

# IV THE RURAL NONFARM TRANSFORMATION

## INTRODUCTION

During the economic transformation, the emergence and rapid expansion of the nonfarm economy in rural areas and the towns that serve them becomes a major source of growth in incomes and employment. From a relatively minor sector, often largely part-time and subsistence-oriented in the early stages of development, the rural nonfarm economy develops to become a major motor of economic growth in its own right, not only for the countryside but for the economy as a whole. Its growth also has important implications for the welfare of women and poor households, sometimes helping to offset inequities that can arise within the agricultural sector.

While the expansion of the rural nonfarm economy is one of the most important steps in the process by which agricultural growth generates economic growth, it is also one of the least recognized and reported. Both the level and type of growth in the rural nonfarm economy are sensitive to government policies, yet these policies tend to be piecemeal or the offshoot of policies targeted at other parts of the national economy; there is little understanding on the part of policymakers of the rural nonfarm economy as a sector with its own internal consistencies and interests (there are, for example, no ministries of rural nonfarm economy). The result is typically a sector that gets buffeted by general macro, trade, labor, agricultural, and industrial-sector policies, set at the national level, and by regional, usually urban-biased, development plans of local governments.

## IMPORTANCE OF RURAL NONFARM ACTIVITIES

### Definitions

Definitions of the term “rural” and “nonfarm” vary across countries, and are usually based on settlement or locality sizes (e.g., India defines as “rural” all settlements of fewer than 5,000 people). In this context, however, it is preferable to think of rural as depending on function rather than on the size of a locality. As in Gibb (1974) and Anderson and Leiserson (1980), rural can be defined as any locality that exists primarily to serve an agricultural hinterland. In contrast, urban economies are driven by manufacturing, government or some other economic base independent of agriculture. Given this view, rural areas include all the rural settlements, central market places and towns that are linked together through economic transactions related to the agricultural economy.

“Nonfarm” activities are defined by most countries to include all rural economic activity other than agriculture, forestry, and fishing. They therefore include agricultural processing and trade (conventionally classified as part of the manufacturing and commerce sectors, respectively), as well as construction, mining, transport, and financial and personal services.

### Employment Shares

The most readily available indicator of the relative importance of the rural nonfarm economy is its employment share, and these shares are reported in Table IV.1 for a number of South and Southeast Asian countries. Comparisons across countries are complicated by differences in definitions of rural areas, of the total work force, and of different nonfarm sectors. “Rural” is defined in these census data on the base of settlement size, with country differences in the size criterion used. In all cases, the work force is defined on the basis of primary occupation, although some variation in definitions exists.

Table IV.1—Employment Shares by Activity in Rural & Urban Areas, Selected Countries (percent)

Economy	Rural Population (as % total)		Total Employment		Mft.	Transport	Nonfarm Employment			Construction	Other	
	1960	1994	Agr.	Nonfarm			Trade	Services	Finance			
<b>Bangladesh (1991)</b>			66.1	39.9	6.8	4.0	.....	35.4	.....	3.3	50.2	
	Rural		15.1	84.9	8.1	6.5	.....	31.8	.....	3.4	50.1	
	Urban	95	82	54.6	45.4	7.3	5.1	.....	33.8	.....	3.3	50.4
<b>Sri Lanka (1981)</b>			55.7	44.3	19.8	8.3	16.5	25.2	1.5	6.6	22.1	
	Rural		7.3	96.7	16.0	9.7	23.9	28.7	2.8	3.7	15.0	
	Urban	82	78	45.2	54.8	18.5	8.8	19.2	26.5	2.0	5.5	19.5
<b>Pakistan (1992/93)</b>			63.8	36.2	19.0	10.4	21.9	26.8	0.7	19.4	1.8	
	Rural		5.8	94.2	22.6	10.6	28.9	26.0	2.4	7.1	2.4	
	Urban	78	66	47.6	52.4	20.8	10.5	25.4	26.4	2.6	2.1	2.1
<b>India (1993/94)</b>			76.9	23.1	30.7	6.9	19.4	.....	26.8	.....	11.6	4.6
	Rural		17.7	82.3	22.2	12.7	25.9	.....	38.3	.....	3.1	2.3
	Urban	82	73	61.5	38.5	28.5	8.4	21.1	.....	29.8	.....	9.4
<b>Philippines (1980)</b>			74.0	26.0	20.9	11.9	13.2	32.1	3.0	11.5	7.4	
	Rural		18.3	81.7	19.4	11.3	14.9	35.9	7.1	8.1	3.3	
	Urban	70	47	51.4	48.6	19.9	11.5	14.3	34.7	5.8	9.2	4.6
<b>Indonesia (1995)</b>			63.1	36.9	23.8	8.2	31.7	24.2	0.5	9.4	2.2	
	Rural		9.4	90.6	20.0	8.0	30.1	31.1	2.4	6.8	1.6	
	Urban	85	66	45.9	54.1	21.8	8.1	30.9	27.9	1.5	8.0	1.8
<b>Thailand (1996)</b>			49.9	50.1	30.3	5.1	22.1	.....	19.7	.....	21.5	1.3
	Nonmunicipal		1.9	98.1	22.6	7.0	29.9	.....	28.8	.....	9.7	2.0
	Municipal	87	80	39.7	60.3	27.6	5.8	24.8	.....	22.8	.....	17.4

