermediate demand for nontradable agriculture. The multiplier effect in nontradable nonagriculture will be ensured by both direct and indirect demand originating from all sectors, agriculture and nonagriculture, tradable and nontradable.

Attempts to quantify the multiplier effect of growth in the tradable agriculture sector on the nonagriculture nontradable sector, based on the semi-input/output model, do not take into account the feedback effect on both tradable sectors of the initial spurt in the output of the tradable agriculture sector and so on in successive rounds, as provided for in the complete input/output model.

The growth multiplier of a spurt in agricultural output and income in terms of increasing nonagricultural income in the rural areas (including, in most instances, rural towns), estimated on the basis of semi-input/output models, works out to 1.35 for Sierra Leone and 1.71 for the Muda Valley of Malaysia (Hazell and Haggblade 1993). The variations in the magnitude of the multipliers are due to differences in marginal budget shares and interindustry coefficients.

However, on the basis of the feedback effect in successive rounds of increase in agricultural output on the nonagriculture sectors, the multipliers are much larger—ranging from 4.0 percent in Sierra Leone to 3.5 in Malaysia. The consumption linkages turn out to be the strongest linkages, contributing 83 to 94 percent of the multiplier effect.

As agricultural income rises, the nontraded local activities on which the multiplier effect is felt expand in variety and magnitude. In India, when aggregate demand for agricultural output increased by Rs 1.00, the regional value added was Rs 1.90

larger. The multiplier was relatively large for the agroprocessing sector and for a number of service-oriented sectors such as trading, local financial services, and a variety of personal services. The multipliers tended to be smaller for manufacturing. This was the combined total effect of consumption and production linkages—almost half and half in relative significance. In Malaysia, with a higher absolute level of per capita income, consumption linkages were about twice as important as production linkages (Hazell, Ramasamy, and Rajagopalan 1991).

In Africa, the strength of the farm/nonfarm linkages is lower because of the farmers' low level of per capita income, which limits consumption expenditure on nonfood goods and constructive use of purchased inputs on agricultural production. Poor infrastructure and lower population density also play a role. In the case of Zambia, for example, strong regional linkages of growth in agriculture are identified, but they are largely confined to the agriculture sector. In other words, a 1 unit increase in tradable agricultural output/income (that is *not* home grown) generates an additional 1.5 units in the regional economy, out of which 13 percent or 0.2 unit is generated in the nonfarm regional economy.<sup>4</sup>

The estimation of the multiplier in methods is based on the assumption that supply of nontradables is perfectly elastic; however, to the extent that the supply of nontradables is obtained at an increasing cost, any tradable agriculture-led increase in demand for nontradables will be dissipated through price inflation. The fixed price assumption underlying the models, therefore, overestimates the multiplier. There are two sources of increasing cost of nontradables, that is, of rural nonagricultural output; first, there is the rising cost of labor as production of nontradables increases, which increases the demand for labor. Second, the rising cost may be due to short-run diminishing returns to increasing application of variable inputs in the face of capacity constraints and fixed factors. However, to the extent that the assumption of Leontief-fixed coefficients is relaxed and substitution among inputs in

response to price changes is allowed, the rising cost will be moderated. It has been estimated that if only the rising supply price of labor is taken into account, the price-endogenous multiplier will be reduced to 75 to 90 percent of what otherwise would have been estimated by the fixed price semi-input/output model.

An alternative approach to estimating the multipliers is through econometric analysis of country data across time and across regions by relating nonfarm income to per capita agricultural income. However, differences in nonfarm employment and income across countries or time depend on factors other than differences in per capita agricultural income alone; such factors include infrastructure and population density—factors that influence the size of the market, the scope for cost reduction and economies of scale, and so forth, and hence the profitability of various nonfarm activities. Similarly, techniques used in agriculture will determine the interindustry relationships with the nonagriculture sector and influence the intermediate demand for the output of the nonagriculture sector. Moreover, the econometric approach can also accommodate the feedback effect of the growth in the nonagriculture sector on the agriculture sector. The development of the nonfarm sector in rural towns may stimulate the development of agriculture, not only expanding the facilities for processing of agricultural output, but also facilitating supplies of inputs, access to markets, and availability of credit. Hence, the models may incorporate equations that treat nonagricultural employment and income as well as agricultural income as dependent variables. Agricultural income in turn depends on nonagricultural income and other factors relevant for agricultural growth.

An example of cross-section analysis of growth linkages of this kind is an exercise undertaken in India across regions and states. It incorporates factors other than per capita agricultural income such as infrastructure (roads per square kilometer of area and distance from urban centers), population density,

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<sup>4</sup>Nontradable agriculture in the agriculture sector in Zambia benefits the most since the expenditure elasticity for locally produced purchased food is 1.02. Even though the expenditure elasticity for locally produced nonfood may be as high as 2.31, its relative importance in consumption expenditure is very low: the average budget share is only 3 percent as against 13 percent for locally produced food (Hazell and Hojjati 1995).

and irrigation. (Irrigation is a surrogate for the state of technology used in agriculture, since a high level of irrigation is often accompanied by a high level of fertilizer and pesticide use and use of various other agricultural inputs). The estimates of the multiplier include the growth of the nonagriculture sector in response to the growth in agriculture and also the impact of nonagricultural growth on agriculture, which varies from 1.37 (without feedback) to 1.54 (with feedback) for India as a whole. The rural areas in this exercise include rural towns as well (Hazell and Haggblade 1991, 1993).

The multipliers are also estimated separately for high-, medium-, and low-income states in India. They vary from 1.58 (1.90 with feedback) in the high-income states to 1.34 (1.51 with feedback) in middle-income states, and to 1.22 (1.33 with feedback) in the low-income countries. The magnitudes of the multipliers (without feedback) using econometric methods are usually lower than the comparable estimates of multipliers based on semi-input/output models. The comparable estimates for the latter in India range from 1.2 to 4.3 (Hazell and Haggblade 1993).

Studies based on time series or cross-section data relating to rural farm/nonfarm employment/income linkages do not always get consistent results on growth linkages. For example, the linkages between nonagricultural rural employment and farm income or agricultural productivity, on the one hand, and the linkages between nonfarm income and farm income, on the other, do not follow the same pattern. In all cross-sectional or time series, studies carried out in India on the relationship between farm and nonfarm income by districts or states or regions, the linkage between nonfarm employment and farm income is mostly positive but not always so.

Therefore, two important factors determine the growth of the nonfarm sector, both relating to the consumption and production linkages between the farm and nonfarm sectors. First is the high rate of growth in the agriculture sector—the high productivity growth and substantial increase in per capita farm income. Slow growth in per capita agricultural income, given the elasticity of response of the nonfarm sector to the growth in farm sector income, produces a modest overall impact on growth of the

nonfarm sector. Second, it is not only the pace of growth in agricultural output per capita, but also the pattern of growth that is important. If agricultural growth were concentrated in a few large landholdings and shared by a small number of very rich farmers at the top, the stimulating impact on the nonfarm sector through consumption linkages would be small. The marginal shares of rural goods in their consumption expenditures are low because their consumption pattern is heavily oriented toward urban manufactures. Since the share of rural manufactures in the consumption basket of the medium and small farmers is high, what is required is broad-based agricultural development with emphasis on small and medium farmers, which would have a significant impact on growth in the nonfarm sector.

### **Rural Industries and Urban Linkages**

Growth of the rural nonfarm sector, especially industry, is correlated not only with growth of the farm sector, but also with growth of the urban industrial sector. There are segments of the rural nonfarm sector, especially those that produce tradable commodities, including small-scale industries, that are in competition with urban activities or industries, but there are also activities that are in a complementary relationship with urban activities. In other words, urban industries provide markets or demand for the output of rural industry. An important example of demand emanating from urban industries is when a rural industry becomes a subcontractor to a large-scale urban industry; the rural industry either produces components and parts for the urban industry or undertakes final assembling and finishing activities on their behalf. Frequently, local agents contract with a household to produce goods, which they then sell to urban firms that package and distribute them domestically or for the export market. In this instance, subcontracting involves several processes of production that are carried out at the rural level, leaving a few activities such as finishing, packaging, and distribution to be carried out by the urban firm. The intermediary or agent brings the urban and rural producers together.

Microenterprises or small-scale industries in rural areas and small towns are often thought of as starting points for medium- or large-scale enterprises. Learning by doing and accumulating experi-

ence in microenterprises is one way to develop entrepreneurial ability and managerial capacity. At the same time, the trade protection that is provided to large-scale industries in the course of import-substituting industrialization adversely affects the small industry in two ways. First, profitability of the large industry increases in relation to that of the small rural industry with the result that investment or output is discouraged. Second, when the output of a large-scale industry provides the input for the small-scale industry, the high-cost product of the protected industry raises the cost of production of the small-scale enterprise. For example, yarn produced by a large spinning mill may be used by a small weaving industry.

It appears from limited evidence that enterprises with fewer than 50 employees seldom grow into large enterprises, remaining in the same size group.<sup>5</sup> However, most analyses do not distinguish clearly between microenterprises and small or medium enterprises, and in discussions they are often lumped together. A systematic analysis needs to distinguish between microenterprises (those with fewer than 10 workers), small enterprises (10 to 50 workers), and medium enterprises (50–200) (McPherson 1996). The vast majority of new firms are microenterprises, especially in Africa; as per capita incomes grow, they appear increasingly in larger localities. Also, business failures are highest for microenterprises and lowest for the largest firms. Failure rates are highest in the initial three to four years, after which they have a substantially higher chance of survival (Liedholm 1992).<sup>6</sup>

One group of local rural manufacturing activities is carried out in households, often with part-time family labor. In the course of time, they suffer a decline as the result of competition from more organized enterprises established either as small-scale industry in local towns or large-scale industry with advantages of economies of scale in big urban agglomerations. Not all locally based small-scale or cottage industries suffer a competitive disadvantage vis-à-vis industries located in urban areas.

The micro- and small enterprises that grow over time into large enterprises display a few similar characteristics. Urban-based firms in small towns grow faster than those in outlying areas in the rural region, providing evidence of the external economic benefits of agglomeration. The firms of proprietors with training grew at a significantly higher rate than those run by untrained proprietors. In some areas, female-run enterprises grew more slowly than those run by men (whether this demonstrates discrimination or that female proprietors were more cautious managers is not clear). The smallest firms (typically household industries) were generally less efficient, less likely to graduate to a larger size category, and more likely to fail than firms that were just slightly larger. The construction and service sectors grew the most rapidly. All of these findings indicate the importance of agglomeration externalities and hence the advantage of small commercial centers (so-called “industrial estates”) in rural areas in facilitating the growth of small enterprises.

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<sup>5</sup>Various studies have found that, for small enterprises, most of the job creation comes from new startups. Most expansion in employment takes place through new firms rather than expansion of small firms. Jobs created by expansion of existing enterprises are more likely to arise in response to an identified demand in the market for products made by existing enterprises, and the startup jobs are more likely to reflect supply-side forces as people search for activities where they can sustain themselves. Most small enterprises do not grow much (Liedholm and Mead 1987).

<sup>6</sup>The most important reason for closing down firms is financial loss, but in a few cases, more profitable alternative opportunities have been responsible. Many of the proprietors who closed down their businesses started new ones subsequently. In a recent survey in Africa, about 49 percent of the proprietors who closed down businesses started new ones and 11 percent worked for someone else (Arnold et al. 1994).

## *4. Supply Responses in the Nonfarm Sector*

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The response of the nonfarm sector to the demand for the goods and services it provides depends on a number of factors: important among them are availability of labor; access to capital or credit; availability of infrastructure; and access to technology in a broad sense, ranging from production to marketing techniques and arrangements.

### **Labor Supply: Farm and Nonfarm Allocation and Wage Differentials**

The availability of labor is an important reason for growth of the nonfarm sector. In fact, as stressed earlier, labor absorption in the rural areas lags behind agricultural output growth. Moreover, increased labor productivity in agriculture releases labor for employment outside of agriculture, while, with rising incomes, a higher proportion of aggregate expenditure is directed toward nonfarm goods.

The choice between farm and nonfarm employment depends, among other things, on the income differentials between the two sectors—the wage rate or income in farm employment compared with wage or nonwage (self-employed) income in nonfarm employment. Rising income and opportunity costs of labor in the agriculture sector discourage the flow of labor to the nonfarm sector. At the same time, rapid growth in agricultural income provides surpluses for investment in the nonagriculture sector and creates demand for goods and services produced in the nonfarm sector. On the other hand, a high growth rate in agricultural productivity, in the output per worker, tends to dampen the increase in demand for agricultural labor.

A study of state-level data in India found a positive relationship between unemployment rates (combined farm and nonfarm unemployment) and the percentages of rural nonagricultural workers in the labor force, leading to the hypothesis that the rural

nonfarm sector is a residual sector (Unni 1994; Verma and Verma 1995). Data for districts and regions have not always indicated that employment in the nonfarm sector is positively related to income or productivity in the agriculture sector. There may be disguised unemployment in the nonfarm sector, especially in the traditional nonfarm sector. This unemployment may also be a spillover from the disguised unemployment in the farm sector. In many regions, the second phase of the Green Revolution was marked by falling capacity to absorb labor, rising landlessness, declining tenancy, and a rising share of wage labor, which led to unemployment in the farm sector.

Because these data had limitations, this finding needs to be considered with caution. The data on unemployment reported in the National Sample Survey related to open (undisguised) employment and excluded either part-time unemployment or unemployment that was not reported or inadequately reported (Unni 1994). Also, reported unemployment was higher in agriculturally developed regions or states. Because the expectation of obtaining employment was higher in those areas than in agriculturally backward regions, workers migrated to more developed regions in search of work, and migrant workers tend to report unemployment. Similarly, open unemployment was higher among casual workers or wage-dependent households than among self-employed workers; wage-dependent households or casual workers happen to be more prevalent in developed regions. Moreover, excess labor, as indicated by high rates of open unemployment, was not corroborated by lower nonagricultural wages relative to agricultural wages. In other words, the ratio of nonagricultural workers to agricultural workers in the labor force can be considered an indication of “residual” employment in the nonfarm sector if it led to a fall in nonagricultural

wages relative to agricultural wages, which is not indicated by the data.

However, there were instances where an increase in nonfarm employment was a way out of stagnant or unproductive agriculture rather than a response to an expanding agriculture sector. Non-farm employment based on temporary migration or commuting to cities tended to be significant in semi-arid zones of western India. These areas were not very productive agriculturally (Shylendra and Thomas 1995). In this case, rural nonfarm employment was associated with stagnant agriculture. Also, nonfarm employment expanded in districts in Haryana, an area not significantly advanced in agriculture, because the government made a special effort to develop rural industry. While volume of production and employment in the rural industrial sector was expanding, the output per worker was declining.

There were instances when the supply push and demand pull both contributed to growth in the nonfarm sector. For example, the case of silk weaving in Arni, Tamil Nadu, was one in which both demand pull and distress push factors reinforced each other, contributing to the expansion of a rural industry (Verma and Verma 1995). The demand pull originated from two factors: one was the increased income of the middle and lower-income rural classes resulting from the Green Revolution in the region. Second was the increasing influence exercised on the rural demand pattern by the consumption behavior of the urban areas, with which the rural area was closely interlinked by a rapid growth in transport and communication networks. The demand for silk was income-elastic and highly valued as a consumption item signifying higher social status. The middle and lower-middle classes also preferred silk but they chose less expensive varieties among the range of available qualities of silk fabrics. This variety was also more labor-intensive and, in fact, employed large numbers of women and children in silk production.

The distress factor or supply push came from the relatively arid zone in which they lived, which had suffered successive droughts. The small farmers in this zone, suffering from depressed income for several years in a row and searching desperately for alternative means of livelihood, turned to the ru-

ral industry producing silk. The master weavers, intermediaries, and traders developed a system of subcontracting with the households that provided cheap labor, mostly women and children who were affected by the loss of employment opportunities in agriculture. Traditionally, in this region, cotton textile weaving and silk weaving have served as a source of nonfarm employment for farmers, as a way of diversifying and stabilizing their farm incomes. At the same time, the traditional weavers also engage in part-time farming. For them, agricultural activity is a secondary source of employment and income, a source of security when income from weaving fluctuates as the result of demand fluctuations.

Thus, employment in the nonfarm sector can be found in both stagnant and progressive rural areas. The relative importance of push or pull factors can only be ascertained by an examination of the circumstances of each case. If the nonfarm sector is the main reservoir for unemployed labor pushed out of agriculture, wages or incomes in the nonfarm sector are likely to be lower in all subsectors of the nonfarm economy if labor markets within the various subsectors of the nonfarm rural economy are not fragmented. There have been several instances where wages in individual nonfarm subsectors were either lower or higher than those in the agriculture sector, making it difficult to conclude whether and to what extent nonfarm employment was a low-wage escape route for labor pushed out of agriculture, rather than pulled into the nonfarm sector by expanding demand. For example, in Pakistan, wages in several manufacturing and construction activities were lower than in agriculture, but wages were higher in trade, services, and transport subsectors than in agriculture. In some nonfarm subsectors, wages were comparable to those on farms but were distinctly lower than in urban industries; the rural nonfarm sectors could have been served by the unemployed from either urban or agriculture sectors, since they could not find employment at the lower wage rate in either agriculture or urban industries (Mahmood 1993).

In Bangladesh, the wage rate in the 1980s in rural industry was about the same as that of unskilled (casual) agricultural labor. However, rural industry largely employed women and children

who received lower wages than male casual agricultural laborers and did not do the same kind of work. Thus, if only the wage rate of the adult male workers is considered, wages were 30 percent higher than agricultural wages on average, even though wage rates varied widely among different rural industries (Hossain 1984). The rural labor market was highly fragmented not only by types of activities but also by gender and age with noncompeting groups of various kinds and different institutional arrangements with employers. For example, in Bangladesh in 1978, family workers in rural industry constituted 71 percent of total employment, of which 27 percent were proprietors of industrial enterprises and 44 percent were unpaid family labor. Of the remaining 29 percent of hired workers, hired relatives were 1.5 percent, nonrelatives 26.5 percent, and apprentices 1.3 percent (Hossain 1984). Moreover, in Bangladesh, about 25 percent of the total employment of female members of rural households was in the nonagriculture sector, whereas the percentage for male household members was about 40 percent. Total nonfarm employment was divided almost equally between wage employment and self-employment for both male and female members (Appendix Table 11).

A study of nonfarm employment in Bangladesh looks at two sets of villages (excluding rural towns); one set was making rapid agricultural progress and had highly developed infrastructure, while the other had slow growth and underdeveloped infrastructure. There were similarities and differences in the relative importance and composition of nonfarm activities in the two groups. First, the share of nonagricultural income and employment in total income and employment, in general, went down with an increase in the size of the landholding of the rural households and correspondingly in their total income and levels of living (Appendix Table 12). Second, the share of nonagricultural income was higher than that of employment, signifying generally higher earnings in the nonagriculture sector than in agriculture, except in underdeveloped villages and for low-income groups: the landless and marginal farmers as well as the small farmers. There is a presumption, therefore, that in underdeveloped villages (with stagnant agriculture), income and employment in the nonagriculture sector

are a matter of "push" from the agriculture sector rather than "pull" exercised by a dynamic sector. Third, as technological development takes place in agriculture with a growing demand for labor and expanding employment opportunities, the share of nonagriculture in the income and employment of the landless declines significantly. The decline in the share of nonagriculture is more pronounced for the small and medium farmers than for large landowners; there is in fact an increase in the share of nonagriculture in the total income and employment of the large landowners. This confirms that for the poorest agricultural population, especially in a situation of relatively stagnant agriculture, nonagricultural employment may often be low-wage residual employment. In a growing economy, as both agricultural and nonagricultural outputs increase, agricultural employment increases for landless and marginal farmers for some time until, at a later stage, agriculture becomes more mechanized and less labor-intensive. At the same time, participation in the nonagriculture sector increases among the higher-income and larger landowning classes. They can take advantage of nonagricultural activities that require self-employment and employment of some wage labor because they have access to skills and some education and capital (including access to financial institutions).

The hypothesis that, in a relatively stagnant rural economy, the nonagriculture sector provides a "vent for agricultural surplus labor" in low-income, nonagricultural employment is further supported by the change in the composition of different types of nonagricultural activities (Table 1).

Where the agriculture sector is dynamic, the low-wage, low-productivity activities in the nonfarm sector—a residual sector that absorbs labor when there is little or no employment in agriculture—shrink in importance. These activities include cottage industry, earthwork, and miscellaneous nonfarm activities. The share of these low-productivity, nonfarm sectoral activities drops from 34 percent in the underdeveloped villages to 18.1 percent in the developed villages. The decline in cottage or household industries is partly because of competition from urban goods in the more developed villages, which provide a larger market for this type of goods because incomes are higher. At the same time, labor

**Table 1—Average weekly employment in underdeveloped and developed villages, Bangladesh, 1982**

Type of employment	Hours of employment per week		Distribution of nonfarm employment	
	Underdeveloped villages	Developed villages	Underdeveloped villages	Developed villages
			(percent)	
Agriculture	43.53	47.13	...	...
Nonagriculture	32.86	23.19	100.0	100.0
Cottage industry	3.34	0.65	10.0	3.3
Trade and shopkeeping	7.70	5.56	23.0	24.0
Construction and transport	8.28	6.06	25.0	26.0
Services	5.73	7.46	15.0	32.0
Earthwork	3.97	1.91	12.0	8.2
Miscellaneous	3.85	1.55	12.0	6.6

Source: Hossain 1988.

Note: Leaders ( . . . ) Indicate not applicable.

productivity in cottage industries or family-based household enterprises falls below that in agriculture in many cases. If the cost of hired labor is imputed at the going agricultural wage rate, net returns for one-third of cottage industries turn negative (Hossain 1988).

Employment in services in the developed villages expands sharply. These services include education, health, personal services, religious services, and others. This reflects a decline in the average and marginal shares of consumer expenditure on cottage industry products in the developed villages, compared with the underdeveloped villages, while the average and marginal shares of consumer expenditures on services in the developed villages are more than double those in the underdeveloped. The differences in the composition of household income in the two sets of villages in Table 2 reflect the differences in the sectoral composition of employment shown in Table 1.

As agricultural development accelerates, the wage differential between nonfarm and farm work

can either widen or narrow, depending on changes in the labor demand and supply situations in both farm and nonfarm sectors. For example, Hirashama and Mugdata (1986) compare increases over time in farm and nonfarm wage rates in Bangladesh among three regions—slow-growth and higher-growth agricultural regions and regions near a large urban commercial and industrial center. The nonfarm wage rates are higher than agricultural wage rates in all three cases, but the wage differential narrows as one moves from a slow-growth to a higher-growth area and then to the urban area. This is because agricultural wages improved with increased productivity in agriculture. In one instance, however, while nonagricultural wages were higher than agricultural wages in both the backward and advanced agricultural regions, the wage differential was higher in the latter than in the former; in other words, with increased productivity in agriculture, nonagricultural wages improved faster than agricultural wages. While growth in agricultural productivity raises the demand and wages of agricultural workers, it may also raise nonagricultural wages through its demand-induced expansionary impact on the nonfarm sector. The relative increase in wage rates depends upon the relative strength of both tendencies and their impact on income (Hossain 1988).