Because part-time and temporary employment are important in many agricultural and nonfarm activities, the employment data tend to underestimate the importance of some activities, though the bias is likely to be small when expressed in share rather than in absolute terms. Nonfarm sectors are not always defined in the same way; the biggest differences tend to arise in the definitions of the “service” and “other” sectors (Bangladesh departs most from other country definitions).

Despite these differences in definitions, the data in Table IV.1 show a remarkably consistent story across countries. The nonfarm economy accounts for 40 to 60 percent of total national employment and the rural nonfarm economy accounts for 20 to 50 percent of total rural employment. Differences between South and Southeast Asian economies are also surprisingly small. While rapidly developing (until recently) economies like Indonesia and Thailand now have very little agricultural employment in their urban areas—only 9.4 and 1.9 percent, respectively, of total urban employment—the nonfarm share of rural employment is not much different from those of other countries. This no doubt reflects the fact that as rural settlements grow and diversify, they soon become classified as urban rather than rural areas in the census data. Even so, the share of nonfarm employment in total national employment was not much higher in Indonesia and Thailand in the mid-1990s than in Sri Lanka in 1981 or Pakistan in 1992/93.

The composition of the nonfarm economy also shows remarkable similarities across countries. Service activities dominate the nonfarm economy in both rural and urban areas, followed by manufacturing and trade. Service activities (including much of the “other” activities in Bangladesh and Sri Lanka) are more dominant in the lower-income South Asian countries, while trade and manufacturing are about equal in importance to services in the Southeast Asian countries.

Hazell and Haggblade (1993) calculated a breakout of rural nonfarm employment shares by rural and urban towns for 14 Asian countries. Their results show that, as suggested above, rural towns can be expected to have an employment structure that reflects their economic links to agriculture, while urban

towns typically have a more independent economic base. On average, the nonfarm employment share for rural areas increases from 26 percent to 36 percent when rural towns are added to the definition of rural areas. Moreover, the nonfarm employment share increases quickly with size of locality and is 81 percent even for rural towns.

In India, nonfarm employment share also increases sharply with locality size. In rural towns (defined as having populations between 5,000 and 100,000), 76.4 percent of the work force was employed in nonfarm activities in 1971 (Table IV.2). In rural areas, services and household manufacturing activities are the most important sources of employment in rural areas, whereas employment in rural towns is more nearly dominated by trade and services. In urban towns, trade and services are also important sources of employment, but manufacturing dominates. Unlike rural areas and towns, manufacturing employment in urban towns is nearly all in formal nonhousehold activity; household manufacturing accounts for a mere 3.9 percent of total employment.

## **Income Shares**

The employment shares discussed above may underestimate the relative importance of some nonfarm activities that have larger than average shares of part-time and seasonal employment. Daily earnings in various sectors also differ and this can affect their relative economic importance. Income shares provide a more reliable guide to the relative importance of different nonfarm sectors, but this kind of data is rarely available at the country level. Indeed, many countries do not even collect comprehensive production or income data on the output of informal (often household or cottage) activities that prevail in many nonfarm sectors (particularly the service and manufacturing sectors). It is therefore necessary to rely on household- and farm-level surveys, which are spotty in their regional and temporal coverage. Table IV.3 provides some relevant evidence on income shares.

Table IV.2—Employment Shares by Activity and Size of Locality, India (percent)

Economy	Total Employment		Manufacturing		Nonfarm Employment		Services	Construction	Other
	Agric	Nonfarm	Household	Non-Household	Transport	Trade			
India (1971)									
Rural	84.9	15.1	21.6	15.7	5.9	15.7	35.3	3.9	2.0
Rural Towns	23.6	76.4	8.6	19.5	10.5	25.4	25.4	4.5	1.8
Urban Towns	4.7	95.3	3.9	30.3	12.0	21.5	27.8	3.5	0.7

Source: Hazel and Haggblade (1991, 518).

Note: Rural towns are all urban areas under 100,000 in population; urban towns are urban areas with more than 100,000 population.