Thus, as agricultural development accelerates, the rising wage cost of rural labor reduces the cost advantage of low-value cottage industry and petty trade, which are largely based on part-time household labor; they cater to the local market and offer no scope for division of labor or specialization. The

**Table 2—Distribution of nonagricultural income among underdeveloped and developed villages, Bangladesh, 1982**

Nonagricultural employment	Underdeveloped villages	Developed villages
	(percent)	
Cottage industry	10	5
Trade	12	24
Services	46	56
Nonagricultural wages	31	15

Source: Hossain 1988, 120.

more specialized, full-time, small-scale enterprises thus enjoy an advantage in these respects; they can absorb the rising labor cost, and the range of manufactured goods they produce depends on their artisanship and entrepreneurial ability. Moreover, as per capita income rises, there is a shift in location from villages to rural market towns and eventually to urban centers. Improved rural roads increase competition with urban products and tend to erode in many instances the advantages of small rural enterprises based on cheap labor and low overhead costs. The more enterprising among the rural small-scale producers move to urban areas in order to benefit from larger markets and economies of agglomeration. They take advantage of the availability of a large pool of skilled labor as well as cheap and diverse sources of materials. However, many enterprises in small towns and rural areas still continue to be of small and medium size and to be more labor-intensive than the large-scale urban enterprises (Tomich, Kilby, and Johnston 1995).

### **Role of Infrastructure, Education, and Credit**

Availability of infrastructure plays a crucial role in facilitating the growth of the nonfarm sector. The expansion of roads and transportation and communication facilities encourages specialization and division of labor by the rural households because they no longer need to be self-sufficient in meeting their own requirements for farm and nonfarm goods. Infrastructure facilitates exchange between villages and small rural towns, enabling each to obtain inputs from the other and to find outlets for their products. Expansion of the trade and commerce, marketing, and distribution network linking farm and nonfarm sectors depends on the availability of transportation and communication. Moreover, transport and communications facilities provide access to markets in distant cities and to export markets. The development of infrastructure in the newly industrialized countries of Taiwan and the Republic of Korea is a case in point (Oshima 1994; Lane 1996). In Taiwan, most of the small, labor-intensive export industries are located near highways that crisscross the entire country.

Infrastructure widens the choice of markets and inputs for rural enterprises and frees them from exclusive reliance on local materials or markets. With good infrastructure available and a reduction in cost of transport, rural enterprises, especially those with a high ratio of value added to weight, depend mainly on labor costs in determining their location. Transport and communication facilities enable them to make efficient subcontracting arrangements between urban enterprises and those in rural towns. During the 1960s and 1970s rural nonfarm employment was less important in Korea than in Taiwan because Korea's transport, communication, and electrification facilities were relatively less developed (Oshima 1994). For example, farm household income derived from nonagricultural sources was 78 percent in Taiwan, compared with 39 percent in Korea. In fact, between 1965 and 1987, the relative importance of nonfarm income in Taiwan increased proportionately more than that in Korea (Appendix Table 13).

The density of paved highways and feeder roads was 76.4 kilometers per thousand square kilometers in 1962 in Taiwan, increasing to 214.5 kilometers in 1972. In Korea, corresponding figures were 10 kilometers in 1960 (as low as 6.4 if city roads were excluded) and 50 kilometers in 1975. In the 1960s, 70 percent of Taiwan's farm households received electricity compared with 13 percent in Korea in 1964. In fact, overcapacity in electrification was built into the system in Taiwan with the expectation that rural industry would emerge to exploit the capacity (Lane 1996).

There is another side to the development of infrastructure. The ease of transport and communications between cities and other regions confronts the rural enterprises with increased competition from imports. This is especially true for rural industries and cottage enterprises that face competition from cheaper products produced by large-scale urban industry or imported from outside the country. Also, good transportation and communication facilities affect the tastes and preferences of rural households and orient them toward urban products. Electricity, for example, in a village creates demand for urban products such as household electrical goods, including radios, televisions, and refrigerators.

Education—not only literacy or primary school education, but also secondary education—facilitates the growth of the nonfarm sector in villages and small rural towns. Education contributes to higher productivity in trading, construction, service, and manufacturing activities. Secondary education stimulates entrepreneurial capacity, whereas primary education enhances the productivity of the workforce, including foremen, supervisors, and other middle-level personnel. Education makes it easier to impart on-the-job training in skills relevant to particular enterprises. Education is an important factor in the choice of a nonfarm activity, and it raises productivity in the nonfarm sector (Khandker 1995). The private return on one year of education was 2–5 percent in nonfarm employment. In Bangladesh, those who were employed in rural industries as well as proprietors had a higher level of literacy and education than the rural population in general (Table 3). For example, about 27 percent of the rural industrial workers in Bangladesh had a primary education and 20 percent had a secondary education or more. Among proprietors, the education level is even higher: about 34 percent had a primary education and about 24 percent had a secondary education or more. Among the expanding industries, which require aggressive leadership and better entrepreneurial skills, the percentage of proprietors with secondary education or more was 37 percent.

A recent survey of the impact of education on income from nonfarm employment in Ghana concludes that not only do the years of schooling of entrepreneurs and family workers employed in the enterprise have an impact on the incomes of such enterprises but also the education of other family members who are not directly employed in the busi-

ness (Vijverberg 1995). There is a “crossover” effect of the education of those who are not directly employed in the enterprise; they contribute indirectly through discussion and suggestions. The crossover effects are significant when entrepreneurs are not educated; the educated family members affect the outcome through “advice, suggestions, and hints” that raise the productivity of the enterprise. Self-employed rural family enterprises benefit greatly from education irrespective of the sector or location of the rural enterprise. The rates of return on entrepreneur’s income at different levels of education are 41 percent for an elementary education and 6.9 percent for a post-high school education. Their income is higher, but the rate of return is lower because cost of education is high in Ghana.

Vijverberg (1995) correlates the incomes of enterprises with the level of education:

<u>Years of schooling</u>	<u>Monthly income of entrepreneurs (Ghanian shillings)</u>
0	8,497
1–6 (elementary)	8,198
7–10 (middle school)	11,086
11–15 (high school)	14,902
Post-high school	28,328

In fact, a nonlinear relationship between educational level and income has been found. That is, the rate of increase is faster as the educational level goes up.

The nonfarm rural sector has limited access to formal financial institutions such as commercial banks, both public and private. In recent years, financial institutions have been established that cater

**Table 3—Education levels of rural industrial workers and proprietors in Bangladesh**

<u>Item</u>	<u>No formal education</u>	<u>Up to primary education</u>	<u>Primary to secondary education</u>	<u>More than secondary education</u>
Rural industrial workers	52.7	27.3	15.0	5.0
Proprietors				
All	41.0	34.3	17.9	5.8
In 10 expanding industries	32.0	31.0	23.0	14.0
Male population <sup>a</sup>	68.2	13.1	14.9	3.8

Source: *Bangladesh Development Studies* 1984.

<sup>a</sup>Males over 15 years of age.

at least partially to the credit needs of the rural non-farm enterprises as well as to the needs of the agriculture sector. Traditionally, nonfarm activities have relied on financing from moneylenders and friends and relatives, not only for the initial start-up capital but also for working capital needs. For small-scale or cottage industries in particular, household savings have often provided the start-up capital, supplemented by borrowing. The small-scale or micro-enterprises have also relied on credit from suppliers of materials and buyers of final products. A recent survey in Bangladesh found that for 70–80 percent of households, the primary source of start-up capital for investment in nonfarm activities was derived from household savings, about 18–20 percent from friends and relatives and sales of assets (Khandker 1995). For those households whose primary source of capital was their own savings, more than 20 percent relied on informal sources such as friends and relatives as a secondary source of capital.

Data on the pattern of investment of rural households in Bangladesh also show the relative importance of nonagricultural investment; 25–36 percent of household investment has gone to such nonagricultural activities as industry, trade, and transport

(Hossain 1988). Including investment in housing, sanitation, and consumer durables, the share of investment in nonagriculture has risen to 67 percent in underdeveloped countries and 72 percent in developed countries (Table 4).

The percentage of household expenditure devoted to agricultural investment does not vary significantly among the various landownership groups, except that the marginal farmers with very limited resources have low investment in agriculture (Table 5). In the nonagriculture sector both the medium and large landowners invest significantly more than the marginal farmers. This is, however, not the case for agricultural investment. Higher income, savings, and better access to financial institutions of the large farmers led them to invest significantly more in the nonfarm sector relative to the farm sector, compared with small or medium farmers.

With the introduction of semiformal institutions, primarily NGOs (supported by government and donors' funds) as well as special government-sponsored credit programs for the rural poor, the percentage of households relying on these sources as the primary source of start-up capital increased. For 20–35 percent of households in Bangladesh, the

**Table 4—Annual household income and investment in technologically underdeveloped and developed villages, Bangladesh, 1982**

Sector	Underdeveloped villages				Developed villages			
	Income		Investment		Income		Investment	
	(taka)	(percent)	(taka)	(percent)	(taka)	(percent)	(taka)	(percent)
Agriculture	11,178	61.0	1,039	32.9	15,644	66.2	881	28.2
Nonagriculture	7,151	39.0	2,118	67.1	7,994	33.8	2,246	71.8
Total	18,329		3,157		23,638		3,127	

Source: Hossain 1988.

Notes: Includes housing, sanitation, and consumer durables. The percentage figures indicate the distribution of income and investment between agriculture and nonagriculture.

**Table 5—Investment by landownership group, Bangladesh, 1982**

Size of landholding	Underdeveloped villages			Developed villages		
	Total	Agriculture	Nonagriculture	Total	Agriculture	Nonagriculture
	(percent of household expenditures)					
Marginal	8.5	2.3	6.2	8.4	1.2	7.2
Small	13.0	5.4	7.6	12.6	6.2	6.4
Medium	18.6	7.1	11.5	14.9	3.6	11.3
Large	26.3	5.8	20.5	18.0	3.5	14.5

Source: Hossain 1988.

primary source of capital was a semiformal institution such as the Grameen Bank, the Bangladesh Rural Advancement Committee, or the Government Rural Development Project. In fact, 60 percent of loans advanced by the semiformal institutions went toward nonfarm activities; relatives, friends, and neighbors directed about 27–28 percent of the total loans to nonfarm activities (Khandker 1995).

Despite the presence of semiformal, informal (friends, relatives, and moneylenders), and formal financial institutions, the nonfarm sector in Bangladesh suffers from credit constraints, at the current costs of borrowing. Seventy-two percent of households engaged in manufacturing, 59 percent of households engaged in trade and services, and 54 percent engaged in transport are reported to be suffering from lack of credit. Credit constraint is highest for borrowers from the government agencies and lowest for borrowers from friends and relatives.

A study in Africa covering four countries found that 30–84 percent of the rural industries complained of inadequate access to credit (Bagachwa and Stewart 1992). In fact, lack of adequate credit was recognized as one of the most important constraints, next in importance to the lack of infrastructure, inputs, and markets in that order.

### Supply Linkages with Urban Sector

Subcontracting arrangements either between rural and small town enterprises or between urban enterprises and rural or small town enterprises seek to deal with the problem of access of rural nonfarm enterprises to markets, finance, and technology.