**Table IV.3—Income Shares from Agricultural and Nonfarm Activities, Rural Areas (percent)**

	Agriculture	Nonfarm
<b>India<sup>a</sup></b>		
1967/68	74.5	25.5
1975/76	69.5	30.5
1981/82	65.2-69.8	34.8-30.2
<b>Republic of Korea<sup>b</sup></b>		
1971	81.9	18.1
1981	67.2	32.8
1991	53.7	46.3
<b>Thailand<sup>c</sup></b>		
1978/79	43.3	34.7

<sup>a</sup> Taken from Hazell and Haggblade (1991, 516).

<sup>b</sup> Census data for Korea; farm households only.

<sup>c</sup> Taken from Ho (1986b, p.7)

Nonfarm income shares are typically 5 to 10 percent larger than nonfarm employment shares in rural areas, a direct measure of the importance of seasonal and part-time nonfarm activity. In the latest years for which data are available, nonfarm income shares account for one third to one half of total rural household income. These shares have also increased over time; up from 18.1 to 46.3 percent between 1971 and 1991 in the Republic of Korea, and from one quarter to one third between 1967/68 and 1981/82 in India.

Table IV.4 shows the sector composition of nonfarm employment for male and female workers in the rural labor force. Again, these data only capture workers defined on the basis of major occupation, excluding part-time and seasonal work.

## Importance to Women

Manufacturing, service and trade activities account for the largest shares of employment for both male and female workers in rural areas (it can be assumed that much of the activity classified as “other” in Bangladesh and Sri Lanka also really falls into these categories). Women are relatively more concentrated in these

Table IV.4—Distribution of rural workers across nonfarm sectors, Male and Female (percent)

Country	Total Nonfarm	Mft	Transport	Trade	Services	Finance	Construction	Other
<b>Bangladesh (1991)</b>								
Male	100	6.5	4.6	.....	39.4	.....	3.7	45.8
Female	100	8.4	0.4	.....	12.2	.....	0.8	78.2
<b>Sri Lanka (1981)</b>								
Male	100	18.8	9.8	18.1	20.6	1.6	7.7	23.4
Female	100	24.9	1.6	8.9	46.1	1.4	1.2	15.9
<b>India (1993/94)</b>								
Male	100	26.8	8.4	21.1	.....	27.2	12.6	3.8
Female	100	48.7	0.6	14.2	.....	25.9	7.1	3.2
<b>Philippines (1980)</b>								
Male	100	16.5	19.0	9.6	22.9	3.1	18.6	10.4
Female	100	27.9	0.6	19.0	46.8	2.8	0.4	2.5
<b>Indonesia (1995)</b>								
Male	100	19.9	12.5	23.7	26.0	0.7	2.8	
Female	100	30.9	0.3	46.2	21.0	0.2	1.0	
<b>Thailand (1996)</b>								
Male	100	25.3	8.0	17.8	.....	17.3	29.9	1.7
Female	100	37.5	1.0	28.2	.....	23.1	9.7	0.5

activities than men in most countries. Trade seems to be more important for women in Southeast Asian countries than in South Asian ones, but transport and construction activities are much less important for women than men in all countries.

Table IV.5 shows the relative importance of women in total employment by sector in rural and urban areas. There is a dramatic difference between the South and Southeast Asian countries; women account for much smaller shares of total employment in every sector in the South Asian countries reported, in both rural and urban areas. Even in the manufacturing and service sectors that are most important to them (Table IV.4), their shares are one third or less of total employment. In contrast, women account for one third to one half of sector employment in manufacturing, trade, and services in the Southeast Asian countries and their importance in the financial-services sector is also great. Table IV.5 also confirms that women are very minor participants in the transport and construction sectors in all the countries reported.

There are surprisingly few differences between the data for rural and urban areas. Cultural and other biases that lead to sector differences in the way men and women are employed seem consistent in both rural and urban areas.

## **Importance to the Poor**

The rural nonfarm economy is especially important to the rural poor. Landless and near-landless households everywhere depend on nonfarm earnings; those with less than 0.5 hectare earn as much as 80 percent of their income from nonfarm sources (Table IV.6).

Nonfarm shares are strongly and negatively related to farm size. Low-investment manufacturing and services—including weaving, pottery, gathering, food preparation and processing, domestic and personal services, and unskilled nonfarm wage labor—typically account for a greater share of income for the rural poor than for wealthier rural residents (Hazell and Haggblade 1993). The reverse is true of transport,

Table IV.5—Women's Share in Total Nonfarm Employment by Sector, Rural and Urban (percent)

Country	Total Nonfarm	Mft	Transport	Trade	Services	Finance	Construction	Other
<b>Bangladesh (1991)</b>								
Rural	14.7	18.2	1.5	.....	5.1	.....	3.9	22.8
Urban	12.1	15.9	1.4	.....	5.7	.....	3.3	15.7
<b>Sri Lanka (1981)</b>								
Rural	17.9	22.3	3.4	9.6	32.8	16.1	3.3	12.9
Urban	18.5	24.3	5.5	7.6	33.7	22.9	5.8	11.4
<b>India (1993/94)</b>								
Rural	19.4	30.3	1.8	14.0	.....	18.6	11.9	16.9
Urban								
<b>Philippines (1980)</b>								
Rural	38.6	51.5	2.0	55.4	56.3	36.5	1.2	13.1
Urban	38.2	34.6	5.3	39.1	56.0	38.9	1.9	15.9
<b>Indonesia (1995)</b>								
Rural	35.6	46.2	1.1	51.9	30.8	16.9	1.3	15.0
Urban	33.5	35.7	3.0	44.8	37.0	29.0	3.7	11.9
<b>Thailand (1996)</b>								
Rural	41.3	51.0	8.1	52.7	.....	48.5	18.5	17.7
Urban	45.4	46.1	14.3	48.4	.....	56.7	24.5	40.0

commerce, and such manufacturing activities as milling and metal fabrication, which require sizable investments.

Nonfarm income is also important to the poor as a means to help stabilize household income in drought years (Reardon et al. 1998). In a study of several villages in the semi-arid tropics of India, for example, Walker and Ryan (1990) found that nonagricultural self-employment and labor-market earnings became increasingly important sources of income during the 1980s, increasing mean income and dampening household income variability.

**Table IV.6—Share of nonfarm income/employment in total household income/employment by farm size groups, selected countries**

Farm size (ha)	Nonfarm share (%)		
	Employment		Income
<b>India</b>	<u>1987/88</u>		
Landless	46.1		
0.01-0.4	29.3		
0.41-1.0	19.0		
1.01-2.0	14.0		
2.01-4.0	11.8		
4.01+	9.0		
<b>North Arcot, India</b>		<u>1973/76</u>	<u>1982/83</u>
0-0.1		15	35
0.1-1.0		22	23
1.0+		7	20
<b>Republic of Korea</b>		<u>1970</u>	<u>1996</u>
0-0.5		49	80
0.5-1.0		26	64
1.0-1.5		7	49
1.5-2.0		16	42
2.0+		5	37
<b>Taipei, China</b>			<u>1979</u>
0-0.5			67
0.5-1.0			58
1.0-1.5			48
1.5-2.0			40
2.0+			33
<b>Thailand (4 regions)</b>			<u>1980/81</u>
0-4.1			88
4.2-10.2			72
10.3-41.0			56
41.0+			45

Source: India, Chadha (1993); North Arcot, Hazell, Ramasamy, and Rajagopalan (1991); Korea, Choi (1997); Taipei, China, Ho (1986a); Thailand, Liedholm (1988).

## STRUCTURAL TRANSFORMATION OF THE RURAL NONFARM ECONOMY

### Overview

The present structure of the rural nonfarm economy in Asia results from an economic transformation that has been going on for many generations and at varying speeds in different countries. The process begins with a countryside dominated largely by self-sufficient and primarily agricultural households producing for themselves most of whatever farm and nonfarm goods and services they need. There is little trade or commerce and the prevailing agricultural technologies require few if any external inputs. Gradually, as population densities and market access increase, new technologies and modern farm inputs become available, leading to increased agricultural surpluses in some commodities and increased opportunities for trade. Increasing agricultural productivity also raises incomes, which in turn increases the types and amounts of consumer goods and services that rural households wish to purchase. Households begin to specialize, taking greater advantage of their particular skills, resource endowments, and market opportunities. Some nonfarm activities that were initially undertaken by farm households for their own consumption expand and are spun off as separate full- or part-time businesses. There is greater trade among rural households and with small market centers and rural towns. The latter begin to grow more rapidly.

With increasing specialization, not only do more nonfarm businesses emerge, but there is growing spatial concentration in small towns and market centers, because they offer bigger markets, easier and cheaper access to inputs, and better infrastructure. On the other hand, some service activities prosper in rural areas, particularly in the larger villages and rural market centers where they can better capture local demand (e.g., retail establishments, tea and coffee shops, and agricultural machinery service and repair shops). Rural towns grow in importance and as the rural economy continues to grow, trade with larger urban

centers also expands and more urban goods become available. These often displace many traditional rural products, forcing structural changes in the composition of the rural economy and its towns. This process receives further impetus from rising wages, which drive workers out of many traditional but low-productivity nonfarm activities (e.g., factory-made shoes replace the products of the village cobbler; urban rice mills replace the local miller). As towns grow, they attract more workers from the rural hinterland, and the agricultural work force (though not necessarily the rural population) begins to decline. Towns grow as major sources in their own right of demand for nonfarm goods and services, for both production and consumption purposes, and their nonfarm activities expand to serve these needs as well as to export to other urban and rural areas. Agriculture becomes increasingly less important as the economic motor for the regional economy, eventually becoming a relatively minor economic activity in many rural regions as well as in the national economy. The transformation process is not identical in all countries, and is shaped in part by such factors as a country's comparative advantage in the production of tradable products (especially agriculture), population density, infrastructure, location, and government policies.