The urban firms that enter into arrangements with enterprises in rural areas or small towns could be either domestic industries or multinationals that mainly export abroad. The exporters frequently operate through local agents who have specialized knowledge of local conditions, who can select the best rural entrepreneurs, and who can monitor the performance of the rural suppliers and ensure timely fulfillment of the contract. The domestic urban (or small town) industry frequently has a contractual relationship with rural entrepreneurs with whom they have built up personal or business relationships in previous business transactions. The urban or export firms have various arrangements for providing finance, technical knowledge, inputs, or

materials for the production and delivery of the finished or semifinished products in the desired quantity and quality. If private companies provide materials under subcontractual arrangements, working capital for the rural subcontractors is saved. Moreover, along with materials, urban enterprises provide guidance in selecting styles and designs that appeal to consumers in urban markets. The private companies also provide technical guidance and sometimes machinery to subcontractors to improve production materials and the quality of final products.

The advantages to the urban firms in choosing this mode of subcontracting include the use of cheap rural labor, the ability to pass on fluctuations in demand to the suppliers, and the possibility of obtaining cheaper inputs from rural suppliers who specialize in supplying one input on a large scale, thus reaping economies of scale. The possibility of splitting up production technology into discrete processes to be carried out by independent specialized, small-scale producers makes these subcontracting arrangements desirable. Subcontracting is most suitable where the labor component is high, capital requirements are small, and transport costs are relatively low.

It is sometimes difficult to get adequate information on the various kinds of subcontracting arrangements that prevail in different countries. Information relating to these arrangements is seldom recorded in national industrial surveys unless it is a predominant feature of the particular industries covered in the survey. It seldom appears in the surveys that indicate the primary employment of the labor force. Because labor legislation and trade union activities in the large-scale industrial sector tend to raise the cost of labor, the urban industrial enterprises are motivated to decentralize and subcontract many of their operations to producers in rural areas and small towns, who frequently avoid the regulatory net of labor legislation and trade union activities. Subcontracting arrangements can also develop among several small enterprises clustered around a small town or urban area, the output of each providing inputs to others in their production processes.

An important problem that must be faced in setting up subcontracting arrangements is coordination and enforcement of contracts between the rural

and urban partners. The success of any subcontractual arrangement requires that rural enterprises meet quality requirements and deliver adequate quantities of goods on time. Urban contractors must pay for the goods at the appropriate time. The enforcement of contracts by legal means is often costly and protracted in developing countries where the legal system in rural areas may not be effectively enforced because institutional arrangements are weak and underdeveloped.

Historically, in Japan and Taiwan and recently in Thailand and the Philippines, long-term business relations were fostered by personal ties, mutual trust, and community obligations (Otsuka 1996b). In Thailand, the majority of rural subcontractors in the garment industry were former employees of urban enterprises for whom they subsequently became subcontractors. In the Philippines, a large number of subcontractors in the garment industry previously worked in the sector, and some were employees of urban exporters—not necessarily urban garment producers. They built up personal connections, goodwill, and good reputations in the garment sector and therefore commanded a degree of credibility when they became subcontractors. Prior work experience in all these cases provided information on the trustworthiness of the subcontractors.

In China, many township and village enterprises (TVEs) were cooperative enterprises jointly owned and managed by urban enterprises (frequently state enterprises or foreign enterprises). These relationships between TVEs and urban enterprises had often existed for 10 years or more and were more stable than TVEs that were independent. The cooperative TVEs employed retired engineers and old equipment of the parent enterprises and often sold their products with the brand names of the parent companies through their marketing channels. This encouraged subcontracting relationships in which the contractor only guaranteed the purchase of the final product without necessarily providing in advance raw materials for production. When the independent TVEs were originally started, managers were selected from local farmers or local government officials. They relied on advance contracts or subcontracts with urban enterprises. Grad-

ually over time, the rural-based entrepreneurs were replaced by urban-based entrepreneurs who formerly worked for state production or trading enterprises. The cooperative TVEs, however, were jointly managed with the urban enterprises so that the transactions between them were more like inter-firm transactions (Otsuka 1996b).<sup>7</sup>

In Korea, except in the weaving and garment sector, the personal relations and contracts between urban and rural enterprises were absent. This was one of the factors that discouraged subcontracting arrangements, which detracted from the rapid pace of rural industrialization in the early years of economic development. The managers of local factories were recruited from urban areas by the government. They had no work experience or business relationships with relevant urban enterprises, so trust and confidence could not be assured. This was not true of the rural weaving industry, however. The rural factory owners had previous work experience in other factories in the same locality, so they could be screened for reliability and performance before they became subcontractors to urban enterprises. The rural entrepreneurs had local origins and were known in the area, making it relatively easy to confirm the reliability of their business dealings (Otsuka 1996a).

Subcontracting with rural industries was most prevalent in Japan, where rich peasants and landowners became intermediaries and traders linking a large number of rural small establishments with urban industries. They frequently advanced raw materials to the village manufacturers for processing and collected finished products under a piece rate system of payment. This system combined contracts for material supply and product purchase with contracts for the provision of credit (working capital) and sometimes partial financing of fixed capital. Also, technical guidance or help was often provided. The local entrepreneurs (rich peasants), who acted as traders, ensured that the contracts with the small rural manufacturers were enforced because of their close personal knowledge and ties with them. They had multiple business contacts with each other, either as workers or employers in trade or agriculture. Through repeated successful transactions,

<sup>7</sup>For a comparison of state, nonstate, and privately owned industrial enterprises in China, see Appendix Table 14.

mutual confidence and trust were built up as a major means of contract enforcement. This system of transformation of upper-income peasants into commercial and industrial entrepreneurs has historical roots in Japan.

Over the years, the system became highly sophisticated. In its advanced stage, the system succeeded in reducing the need for large inventories in either the parent company or the assembly plants because components were delivered by the subcontractors at the time and in the quantities needed (Hayami 1996a). Japan established an efficient system of long-term multifaceted relationships. Competition among the urban corporate groups was so intense that opportunities for the parent companies to exercise monopoly or monopsony power over subcontractors were restricted.

In recent years, there have been examples, particularly in Indonesia, where rich peasants have become traders even though they have not yet emerged as small-scale industrial entrepreneurs (Hayami 1996a). Frequently, the marketing organizations in countries like Indonesia consist of a decentralized hierarchy of many self-employed informal agents tied by customary trade practices and informal contracts. Vertical integration is typically absent. The village-based traders are in a good position to enforce contracts with fellow villagers. Everyone watches everyone else in villages, and news about one's business conduct travels much faster by word-of-mouth than by modern means of communication. If a contract is violated, not only the benefits of the present contract are lost but also future opportunities for contracts (Hayami 1996b). The trust and confidence established in urban-rural trading operations provides the basis for the traders to eventually be transformed into subcontractors and entrepreneurs or intermediaries between urban industries and rural small producers.

The possibility of a large-scale domestic industry entering into a subcontractual relationship with rural or small town enterprises is greatly enhanced if large-scale industries are spread among a number of large urban centers rather than in one or a few megacities. This decentralized pattern of large-scale industrialization not only avoids the congestion and environmental disadvantages of megacities, but proximity encourages exploration of

subcontracting arrangements with small rural enterprises. It has been suggested that subcontracting arrangements were more popular in Taiwan than in Korea because large-scale industries in Taiwan were more decentralized.

But the question has been raised of whether the decentralized pattern of small- and medium-scale industries throughout the rural areas of Taiwan was stimulated wholly by the income growth in agriculture and by the need or convenience of satisfying the demand for locally produced manufactured goods, or whether the pressure of high urban wages and land prices played a major role in "pushing" industries from the congested cities to the rural areas. Amsden (1991) argues that, in fact, in the early stages of industrialization in Taiwan, as in other developing countries, industries were highly concentrated in urban areas, and only at a subsequent stage were they dispersed throughout the rural areas, sometimes as independent entities and sometimes as subcontractors.

Beginning in the 1960s, Korea focused its strategy of import-substituting industrialization on large-scale industries concentrated in cities that were the centers of import trade. Korea subsequently oriented the urban-based, large-scale industries toward export markets that provided economies of scale as well as efficiency gains arising out of competition in export markets. Moreover, rapid urban industrialization in Korea resulted in workers' migrating to the urban centers. This raised rural wages and reduced the low-cost advantage of the rural areas, even though land prices continued to be lower in rural areas. At first, Korea neglected to provide rural areas with adequate transport and communication facilities, electrification, or an efficient credit system—essential preconditions for successful rural industrialization.

However, starting in the 1970s and 1980s, Korea adopted a policy of encouraging rural industrialization by dispersing industries throughout the countryside. First, a series of incentives such as tax concessions or exemptions, concessional credit, and even direct subsidies of various kinds were provided to increase the profitability of rural industries. Second, industrial estates were established including land development and infrastructure. This policy met with limited success. Many of the enter-

prises that were transferred to rural areas failed to adapt to the new environment. Successful rural industries depend on rural entrepreneurs as well as on a marketing system based on a multiplicity of contracts. The traders often supply materials, design services, and technology to small, rural producers, and they eventually market their final product. A subcontracting system is a convenient way of providing rural traders or small rural enterprises with opportunities to learn business management and linking them with urban and export markets.

Rural industry in many countries seems to develop most vigorously near an urban industrial nexus, either on the periurban fringes of major cities or within a 25–30 mile radius of a major economic center (Yusuf and Kumar 1996). There is also evidence that productivity is greater for those located near larger towns and cities (Lanjouw and Lanjouw 1994). For one thing, the possibility of rural residents' earning more by commuting to urban centers gives rise to multiplier effects in the local rural economy through increased demand for rural products. In addition, the urban center provides a market for the products of surrounding rural areas. Rural produce can be marketed more readily where there is access to urban infrastructure and distribution services. More important, urban demand stimulates the development of a wide range of ancillary activities, including processing activities, packaging enterprises, storage facilities, and delivery companies. The spillover effects of large urban centers to surrounding rural areas also include

- superior transport and communications infrastructure and electricity;
- close proximity and access to urban technical expertise through consultation and through temporary visits of urban engineering and technical personnel to the countryside;
- access to a prolific source of ideas and entrepreneurship, sparking rural industry through the transfer of ideas about industrial options; and
- improved access to formal and informal financial institutions, which are more numerous in and around cities.

### **Local Self-Government and the Rural Nonfarm Sector**

The institutions of self-governing local governments, it has been argued, are helpful in stimulating growth of the nonfarm rural sector by facilitating the development of physical, social, and human infrastructure at the local levels. Decentralization to local governments that are endowed with decisionmaking and implementation powers and strengthened by access to financial resources is presumed to improve efficiency and increase economic participation.

Greater efficiency in resource use is a possible consequence of decentralization because decisions are made closer to the location of the projects, whereas the central government is unlikely to have adequate knowledge about local conditions. Decentralization broadens economic participation by local populations. It tends to shift the focus of expenditure toward small-scale infrastructure projects and thereby encourages the growth of small- and medium-scale private-sector projects. These projects have greater access to local government and more opportunity to influence the decisions of local governments that critically affect them. Moreover, it is likely that there will be greater equity in the distribution of public expenditures within localities because there is more transparency and accountability in a close-knit local setting. There is also a greater possibility of participation by broad segments of the population in self-governing local institutions (Ranis and Stewart 1994).

The supply of regulatory and legal services depends on the capacity of local governments, as well as the provision and maintenance of infrastructure. In East Asia, especially in China and Taiwan, local governments have played an important role in development of rural infrastructure and industrialization; sometimes they have supplied seed capital and managerial expertise and shouldered the initial risks associated with new enterprises, thus helping the local community to acquire the learning needed to successfully diversify into nonfarm activities. In China, the collectives started at the initiative of the local governments opened the way for private and cooperatively owned enterprises (Yusuf and Kumar 1996). Local governments compete among themselves to see which can be the most efficient and

harness the best local talent. They sponsor new enterprises, attract investment from outside the locality, and persuade the provincial or central government to enlarge their financial stake in the community.

Local government structures in the rural areas of Taiwan allowed local entrepreneurs to gain access to state resources, especially where capital was scarce and credit rationed. This was not the case in the Republic of Korea, where political structure and decisionmaking were highly centralized. Korea concentrated political authority and economic resources in central government institutions; because of the government's domination of local political and economic life, the possibility of rural entrepreneurs' having influence on resource allocation was greatly restricted. In Taiwan, electoral competition for local and provincial posts allowed local political factions and economic interest groups to gain access to state resources for local development. Taiwan's local politicians manipulated the rules to benefit themselves and their constituents. Given their ties to individual constituents and institutional access to resources through their official positions, they could influence policies in favor of local development. In both Korea and Taiwan, state controls over national or collective political opposition made

lobbying the central government costly and difficult. Rules made collective lobbying at the national level close to impossible; individual rural entrepreneurs who resorted to political action or lobbying efforts at the national level on their own found them to be extremely costly, which put them at a disadvantage compared with large urban enterprises that had better access to government. In Taiwan, local elective government institutions with access to resources provided the rural entrepreneurs with an opportunity to obtain economic resources and patronage. The contrasting examples of Taiwan and Korea demonstrate that, for small, rural industrialists, access to and influence on policymaking at the level of the central government is likely to be limited; however, political institutions at the local level influence business opportunities as well as the costs of both economic and political organizations, and they are likely to be within the reach of local rural entrepreneurs (Lane 1996). However, it is not clear how the experience of Japan fits in with this hypothesis of the relationship between local government institutions and the rise of rural industry. In Japan, the central government institutions and the policies advocated by national politicians played a major role in rural industrialization.

## *5. Public Policies for the Nonfarm Sector*

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Public policies for promoting the nonfarm sector can be divided into two categories. The first category relates to those economywide policies that affect the nonfarm sector such as trade, foreign exchange, fiscal, industrial, and labor policies. The second category relates to specific policies directed toward the nonfarm sector. This category includes programs and projects to provide financial assistance and credit facilities to the nonfarm sector and technical services of various kinds. These policies help reduce the discrimination and disincentives suffered by small-scale rural enterprises through lack of access to credit, technology, and markets. Given the urban bias in policies, these enterprises also suffer from underdevelopment of social, human, and physical infrastructure in the rural areas.

Public policies relating to the nonfarm sector, whether economywide or sector-specific, affect the various components of the nonfarm sector differently. The subsectors include trade, construction, services, housing, and manufacturing enterprises (both small-scale and microenterprises). Most public policies designed to provide access to financial services or technical assistance in the past focused primarily on the manufacturing sector (small-scale and microenterprises).

In a regime of state control over access to imported inputs and foreign exchange resources and licensing of industrial and trading enterprises, small enterprises in the nonfarm sector are at a disadvantage compared with the large urban enterprises. This is partly because of proximity, since most of the regulatory or licensing authorities are located in large urban centers. Where the state has discretionary control over the allocation of resources and large enterprises have influence over the agencies or bureaucrats in charge of administration, they may obtain preferential access to resources and share in the excess rents and margins generated

during periods of scarcity. This is also the case with public financial institutions that dispense loans, frequently at subsidized rates of interest; small-scale nonfarm enterprises are at a disadvantage. For example, small enterprises suffer from the implementation or administration of tariff schedules or rates if the equipment or parts they use are misclassified so that they pay higher taxes. These relatively minor items are often not properly classified in the tariff codes (Haggblade, Liedholm, and Mead 1986). Thus, under such a regulatory system, large enterprises enjoy a built-in advantage over small rural enterprises in access to foreign exchange at the official rate, relief of import duties on imported capital equipment, loan capital obtained at low interest rates, and quotas and tariffs levied on competing imports.

While regulation of the capital market reduces the cost of capital to the large enterprises, labor legislation increases their wage costs, with the result that they prefer capital-intensive techniques. However, the minimum wage legislation and mandated benefits for labor usually do not affect small enterprises. They are either excluded by law or the laws are too difficult to implement at that level. Small-scale enterprises in the informal sector often do not pay taxes and hence have an advantage over large-scale firms in private profits.

Recent policy reforms aimed at deregulation, privatization, and a greater reliance on markets and prices affect small-scale enterprises in different ways. Both supply and demand effects have an impact on these small enterprises. The supply-side effects of policy reforms involve devaluation, reduction of subsidies, and streamlining of the public sector or simplification of public-sector regulations. A devaluation, for example, may raise the price of imported inputs and squeeze profit margins for firms that produce nontraded goods, since devaluation reduces the relative prices of nontraded goods vis-à-

vis traded goods. However, to the extent that firms produce traded goods, they will be compensated by a rise in their prices. An increase in agricultural prices that raises the farmers' income but erodes the income of the urban working classes and rural non-agricultural households will increase the demand of farmers for the products of small enterprises while depressing the demand of others. The final effect depends on the extent of relative price changes of products and inputs vis-à-vis those of the large-scale sector or the rest of the economy, intersectoral linkages, supply elasticity in the small-scale sector, as well as distribution of income and the impact on the demand pattern.

To the extent that small-scale enterprises compete with imported products, import liberalization may adversely affect them through increased competition. However, large-scale industries are more likely to produce import-competing products than are small enterprises. Privatization may result in layoffs of workers in large public enterprises as well as a fall in real wages in the sector facing downsizing or import competition. This may increase the volume of unemployment and result in pressure on microenterprises (those that employ less than 10 workers) and on the small-scale enterprises (those with 10–50 workers) to absorb the displaced labor force (Parker, Riopelle, and Steel 1995).<sup>8</sup> Those redundant public-sector employees with entrepreneurial ability may want to start their own small-scale rural industries.

In general, the macro or sectoral policy reforms that facilitate the growth of the nonfarm sector, especially small-scale or microenterprises in industry and trade, include (1) simplification and rationalization of entry and exit regulations and tax codes to lower new entrants' costs; (2) liberalization and streamlining of export and import regulations to lower barriers for small participants; (3) privatization and regulation of monopolies to create opportunities for new entrants; (4) reforms of banking regulations so that banks are encouraged to compete in order to seek new markets; (5) reforms of

property rights and collateral regulations that impair small firms' ability to receive loans; and (6) reforms of labor regulations that restrict or tax labor flows. These reforms tend to make the playing field equal for both small rural and large urban enterprises.

The macroeconomic or sectoral reforms by themselves are not considered adequate or sufficient incentives to expand opportunities for development of the nonfarm sector. It is believed that small-scale enterprises in the nonfarm sector require project assistance targeted for specific purposes. Generally, government project assistance directed toward small enterprises has been designed to provide credit or access to financial and technical assistance. Furthermore, targeted assistance for nonfarm sector enterprises is basically split into two size categories: the first focuses on small- and medium-scale enterprises in small towns and rural areas; the second focuses on microenterprises.

Small and medium enterprises are sometimes conceptualized as seedbeds for nurturing and training entrepreneurs for the large-scale industrial sector. Small and medium enterprises in advanced industrial countries have shown remarkable dynamism and have contributed significantly to their economic growth. It is argued that many small and medium enterprises start up but many also fail. The share of output produced by small and medium enterprises is not growing in many countries. Moreover, empirical evidence does not conclusively show that small firms necessarily grow up to be large firms, and thus they do not always provide a source for the growth of large-scale industries. Therefore, instead of targeted assistance, what is needed is an improvement in the general environment for well-functioning private enterprises. What is needed are reforms in property rights and their enforcement, development of infrastructure and viable financial systems, and simplification of rules and regulations governing private enterprises.

There is also a growing interest in the subsector of microenterprises within or outside of rural households. This interest is an outgrowth of concern

<sup>8</sup>The definitions of micro- and small-scale enterprises vary even within the World Bank. Small and medium enterprises are distinguished from microenterprises. Microenterprises have fewer than 10 employees (usually self-employed owners plus an employee or two). Whether legally or illegally, they operate informally. The small and medium enterprises generally have 10–200 workers and operate in an organized, formal way (Webster, Riopelle, and Chidzero 1995).

about the slow progress in reducing poverty in developing countries. Microenterprises are seen as efficient, cost-effective, capital-saving, and labor-intensive ways of expanding employment and income of the poorest people.

Financial assistance to medium, small-scale, and microenterprises is usually channeled through government-owned commercial banks or specialized financial institutions, or by requiring private commercial banks to allocate a certain percentage of their loans to these enterprises, often backed by refinancing of such loans from central banks or specialized refinancing institutions.

Credit is usually provided to small-scale and medium enterprises through government-owned financial institutions or through commercial banks. Small enterprises often receive loans at subsidized interest rates, resulting in credit rationing. The credit allocation frequently goes to those who have influence and financial strength rather than to those who need it most. Because the rate of repayment is very low, the financial institutions suffer from losses as a result of the large proportion of nonperforming loans in their portfolios.

Increasingly, fiscal assistance to microenterprises has been channeled through nongovernmental organizations (NGOs). A few of these NGOs are established for the express purpose of providing credit to microenterprises. They accept deposits only from members and provide credit either to individual borrowers or to groups of borrowers. The ways in which these groups are organized, how they identify those in their lending portfolio, and how they monitor the projects vary widely.

There are examples of government-sponsored institutions that have charged market interest rates to small- and medium-scale industries, enforced regular repayment, and become self-sustaining. But government-owned and government-managed institutions have rarely succeeded in doing so with microenterprises. An additional layer of organization, such as an association or an NGO, often acts as a channel to provide loans to microenterprises. The wide variety of experiences requires further analysis.

To date, experience indicates that subsidized interest rates are not necessary except in the early stages, especially for microenterprises. An intermediary agency or NGO may require a subsidy to build up its own institutional capacity. As the scale of operations becomes larger, fixed overhead capacity is more fully utilized, economies of scale are realized, costs decline, and subsidies can be dispensed with. However, to the extent that these intermediary agencies or NGOs perform training and other capacity-building functions, the costs of their non-credit operations need to be viewed independently of the costs of providing credit. This would enable the financial viability of the credit operations to be appropriately evaluated.

In the past, technical assistance to the nonfarm sector has taken the form of assistance for management training, training in accounting and finance, and marketing. It has been provided directly either by the government agency established for the purpose or through an NGO. Technical assistance is sometimes combined with the provision of finance, as mentioned before. The micro- or small-scale enterprises, mainly in manufacturing, have been the major recipients of such assistance. It is possible to provide technical assistance through private consultancy firms with resources obtained from the government. The micro- or small-scale enterprises sometimes borrow technical and managerial expertise from each other. One popular way of providing services to these small microenterprises is to establish industrial estates that are fully endowed with infrastructure, roads, communications, electricity, and financial services, in small towns or semi-rural areas.