### **Changes in the Composition of the Rural Nonfarm Economy**

Agriculture's share of income and employment in rural areas declines steadily as the transformation proceeds. In India, for example, agriculture's share of total employment in rural areas declined from 85.5 percent in 1972/73 to 78.4 percent in 1993/94. In Indonesia, its share declined from 67.8 percent in 1990 to 63.0 percent in 1995. In the Republic of Korea, it declined from 87.0 percent of total farm household employment in 1965 to 82.7 percent in 1991, and from 12.7 percent to 2.0 percent of total nonfarm household employment. The Philippines provides a contrasting story; between 1970 and 1980 agricultural employment increased from 70.6 to 74.0 percent of total rural

employment. But this was just prior to the economic crisis of the early 1980s, a period best viewed as the reverse of the normal transformation process.

The declining share in agricultural employment need not imply a decline in absolute employment in agricultural activities. In countries with abundant and rapidly growing rural labor forces, agricultural employment may continue to grow, albeit at a slower rate, than nonfarm employment. Many of the South Asian countries fall into this category, as illustrated by the case of India in Table IV.7. India's agricultural employment grew at an average yearly rate of 1.3 percent between 1977/78 and 1993/94 in rural and urban areas; yet because nonfarm employment grew faster (by about 3.5 percent per year), agriculture's share of total employment declined. In contrast, in labor-scarce economies, workers are pulled out of agriculture at a rate that exceeds the growth in the rural labor force and the absolute number of agricultural workers declines. This has been characteristic of some East and Southeast Asian countries in recent years, as illustrated by Indonesia and the Republic of Korea in Table IV.7. In both cases, agricultural employment has declined (negative growth rates) over the periods analyzed, and at a relatively high rate in the case of the Republic of Korea.

Agriculture also declines in importance in rural household income as the transformation proceeds. In India, for example, agriculture's share of rural income declined from 74.5 percent in 1967/68 to between 65 and 70 percent in 1993/94, depending on how remittances are calculated (Table IV.3 and Hazell and Haggblade 1991). Agriculture also declined as a share of income among the Republic of Korea's farm households; from 81.9 percent in 1971 to 53.7 percent in 1991 (Table IV.3).

Table IV.7 shows the average annual rates of growth in employment for different nonfarm sectors in rural and urban areas for India (1977/78 to 1993/94), the Philippines (1970 to 1980), Indonesia (1990 to 1995) and the Republic of Korea (1972 to 1991). Unfortunately, the available data for Korea are only partial. Annual average rates of growth in total nonfarm employment (rural plus urban) ranged from 3.0 percent in the Philippines to 6.2 percent in Indonesia. Employment grew more

Table IV.7—Average Annual Growth Rates in Nonfarm Employment by Sector, Rural and Urban Areas, Selected Countries (percent)

Country	Agr.	Total nonfarm	Mft.	Transport	Trade	Services	Finance	Construction	Other
<b>India</b> (1977/78 to 1993/94)									
Rural	1.31	3.45	2.47	5.20	3.46	.....	3.29 .....	5.95	
Urban									
Total	1.34	3.51	2.40	4.08	3.51	.....	3.74 .....	6.32	
<b>Philippines</b> (1970 to 1980)									
Rural	2.1	0.38	-3.25	2.76	0.06		1.82 18.36	1.53	-0.54
Urban	7.3	4.57	3.53	5.90	4.77		3.25 17.06	5.70	3.61
Total	2.7	3.02	0.65	4.75	3.12		2.80 17.26	3.81	1.25
<b>Indonesia</b> (1990 to 1995)									
Rural	-0.4	3.92	3.28	6.28	3.88		3.94 -3.97	5.71	-1.15
Urban	5.6	6.95	7.82	6.14	8.03		6.26 1.19	6.54	3.63
Total	0.0	5.45	5.36	6.21	5.92		5.28 0.28	6.08	0.84
<b>Republic of Korea</b> (1972 to 1991)									
Farm households	-2.6	0.8	1.2	na	na		na na	2.2	na
Nonfarm households	-2.5	6.6	7.5	na	na		na na	8.4	na
Total	-2.6	6.2	7.0	na	na		na na	7.8	na

slowly in rural than urban areas in all four countries, however, particularly in the Philippines (0.38 percent for rural areas compared to 4.57 percent for urban areas) and the Republic of Korea (0.8 percent amongst rural households compared to 6.6 percent for nonfarm households) (Korea Statistical Yearbook 1996). In fact, rural employment in the Philippines grew hardly at all in any nonfarm sector except financial services (which are a small source of employment to begin with) during the 1970s, with nearly all the growth in employment occurring in urban areas. This helps to confirm Ranis, Stewart, and Angeles-Reyes (1990), who have articulated the extreme urban bias that characterizes the Philippines' economic development. In India and Indonesia, rural employment grew at 2.5 percent per year or better in nearly every nonfarm sector, with particularly strong growth in the transport and construction sectors.

Nonfarm employment growth has been more beneficial to men than women workers (Table IV.8). In the Philippines, women's employment grew fastest in the transport, financial services and construction sectors, but these are very minor sources of employment to begin with (Table IV.4). On the other hand, women lost employment in key sectors like manufacturing and trade (which together accounted for 46 percent of their total employment in 1980), with the net result that their total employment declined by 1.63 percent per year between 1970 and 1980. Rural women have fared better in India and Indonesia in recent years, gaining significant employment in the manufacturing, trade and service sectors, but not as much as men.

### **Changes in the Spatial Structure of Rural Economies**

As the transformation proceeds, there is greater urbanization of rural regions through the rapid growth of centrally placed villages and small towns. Many areas that were previously classified as rural in national census data achieve sufficient population size so that they are reclassified as urban. This partly explains the very high rates of urbanization reported

for many Asian countries in recent years; only part of it represents movement of rural people to large cities. The growing prosperity attracts many workers to move out of agriculture and to resettle in local towns.

This need not lead to any decline in the number of farm households, at least not until quite late in the transformation process. As Table IV.9 shows, the number of farm households has continued to increase in most Asian countries, despite the ongoing rural transformation, with a reduction in average farm size and an increase in the share of small farms. The Republic of Korea is one of the few exceptions, where farms have become fewer and larger in recent decades. This pattern of change is to be expected in South Asia, where agriculture is often still challenged to absorb surplus rural workers. But it is surprising in East Asia, where workers have been "pulled out" of farming by growing labor shortages and higher wages in the nonfarm economy. It parallels earlier developments in Japan, where farm households diversified their income sources (with workers often taking part- or full-time jobs in local factories) while continuing as small but nonpoor smallholder farmers. Dispersed towns and dense patterns of rural infrastructure make this kind of development possible in rural Asia, at least as long as government policies favor spatially dispersed patterns of rural industry (more on this in a later section).

Much of the shift in farm workers involves younger people who leave home and form new households in the towns. This raises the prospect of an aging farm population, with perhaps a more significant exodus out of farming in the future as older generations retire. In the Republic of Korea, for example, about half (52 percent in 1994) of the adult farm population (more than 15 years old) is at least 50 years old and 30 percent are over 60 (Korea Statistical Yearbook, 1996).

Table IV.8—Average Annual Growth Rates in Rural Nonfarm Employment by Sector, Male and Female Workers (percent)

Country	Total nonfarm	Mft.	Transport	Trade	Services	Finance	Construction	Other
<b>Philippines (1970 – 1980)</b>								
Males	1.91	-0.31	2.66	2.61	1.63	15.78	1.47	3.31
Females	-1.63	-5.33	10.69	-1.56	1.97	25.20	9.51	-11.16
<b>India (1977/78 - 1993/94)</b>								
Males	3.73	2.37	5.30	3.94	.....	3.65 .....	6.21	na
Females	2.39	2.73	1.41	1.13	.....	1.91 .....	4.32	na
<b>Indonesia (1990 - 1995)</b>								
Males	4.40	4.25	6.16	3.71	4.43	-4.28	5.85	-0.43
Females	3.10	2.22	22.54	4.04	2.90	-2.31	-2.40	-4.30

Table IV.9—Changes in Farm Population, Cultivated Area, and Size Structure (ha)