Government measures to promote small- and medium-scale enterprises in rural towns and in urban areas have mostly been generic: they provide assistance to the whole range of enterprises without distinguishing between their fields of activity—whether trade, commerce, services, or manufacturing. In the manufacturing sector, little attention has been paid to whether assistance to the sector should be customized to meet the needs of a particular enterprise or group of enterprises providing the same

product. Individual enterprises and subsectors do differ in the problems they face and the obstacles they need to overcome, in both financial and technical matters.<sup>9</sup>

A distinction can also be made between what is called supply-driven and demand-driven assistance (Boomgaard et al. 1992). The former is provided without regard to whether the enterprise or the subsector requires the type of assistance that is provided in order to meet the requirements of the market they face or whether, in fact, there is a market demand adequate enough for the enterprises or the subsector to utilize the type of assistance that is provided. In other words, supply-driven assistance is not directly linked with the requirements of the market for the product in question. Demand-linked or -driven assistance originates because the enterprises have a contract with the buyers for the supply of a product, and the fulfillment of the contract requires that they utilize specific types of assistance. For example, when large urban enterprises buy products for their use from small-scale enterprises, either urban or rural, they often provide financial and technical assistance in the form of product design, specialized raw materials to be used in production, and production technology. The subcontracting arrangements between urban large enterprises and rural small-scale enterprises constitute an example of demand-linked or -driven assistance that flows between enterprises of different sizes and expertise or specialization.

It is also possible to take advantage of promotional measures provided by the government to small and medium enterprises that are linked to the government procurement of their products and supplies. In many developing countries, government procurement of goods and services constitutes a substantial portion of market demand. This is a potential market for small-scale enterprises that can provide a great stimulus, while at the same time ensuring that their efficiency in production and mar-

keting techniques is greatly improved. The traditional way of encouraging or promoting small-scale enterprises through government procurement is to give a preferential price to small-scale enterprises or to reserve a certain percentage of total government procurement exclusively for purchases from small-scale enterprises. This policy provides a "reserved or protected market" but does not necessarily help improve the efficiency of small-scale enterprises in techniques, quality, reduced costs, or better marketing methods.

However, in the demand-linked or -driven system of providing government assistance to small-scale enterprises, the government procurement agencies or the purchasing departments or ministries of the government need not be under any compulsion or obligation to purchase from small-scale enterprises. The agency in charge of providing assistance or promoting the small-scale sector should become the supplier of goods and services on behalf of the small-scale enterprises to the government departments or purchasing agencies and guarantee the quality, price, and timely delivery of the requisite quantities of supplies. In other words, the government promotional agency would act as a contractor to ensure supply to the purchasing department or agencies, which are free to cancel the contract if the agency is unable to fulfill the contract, just as for any contract between private sellers and buyers.

One major obstacle to government procurement is the difficulty in dealing with a large number of small-scale suppliers and ensuring that product quality is uniform and that they deliver on time. The transaction costs of dealing with one or two large suppliers is considerably less from the point of view of the government bureaucracy. The intermediary role played by a different government agency charged with the task of promoting and providing assistance to the small-scale enterprises circumvents the problem of high transaction costs incurred by the purchasing or procurement agencies. The

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<sup>9</sup>Even in a subsector such as forest products, individual small-scale enterprises differ in the problems they encounter and the types of assistance they need, depending on whether they are at the start-up stage or already established. To illustrate, woodworking enterprises generally have a greater problem getting access to finance than in marketing their products, but the reverse is true for canemaking enterprises. Start-up enterprises have a more difficult time getting access to financing than established enterprises do. In woodworking, however, the new and established enterprises do not differ in their ability to gain access to markets. In both canemaking and woodworking, the established enterprises suffer more from problems relating to the supply of inputs than the start-up factories, whose requirements are relatively small (Arnold et al. 1994).

promotional agency, in turn, has to deal with a large number of suppliers and ensure the fulfillment of the contract. One way of meeting this problem is for the promotional agency to deal with organized groups or associations of suppliers rather than with individual suppliers (Tendler and Alves Amorin 1996). There is a case for subsidizing the transaction costs of contracting with small firms through a special program run by the promotional agency promoting associations or organizations of small firms. Furthermore, small enterprises can also be made to pay for the services rendered; the purchasing agency can provide to the promotional agency the usual commissions involved in bulk purchasing and handling.

In Brazil, for example, the government assistance agency not only works with existing associations of small firms but also encourages groups of firms located in one place to organize associations. If any particular producer does not deliver to the association on time or produces a faulty product, the other firms in the association are jointly responsible. They make up for any shortfall. The better-performing firms pressure the laggards to comply, sometimes by threatening to damage their reputation. This disciplinary mechanism is key to the success of the promotional agency in ensuring high quality and productivity improvements in the supplying enterprises, while at the same time helping to reduce the transaction costs to the government involved in buying from small enterprises. This is similar to the peer pressure or performance monitoring exercised by borrowers' groups in various microcredit programs such as the Grameen Bank in Bangladesh. The assistance agency monitors and supervises product quality and helps solve the various technical and financial problems faced by the association of small enterprises in closely defined product groups.

This approach accomplishes three important things. First, it links small firms to a customer that is committed to purchasing large quantities of a product. Second, by securing a contract for procure-

ment, it brings together support and promotional agencies with firms, ensures that the agency provides training at the firm site rather than in classrooms, and solves problems as they are identified in the course of production. Third, the approach helps the agency to discover specific critical bottlenecks and to learn how to overcome them. The technical experts of the assistance agency concentrate on the problems brought to them by clients. If necessary, they can take the problems from the site of the enterprise to their head office or laboratory to do research and find appropriate solutions. In various ways, the support agency has to prove to the government's purchasing departments that buying from small firms is no more costly or burdensome than buying from big firms.

As the Brazilian case illustrates, the promotional agency's advice and understanding of the sector's problems and prospects is greatly improved by working together with the producers at the firm's site.<sup>10</sup> They dispense with the preset agendas and packages so common in other business extension services. The technicians of the support agency have to maintain vigilance regarding quality even after the producers have completed their orders because of the contractual requirements for payment and the system of warranties established between them. They have to visit sites, reject substandard products, and ensure the replacement of defective items.

Under the supply-driven assistance program, neither the firms nor the support agency is subject to tests of market demand. The support agency traditionally delivers standardized services—business advice, training, production assistance, or credit—to as large a number of firms as possible. The agency provides only generic services common to all enterprises, not client-specific services, and therefore is less effective. The success of the demand-driven approach depends on the contract being entered into, with groups of firms providing identical products and payment being made to each producer upon delivery and satisfactory inspection

<sup>10</sup>Tendler and Alves Amorin (1996) describe in detail how the Brazilian Small Enterprise Assistance Service (SEBRAE), a semipublic technical assistance agency, helped promote the small-scale enterprises involved in making school furniture and in providing maintenance and repair services for public schools. The assistance enabled them to compete successfully with large enterprises in procuring and fulfilling contracts with government procurement agencies.

of the products of the whole group. This is crucial to the reduction of transaction and monitoring costs of the government purchasing agencies. This creates the necessary peer pressure and shifts the monitoring function from the support agency to the group.

The government's policy on the rural nonfarm sector discussed in the foregoing focuses on the promotion of self-employment or employment in small-scale or microenterprises in private-sector industry and trade. In this connection, the role of rural infrastructure and education in promoting the rural nonfarm sector has already been discussed extensively.

An important source of employment in the rural nonfarm sector has been the direct provision of wage employment by the public sector. The three most important avenues of wage employment are (1) public works programs; (2) decentralization of governmental or administrative functions, either through the decentralization of administrative or, more important, through local self-government that expands local employment in public administra-

tion; and (3) expanded provision of public services in the social sector including health, education, and other services such as maternity and family planning. The first category of employment-generating public expenditures expands employment and income for the poor. The second and third categories are an important source of employment for those with primary or secondary educations, who are frequently above the poverty line. Also, in areas such as the Middle East that have labor shortages, government has taken an active role in arranging for overseas employment for both skilled and unskilled labor, drawn from both urban and rural areas. At the same time, outmigration of all categories of labor—from the unskilled to the highly skilled—to high-income developing countries or to developed countries has been considerable in recent years. This is especially true in Africa and Asia. In Latin America, such migration has been predominantly private and seldom publicly organized or sponsored and is mostly confined to the American hemisphere.

## 6. Conclusions

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In summary, in most developing countries, the nonfarm sector in the rural economies, including villages and small towns, generates income and employment; its share in rural employment or the rural labor force varies from 20 to 50 percent in most cases. In several countries, its importance is increasing relative to both the urban and rural farm sectors. In addition to its significant contribution to average year-round employment and income, the nonfarm sector provides supplementary income and employment during slack seasons in agriculture. Furthermore, it provides a higher proportion of income and employment for the rural poor, including women, in household-based activities.

The relative importance of the rural nonfarm sector and the composition of the various economic activities included in the sector differ widely among countries and regions. Broadly defined, this sector includes not only activities outside farming, such as trade, transportation, construction, manufacturing (both household and small-scale or micro), and services of various kinds, but it also covers income earned by rural residents who commute to urban areas and remittances from family members who live in urban areas or abroad. Household industries have declined over time, whereas small-scale, non-household industries have expanded. Cottage enterprises based on part-time family labor are relatively less efficient than small-scale, full-time, specialized rural industries; as the cost of labor rises, enterprises with no scope for division of labor continue to lose their cost advantage. The rural towns that serve as trading and distribution centers for both urban and agricultural goods subsequently attract manufacturing activities.

The linkages between the rural nonfarm and farm sectors have been much explored in the literature. The growth in farm income provides an expanding market for consumption goods and agricul-

tural inputs produced by the nonfarm sector, while agricultural raw materials are processed in the rural nonfarm sector. The relative strength of the consumption and production linkages depends on the pace and pattern of growth in agricultural income and production technology used in agriculture. The higher the per capita income growth, the higher the share of nonfood consumption in rural expenditure and hence the greater the stimulus to the growth of the rural nonfarm sector. The share of locally produced, consumption goods (as against imports from urban areas or abroad) in consumption expenditure depends on the distribution of income in agriculture. It is higher among the medium or small farmers than among the rich.

Modernization of agricultural technology that encourages the use of mechanical equipment for both irrigation and cultivation provides an expanding market for simple, inexpensive tools to be produced, serviced, and repaired by the rural nonfarm sector. The output of the rural nonfarm consumption sector is protected from competition with urban goods by the high costs of transportation from urban areas and by the specialized rural demand for low-priced (but perhaps inferior) goods produced by the sector. High per capita income growth in agriculture, particularly of small and medium farmers, and widely distributed benefits of growth constitute important factors in determining the growth of the rural nonfarm sector.

Various attempts have been made to quantify the growth multiplier—the increase in nonfarm rural income resulting from one dollar's worth of increase in farm income. The estimates vary from \$0.35 to \$0.90 (implying a multiplier of 1.35 to 1.90), depending on the size of the marginal budget shares of farm sector income and the interindustry coefficient. This also assumes that supply in the nonfarm sector is perfectly elastic—an unlikely as-

sumption because the increasing demand for labor raises wage costs and returns diminish in the short run as the result of capacity constraints and fixed factors. Rising supply costs are likely to reduce the multiplier effect by 10–30 percent.

The linkages between the rural nonfarm sector, especially rural industry, and the urban sector have often been underemphasized. Rural small-scale industry has both a competitive and a complementary relationship with the urban sector. As subcontractors, rural industries either produce parts or components for the urban industry or undertake assembling and finishing operations. Although inefficient, the urban industry fostered under a protectionist regime often enjoys high profitability and attracts investments; the rural small-scale industry suffers in comparison, especially if it is obliged to secure inputs at high cost from the urban industry. The rural micro- and small-scale industries seldom grow into large enterprises; they remain trapped in the same size group. Moreover, failure rates in the first three to four years are quite high for microenterprises.