Country (year)	Number Farms (thousands)	Average Size (ha)	Total Cultivated Area (10 <sup>3</sup> ha)	Cultivated Land Size (ha)						
				0-1	1-2	2-3	3-5	5-10	10+	
<b>Indonesia</b>										
1963	13,236	1.1	13,460	70.1	18.2	5.7	3.5	1.8	0.7	
1993	19,714			70.8	16.8	7.4	3.7	1.2	0.2	
<b>Korea, Rep. of</b>										
1968	2,578	0.90	2,319	65.1	26.0	5.2	1.5			
1981	2,029	1.08	2,188	66.4	26.8	4.1	1.2			
1991	1,702	1.23	2,091	58.4	30.0	7.1	2.4			
1995	1,499			57.6	27.8	8.2	4.7			
<b>Philippines</b>										
1971	2,355	3.61	8,494	13.6	47.5	23.7	10.4		4.9	
1980	3,441	2.83	9,725	22.8	46.1	17.1	10.5		3.4	
1991	4,770	2.09	9,775	38.0	42.0	11.0	6.8		2.3	
<b>India</b>										
1953/54	48,890			49.6	17.5	28.1	4.7			
1961/62	63,950			54.8	17.1	24.7	3.2			
1971/72	70,810			58.6	17.1	21.9	2.3			
1982/83	83,200			62.4	16.6	19.5	1.6			
1992	103,300			68.0	15.1	15.6	1.0			
<b>Thailand</b>										
1963	3,214	3.47	11,149	18.5	29.4	27.5	19.2		5.4	
1978	4,018	3.72	14,955	15.9	27.4	29.0	21.4		6.3	
1993	5,648	3.36	19,002	19.7	30.1	28.1	17.2		4.8	
				0-0.94	0.95-2.38	2.38-4.78	4.79-9.58		9.59+	

Source: National agricultural census data. The data for India were compiled by Dr. S.K.Thorat

## Changes in Local Labor and Capital Markets

### *Labor*

Increases in nonfarm employment are not necessarily accompanied by increases in wages. The two will increase together when the rural nonfarm economy is growing as a result of increased demand and increasing labor productivity. This is often characterized as a “pull” situation, where the nonfarm economy is attracting, or pulling, workers out of farming to better-paying jobs. In this situation, average labor productivity increases over time and wages increase. Since the pull is from the nonfarm sector, one should expect nonfarm wages to be higher than agricultural wages.

An opposite situation can arise if there is a growing surplus of rural workers and the agricultural sector is unable to absorb them all at a subsistence wage. In this situation, workers are “pushed out” of agriculture into nonfarm activities that can contribute to their subsistence. The rural nonfarm economy then acts as a residual sector of employment and there is an expansion of low-productivity work with declining wages. Since the push is from agriculture, agricultural and nonfarm wages are likely to be similar.

Available wage data for several Asian countries show that farm wages have lagged behind nonfarm wages in rural areas in recent years, for both male and female workers. This is consistent with a “pull” scenario in which a growing nonfarm sector is attracting workers out of farming. Even in a labor-surplus country like India, wage rates in nonfarm activities are considerably higher than in agriculture (40 percent higher for men and 22 percent higher for women), indicating that much of the growth in nonfarm employment is not a distress phenomenon but rather the result of the pull of more productive and higher-paying jobs (Bhalla 1997). This is confirmed by the observation that there is also less poverty among nonagricultural workers (Bhalla 1991).

These findings are all the more impressive when one considers that the employment elasticity in agriculture seems

to have declined in recent years. In India, for example, the elasticity has fallen from about 0.75 in the 1970s (Tyagi 1981) to perhaps as low as 0.3 today (Bhalla and Singh 1998). For a pull situation to arise at a time when the rural labor force is still growing quite rapidly suggests that not only is the growth of the rural nonfarm economy strong, but the growth is also labor-intensive. This is consistent with the high employment shares noted earlier for service and commerce activities, which are not only labor-intensive on average but also have high employment elasticities (often close to 1.0).

In a pull situation, rural labor markets play a key role in shifting the composition of rural nonfarm activity. Increases in real wages raise the opportunity cost of labor, thereby making low-return nonfarm activities uneconomic. This leads to the demise of many traditional and low-paying craft and service activities and to the growth of new types of employment in trade, commerce and manufacturing. Hossain (1988) provides evidence from the green-revolution experience in Bangladesh. In villages with a majority of rice cropped in high-yield varieties, he identifies higher agricultural incomes, higher agricultural wages, and higher nonfarm income per capita compared to villages still dependent on traditional varieties. The higher nonfarm income in prosperous villages reflects a greater concentration of high-return nonfarm activity (transport and services) and less low-wage cottage industry, construction and earth hauling.

### *Capital*

Agricultural growth has led to rapidly rising savings rates among farm households, reaching 25–35 percent of total household income in many Asian countries (Meyer and Nagarajan 1999). With rising incomes and savings rates, farm households can generate huge amounts of surplus capital. Part of this capital flows into the rural nonfarm economy, especially into businesses started by farm households or their relatives. But part also flows through kin networks, traders, money-lenders and financial institutions to urban areas.

Evidence from regional Social Accounting Matrices (SAMs) for the Muda river region in Malaysia (Bell, Hazell, and Slade 1982) and the North Arcot district in Tamil Nadu, India (Hazell, Ramasamy, and Rajagopalan, 1991) suggests that annual net capital outflows from rural regions that have benefited from significant growth in agricultural productivity can be huge. In the Muda region, the capital outflow in 1972 was equal to 8 percent of regional value added and 56 percent of total household savings. In North Arcot, the capital outflow in 1982/83 was equal to 4 percent of total regional value added and to 18 percent of total household savings; and this was during a severe drought year when total regional value added was down about 30 percent from normal (Hazell, Ramasamy, and Rajagopalan 1991).