The availability of abundant rural labor is the primary reason for the growth of the nonfarm rural sector. But increases in rural nonfarm employment are stimulated by both “push” and “pull” factors. If agriculture is stagnant, surplus unemployed labor is pushed into the nonfarm sector, often into low-productivity activities at wages lower than these workers earned in agriculture. If growth in the nonfarm sector is stronger than that in the farm sector, labor is pulled to the nonfarm sector by higher wages. When agriculture is stagnant, the activities that provide a large share of rural nonfarm employment are cottage (household) industry, earthworks, and miscellaneous rural activities with low productivity and low wages. In general, the share of nonfarm income and employment in total income and employment of rural households declines as the size of landholding and income goes up. A rapidly growing agriculture sector provides rising employment for the landless and small and marginal farmers until labor absorption slows. At the same time, the stimulus provided by a buoyant agriculture sector results in increasing participation of the higher-income, landholding classes in the rural nonfarm sector as self-employed entrepreneurs.

Infrastructure development, higher levels of education, and increased access to credit facilities are all factors that contribute to the growth of the rural nonfarm sector. While infrastructure widens the size and choice of markets as well as sources of raw materials for rural enterprise and encourages subcontracting arrangements with urban enterprises, it also facilitates the flow of competing urban goods and introduces urban consumer tastes. Education increases the productivity of the work force, and secondary education encourages entrepreneurial ability in trade and rural industry. The rates of return to education in rural nonfarm activities are high. Workers in the rural nonfarm sector have, in general, a higher level of education than the general population, and those engaged in rural industry have higher levels of both primary and secondary education.

The start-up capital for rural enterprise is often provided by either household savings or friends and relatives, whereas working capital is provided by a wide variety of informal credit institutions, including buyers of products and suppliers of raw materials. The government-sponsored financial institutions or the NGOs (of increasing importance in recent years) can play a catalytic role in providing initial capital for rural nonfarm enterprises.

Subcontracting arrangements that provide rural enterprises with access to market, finance, and technology exist between villages and small town enterprises and urban enterprises (both domestic and multinational). Apart from the high labor and low capital requirements that characterize rural village or small town enterprises, low transport costs encourage subcontracting arrangements. Most important, however, are the legal framework and institutional arrangements for the enforcement of contracts, which are relatively weak in many developing countries. A relationship of trust and confidence built up through personal connections, previous associations in trade or business, as well as goodwill, reputation for reliability, and a record of contractual fulfillment have been crucial in the growth of urban subcontracting arrangements with rural enterprises. Moreover, a decentralized pattern of urbanization with a large number of urban centers rather than one or two megacities facilitates subcontracting arrangements with urban enterprises.

Small enterprises have often developed vigorously within a radius of 25 to 30 miles of an industrial nexus, with easy access to transport and communication facilities, urban technological expertise, and innovative ideas about marketing and production technology. Local self-government, responsive to and aware of local needs and potentials, can foster investment in physical and social infrastructure more than the distant central government.

Both economywide and sector-specific targeted policies facilitate development of the rural nonfarm sector. These policies to a large extent should be directed toward removing disincentives, including limited access to credit, markets, and research and development efforts. Reduction or simplification of domestic, import, and export regulations remove the barriers to trade. Import liberalization may increase competition with imported goods, and it may lead to downsizing of large-scale urban industries, which could release entrepreneurial ability for investment in small-scale enterprises.

Technical assistance in marketing, management, and accounting is provided either by government institutions or by private institutions financed partly by government and partly by recipients of assistance. Credit facilities for small and micro-enterprises are best provided by linking the formal financial institutions (government or private) with associations or groups of small-scale enterprises acting as intermediaries between individual enterprises, on the one hand, and the formal financial institutions, on the other. NGOs increasingly play a vital role as intermediaries.

Experience indicates that technical assistance is best when it is tailored to the needs of a cluster of enterprises producing identical goods or services, helping them to meet identified market demand or to fulfill prenegotiated sales contracts. If the government procures goods and services from small-scale rural enterprises, procurement can be tied to assistance in upgrading the quality of products, improving managerial skills, and reducing costs. Demand-driven assistance of this type is more efficient than generic technical assistance to small enterprises, which does not distinguish between the products or the markets they serve, and which is not linked to a sales contract, that is, to a commitment

by the purchasers to purchase large quantities of a product.

In this light, a more detailed elaboration of the multiple roles of the nonfarm sector—acceleration of growth, income and employment diversification, poverty alleviation, a decentralized rural industrialization, and relief of urban congestion and pollution—deserves to be high on the agenda for further research. This will require additional empirical work. Future research should include an in-depth study of different regions or groups of countries. South Asia, for example, differs significantly from East Asia, and Central American countries differ from South American countries. As one looks to the future of the rural economies, a strategy for rural development should be based on a recognition of the important role of the nonfarm sector, as well as on the formulation of a policy framework for its efficient growth in light of the differing circumstances of developing regions.

A few relevant questions or issues that need further elaboration and investigation remain. What is a rural area, and what is the nonfarm sector? Uniform definitions should be adopted, and evidence relating to the concepts defined need to be analyzed. A distinction needs to be made between villages and small rural towns. However, the definition of what constitutes a rural village or a rural town differs among countries. This needs to be kept in mind in making intercountry comparisons. Similarly, activities that are included in rural nonfarm activities differ. How does the contribution of the different components of the nonfarm sector to growth, poverty alleviation, or relief of urban congestion vary in importance? The predominant nonfarm activities in the villages are trade and service industries, whereas small-scale industries are frequently concentrated in small rural towns rather than in villages.

To what extent is employment in the nonfarm sector the result of a push from stagnant agriculture rather than a pull from the nonfarm sector? To what extent do market imperfections such as credit constraints lead farmers to seek additional sources of nonfarm income to obtain resources for agricultural investment? To what extent is pressure for diversification the result of instability or uncertainty of

farm income or seasonal variations in agricultural income?

More evidence is needed on how the gains from agricultural growth are distributed among different farm sizes and income groups, and on how this relates to the strength of the linkages between the farm and nonfarm sectors, both urban and rural. Because the income elasticity of demand of poor, rural households is high for basic cereals and, as income rises, also high for livestock and horticultural products, they are likely to spend any income gains on food. In the short run, their income increases are unlikely to have a significant impact on nonfarm growth. Therefore, to maximize the impact of the consumption linkages of agricultural growth on the nonfarm sector, attention will have to be focused on farmers with intermediate incomes, rather than on the poorest farmers. Is that consistent with the urgent need for poverty alleviation, and is it the most feasible route?

Has the unequal land distribution in Latin America, often with absentee landlords, a predominantly urban pattern of consumption demand, and mechanized large-scale farms, militated against the development of rural nonfarm enterprises? Do the big landlords invest their savings in urban enterprises rather than in rural enterprises?

Even if the rural nonfood consumer demand in the early stages of growth is for simple goods, produced by rural enterprises, the development of transportation and communication links with urban centers quickly orients the rural consumption pattern toward urban goods, and facilitates the import of urban goods into rural areas. Therefore, will the rural industries producing simple goods be only short-lived in a fast-growing economy? Has this, in fact, happened in various countries? What is the evidence?

If opportunity costs of all labor and capital factors are included, how does efficiency of household enterprises or microenterprises and rural small-scale industries compare with urban small- and medium-scale enterprises? To what extent is the survival of small-scale industries in rural areas and in small towns due to their ability to avoid (1) unionization of labor and associated high wage costs and (2) government labor regulations that raise the indirect costs of labor? Also,

being less visible, do they avoid the net of taxation? Do they have greater flexibility than large-scale urban industries in responding to changes in market trends and technology in a period of policy reforms and structural adjustment? Does a centralized pattern of industrialization based on megacities discourage rural industrialization while encouraging the rapid growth of the urban informal sector?

What policies are needed to promote the nonfarm sector and all its diverse components? Is it enough to remove the bias against rural nonfarm enterprises that prevailed in the past? To what extent are rural enterprises the outgrowth of urban enterprises (pushed by high land and labor costs), spreading out to the small towns and rural areas through subcontracting in some cases and, in others, by splitting up production processes to be carried out in small rural enterprises?

Regarding sources of financing, the relative importance of several sources requires further clarification. These include formal, informal, and semi-formal financial institutions, savings of the nonfarm sector itself, and remittances from urban areas or overseas. How much do peasants invest in trading? How much do traders invest their savings in small industries?

What are the various ways in which technical assistance is offered? What are the nature and relative success of programs providing training and education, on the one hand, and transfer of technology, on the other? How successful are the policies of tax incentives and of industrial estates? To what extent does local government contribute to the promotion of the rural nonfarm sector?

In this context, the contemporary experience of rural industries in China, the so-called township and village enterprises (TVEs), requires special attention. Before economic reforms in China started in the 1980s, the TVEs were fully integrated with agriculture within the commune system. This system focused more on meeting the forward production linkages (processing of agricultural commodities) and the backward production linkages (providing inputs for agricultural operations) than on the farmers' consumption demand. To what extent are the prevailing linkages of rural enterprises (TVEs) with the urban industrial system in China the result of the policy reforms introduced in the

past 15 years or so? Did the production pattern of TVEs change after the end of the commune system and why? The TVEs seem to have many forms of relationship with urban industries: for example, joint or cooperative ownership between TVEs and state enterprises or between TVEs and foreign enterprises. They sometimes produce the same products that are competing in the market and sometimes they are subcontracting partners for urban enterprises. What is the role of the township or local government in the development of TVEs, following

the breakup of the commune system? Are there lessons to be learned from China's experience that can be transferred to other countries?

It is apparent that a number of questions need further empirical research and analysis. The differences between countries and regions must be identified, highlighting the circumstances that contributed to their varying degrees of success. Such an analysis will also help policymakers to formulate appropriate policies.

## *Appendix: Supplementary Tables*

**Table 6—Sectoral composition of rural nonfarm employment in selected countries**

Sector	Indonesia,	Korea, Republic of,	Philippines,	Malaysia,	Thailand,	Taiwan,	China,	India,
	1971	1970	1970	1970	1975/76	1966	1990	1966
	(percent)							
Sideline agriculture	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3	n.a.
Manufacturing	29	30	34	22	28 <sup>a</sup>	27	60	39
Trade	34	24	15	22	35	13	7	14
Services	27	29	29	41	21 <sup>b</sup>	50	15	24
Construction	9	10	11	5	n.a.	4	15	14
Other <sup>c</sup>	5	7	10	10	16	6	n.a.	9

Source: International Labour Organization 1994, Table 2.

Note: n.a. indicates not available.

<sup>a</sup>Manufacturing and construction.

<sup>b</sup>Services and administration.

<sup>c</sup>Includes utilities, transport, and miscellaneous.

**Table 7—Marginal budget expenditure shares in four studies, 1972/73 to 1982/83**

Item	Gusau, Northern Nigeria, 1976/77	Rural Sierra Leone, 1977	Muda, Malaysia, 1972/73	North Arcot, South India, 1982/83
	(percent)			
By commodity group				
Food, alcohol, and tobacco	76.1	67.9	37.7	63.0
Clothing and footwear	8.9	7.4	8.1	7.7
Consumer expendables	4.4	10.0	3.7	2.4
Housing	0.4	...	12.4	0.0
Transport	2.7	3.0	3.1	3.4
Durables	1.4	1.9	7.1	1.9
Education and health	1.6	0.8	5.2	2.4
Services, and social and religious expenditures	4.4	9.0	22.7	19.3
By location				
Locally produced				
Foods	70.3	66.1	24.6	48.5
Nonfoods	11.3	17.8	36.9	30.8
Regional imports				
Foods	5.8	1.1	13.1	12.0
Nonfoods	12.6	15.0	25.4	8.6

Source: Haggblade, Hazell, and Brown 1989.

**Table 8—Average (ABS) and marginal (MBS) budget shares, by income quartiles, in developed and underdeveloped villages, Bangladesh, 1982**

Consumption item	First quartile				Second quartile				Third quartile				Fourth quartile			
	Developed		Underdeveloped		Developed		Underdeveloped		Developed		Underdeveloped		Developed		Underdeveloped	
	ABS	MBS	ABS	MBS	ABS	MBS	ABS	MBS	ABS	MBS	ABS	MBS	ABS	MBS	ABS	MBS
	(percent)															
Total food	83.21	76.05	81.77	87.87	73.31	65.46	77.63	80.04	58.42	56.69	78.02	78.74	59.24	54.17	80.74	81.09
Cereals	64.00	53.77	62.91	55.91	43.03	40.54	60.34	57.41	28.46	14.91	57.55	54.96	26.16	9.36	55.59	44.50
Field crops (potatoes, vegetables, pulses, spices)	9.26	3.83	9.23	12.04	8.92	4.94	6.80	6.67	9.17	12.80	7.58	11.18	9.31	8.59	10.08	12.56
Narcotics <sup>a</sup>	3.46	5.47	1.05	2.86	4.45	5.49	2.11	3.30	4.49	2.34	3.27	2.97	3.87	5.33	2.55	1.26
Sugar	0.80	2.37	0.84	1.16	2.04	2.87	0.94	0.96	1.28	2.81	0.55	1.29	2.52	4.84	1.44	2.27
Oils and fats	2.24	2.59	2.96	5.59	2.32	2.07	2.04	1.70	2.06	2.99	1.54	1.73	3.31	4.17	2.20	3.72
Fruits	0.57	1.24	1.29	2.02	1.14	1.23	0.56	0.71	2.14	2.09	2.05	2.15	2.53	2.96	1.18	1.85
Tea	0.90	1.15	0.01	6.24	1.30	1.05	6.00	6.00	1.35	2.69	0.01	0.14	0.94	0.74	0.02	0.02
Fish and livestock	1.98	5.64	3.48	8.05	10.11	7.27	4.83	9.29	9.44	16.06	5.47	4.60	10.60	18.18	7.68	15.50
Total nonfood	16.85	24.37	18.20	12.11	26.64	34.53	22.37	19.92	41.59	43.31	21.98	21.09	40.76	45.83	19.26	18.91
Energy and fuels	8.74	6.79	10.87	-2.12	8.39	8.88	12.23	7.87	12.71	9.26	8.30	4.30	8.12	6.31	6.40	2.47
Consumer goods	5.25	10.87	4.51	9.52	5.74	10.63	8.37	10.71	16.13	11.86	10.07	10.64	15.73	11.85	9.61	10.59
Services	2.86	6.71	2.81	4.71	12.51	15.02	1.77	1.34	12.75	22.19	3.61	6.15	16.91	27.67	3.25	5.85
Total	100.07	100.44	99.97	99.98	99.95	99.99	100.00	99.96	100.01	100.00	100.00	99.83	100.00	100.00	100.00	100.00

Source: Ahmed and Hossain 1990.

Note: Totals may not add up to 100 percent because of rounding.

<sup>a</sup>The narcotics included in this data are biri, cigarettes, betel leaf and nuts, tobacco, and jarda.

Table 9—Average budget shares for household expenditures, North Arcot, India

Consumption item	1973/74					1982/83					1983/84				
	Small paddy farms	Large paddy farms	Non-paddy farms	Land-less	Non-agriculture	Small paddy farms	Large paddy farms	Non-paddy farms	Land-less	Non-agriculture	Small paddy farms	Large paddy farms	Non-paddy farms	Land-less	Non-agriculture
	(percent)					(percent)					(percent)				
Total foods	82.5	74.7	75.6	84.0	83.7	76.5	69.4	77.5	79.0	79.1	77.0	78.1	70.2	75.9	75.1
Foodgrains	63.9	53.7	59.5	65.3	65.2	50.2	42.9	46.3	50.6	44.4	33.6	37.2	30.4	33.0	33.2
Dairy and eggs	0.4	2.0	1.4	0.1	2.5	1.3	3.0	0.7	0.3	1.5	3.9	6.5	1.7	3.3	1.2
Meat and fish	1.8	2.1	1.1	2.1	1.1	1.2	1.8	4.4	3.2	2.2	5.6	5.2	8.2	7.1	5.2
Vegetables, fruits, and nuts	2.4	3.1	1.4	2.3	3.0	6.6	5.0	6.8	6.4	8.4	12.0	8.9	11.9	12.0	14.2
Oils and spices	10.5	9.3	8.9	11.3	8.7	15.2	14.1	17.6	17.5	20.0	15.5	14.6	11.8	14.7	14.4
Alcohol and tobacco	4.5	5.4	4.2	4.3	5.3	3.4	3.0	3.9	5.2	5.2	3.4	1.6	4.4	4.6	6.9
Energy	1.4	1.3	2.6	2.9	1.7	1.6	1.5	2.6	2.0	2.2	2.1	1.8	2.1	1.8	1.6
Toiletries	1.6	1.4	0.7	1.4	1.0	1.2	1.4	1.8	1.5	1.1	1.5	1.2	1.3	1.4	1.2
Durables	0.3	0.9	0.1	0.1	0.1	0.2	0.7	0.9	1.0	0.2	0.7	1.2	1.3	1.2	0.4
Clothing and footwear	4.4	7.1	4.2	3.1	3.2	3.7	4.4	2.5	2.4	4.3	3.3	4.6	3.7	2.8	2.6
Personal services	1.6	1.8	6.4	1.4	1.6	1.4	1.3	1.0	1.1	0.9	1.3	1.3	1.6	1.3	1.3
Education	0.4	0.4	...	0.1	0.6	0.4	0.8	0.5	0.3	0.3	0.1	0.4	0.3	0.2	0.3
Medical services	0.3	2.5	0.3	0.1	0.4	0.8	1.3	1.7	0.6	1.8	1.4	1.5	1.4	1.8	2.2
Transport	1.5	1.5	1.6	1.4	1.4	2.2	3.5	3.9	2.4	1.5	2.7	2.4	8.4	2.9	2.4
Entertainment	0.3	0.3	2.7	0.6	0.1	0.6	0.9	1.1	0.7	1.7	3.5	2.1	3.5	3.4	4.4
Religious and social functions	1.2	2.7	1.5	0.7	0.9	7.8	7.8	2.5	3.1	1.6	2.9	1.7	1.7	1.9	1.5
Home improvements	n.a.	n.a.	n.a.	n.a.	n.a.	0.3	4.0	0.1	0.6	...	0.1	2.0	0.1	0.7	...

Source: Hazell and Ramasamy 1995, Table 3.15.

**Table 10—Expenditure patterns of households in underdeveloped and developed villages, Bangladesh, 1982**

Commodity group	Underdeveloped villages			Developed villages		
	Average share	Marginal share	Expenditure elasticity	Average share	Marginal share	Expenditure elasticity
		(percent)			(percent)	
Crops	67.0	56.5	0.84	62.9	45.0	0.71
Cereals	53.0	42.1	0.79	49.1	31.2	0.64
Pulses	1.1	1.3	1.24	0.8	1.2	1.56
Roots and vegetables	5.4	4.7	0.87	4.8	3.1	0.65
Fruits	2.1	3.4	1.62	1.9	3.0	1.57
Spices	3.4	2.9	0.84	3.7	3.3	0.91
Betel nuts and leaves	0.9	1.4	1.55	1.3	1.3	1.00
Rice husks and jute sticks	1.0	0.7	0.70	1.3	1.7	1.30
Forestry	4.1	3.2	0.78	3.1	2.7	0.88
Firewood	2.0	2.6	1.29	1.5	2.1	1.38
Leaves	2.1	0.6	0.30	1.6	0.7	0.43
Livestock products	4.4	5.7	1.29	4.0	6.4	1.59
Meat and eggs	1.6	3.2	2.00	2.1	4.4	2.10
Milk	0.9	1.8	1.93	1.3	2.4	1.92
Cow dung	1.9	0.6	0.33	0.7	-0.4	-0.58
Fishery	3.6	4.3	1.19	4.4	5.3	1.22
Manufactures	16.7	22.9	1.37	17.5	22.7	1.29
Rural origin	9.5	12.4	1.30	9.5	10.3	1.09
Urban origin	7.2	10.5	1.46	7.8	12.4	1.56
Services	4.2	7.5	1.79	8.2	17.9	2.18

Source: Hossain 1988, Table 59.

Notes: Figures are derived from commodity-specific Engle functions estimated from household-level data. Parts may not add to totals because of rounding. Leaders ( . . ) Indicate not applicable.

**Table 11—Percentage breakdown of rural household employment by sex and by sectors, Bangladesh**

Sector	Wage employment		Self-employment		Total employment	
	Male	Female	Male	Female	Male	Female
			(percent)			
Agriculture	18.74	3.36	39.20	66.60	57.94	69.96
Nonagriculture	18.34	13.41	21.22	11.92	39.56	25.33
Total	37.08	16.80	60.42	78.52	...	...

Source: Rahwan and Khandker 1995, Table 11.

**Table 12—Distribution of land and income, Bangladesh, 1982**

Item	Developed villages <sup>a</sup>	Underdeveloped villages
Distribution of households (percent)		
Landless (less than 0.5 acres)	30.6	29.7
Small (0.5–2.5 acres)	32.5	35.0
Medium (2.5–5.0 acres)	25.2	25.6
Large (more than 5.0 acres)	11.7	9.8
Wage rate (Tk/hour) for males		
Agriculture	1.82	1.53
Nonagriculture	2.86	1.95
Per capita income (Tk/year)	3,626	2,961
Share of household income derived from the nonfarm sector (percent)		
Landless (less than 0.5 acres)	44	62
	(43)	(64)
Small (0.5–2.5 acres)	39	42
	(36)	(44)
Medium (2.5–5.0 acres)	27	33
	(20)	(31)
Large (more than 5.0 acres)	30	24
	(25)	(22)

Source: Hossain 1988.

Notes: The figures in parentheses represent the share of the nonagriculture sector in employment.

<sup>a</sup>Does not include small rural towns; hence, the data are not comparable with others that include them.

**Table 13—Comparison of rural nonfarm sectors in Japan, Korea, and Taiwan, 1965 and 1987**

Country	1965		1987	
	Agricultural income	Nonagricultural income	Agricultural income	Nonagricultural income
Japan	48.0	52.0	16.5	83.5
Korea, Republic of	79.2	20.8	61.4	38.5
Taiwan	66.0	34.0	22.0	78.0

Source: Lane 1996.

Table 14—Characteristics of state and nonstate industrial enterprises in China

Category	1987 gross output (billion yuan/ current prices)	Workers per firm	Fixed assets		Labor productivity (thousand yuan/worker)
			Original cost (yuan/worker)	Net value	
State-owned enterprises					
All state firms	825	4,110	19,142	13,070	20.6
Firms employing over 5,000	261	9,851	30,080	19,750	21.3
Other large and medium firms	304	1,492	17,620	12,310	24.6
Small state enterprises	263	256	11,760	8,470	16.0
Nonstate enterprises					
Collective ownership					
Urban collectives	167	110	4,670	3,380	11.3
Rural enterprises					
Township	141	61	3,052	2,388	8.9
Village	120	25			6.8
Private ownership					
Urban firms <sup>a</sup>	5	2	n.a.	n.a.	5.6
Rural households <sup>a</sup>	80	3	n.a.	n.a.	4.1
Other ownership <sup>b</sup>	28	202	n.a.	n.a.	35.3

Source: Jefferson and Rawski 1994.

Note: n.a. indicates not available.

<sup>a</sup>Privately owned firms employing fewer than eight workers.

<sup>b</sup>Includes privately owned firms employing eight or more workers, joint ventures, foreign-owned firms, and other ownership forms.

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