Why do such large capital outflows occur from rural regions, and why is more of it not plowed back into the development of the local economy? An important reason is the opportunity for earning higher returns elsewhere, particularly in urban real estate and financial markets. But imperfectly developed local financial markets may also be partly to blame. Rural financial institutions have focused more on lending to agriculture and rural industries in the past and failed to recognize that rural households needed access to deposit or savings accounts that give reasonable returns. They have also failed to provide needed financial services to many small-scale and part-time nonfarm businesses, especially in the service sector, as witnessed by the recent explosion in microfinance provided by NGOs in rural areas. As financial services improve in rural areas, it is possible that larger shares of rural savings will be captured in rural areas (including local towns), and that this will further facilitate the growth of the rural nonfarm economy.

The financial needs of agriculture are changing with the transformation. Farms are getting smaller on average (see Table IV.9), but more cash-oriented and more productive per hectare. The vast majority of farm households are also reducing their dependence on agriculture by diversifying into nonfarm sources of income. This helps raise total household income, leading to higher savings, and gives them greater access to cash income

that is likely to be less seasonal in nature than agricultural receipts. Taken together, these changes improve seasonal and annual cash flow for most farmers, thereby reducing their need for conventional forms of agricultural credit.

The financial needs of such farmers are becoming more complex and diverse: they include access to deposit and savings accounts and sometimes investment loans for nonfarm business activity (often undertaken by women rather than men) as well as for agriculture. More flexible and customer-oriented financial services are required to meet these needs. At the same time, a minority of large farms, which still account for significant shares of the total cultivated area (for example, in Thailand and Pakistan, the largest 7 percent of the farms control 32 and 40 percent of the total cultivated land, respectively) remain highly specialized in farming and are likely to need access to more conventional forms of agricultural credit.

Nonfarm businesses in rural towns also have growing financial needs and especially require improved access to working capital for purchasing inputs (Haggblade and Mead 1998). Many nonfarm businesses are initially capitalized by their owners using family (own plus relatives') capital and then grow by plowing profits back into them. Better access to long-term investment capital might facilitate growth and perhaps the entrance of additional firms.

### **Impact on the Poor**

Nonfarm income shares have increased among the landless and among the smallest farm sizes in many Asian countries (Table IV.6) and this has undoubtedly been beneficial to many of the rural poor. Poor people have also benefited from increased employment opportunities in local towns, and many have migrated to urban areas. As shown in Chapter II, rural poverty declines quite quickly during the economic transformation of rural areas and the nonfarm economy plays an important part in that process.

The expectation that the poor would gain from agriculture-led regional development is confirmed by detailed analysis of changes in household incomes in the Muda river irrigation region in Malaysia and in North Arcot district, Tamil Nadu, India. Results of detailed semi-input-output models of these two regions track the changes in per capita income, by household type, induced by large increases in agricultural output (Table IV.10). In the Muda region the change in output was induced by a large irrigation project (Bell, Hazell, and Slade 1982). In North Arcot the change stemmed from a decade of agricultural growth during the era of the green revolution (Hazell, Ramasamy, and Rajagopalan 1991).

In both regions landless agricultural workers are the poorest household group, but these workers gained proportionally more income than any other group as a result of the growth in agriculture. The largest share of their income gain came from an increase in agricultural wage earnings, but 10 to 15 percent of their total gain was derived from nonagricultural sources. Small farmers also had significant increases in nonagricultural income; it accounted for 29 percent of the increase in total farm income in North Arcot. Large farms gained relatively little from nonagricultural sources in both regions. The real gains from the growth in the nonfarm sector accrued to the specialized, nonagricultural households, especially those residing in the local towns.

These results demonstrate that the rural poor do gain in absolute terms from agriculturally induced growth in the rural nonfarm economy. But it is also clear that, because the nonpoor gain even more, the distribution of income could nevertheless worsen.

## DETERMINANTS OF THE TRANSFORMATION

Why does rural nonfarm activity vary so much over time and across countries? Resource endowments, location, towns, ethnicity, historical happenstance, and government policies all

Table IV.10—Project-induced Changes in Per Capita Income in Two Regions, by Household Type

Household group	Preproject Income Per Capita <sup>a</sup>		Ratio of post- to pre-project income	Percentage of Income Increase	
	Agriculture	Nonfarm		Agricultural Sources	Nonfarm Sources
<b>Muda irrigation region, Malaysia, 1972</b> ( <i>Malaysian dollars</i> )					
Landless paddy workers	65	68	1.71	89.4	10.6
Small paddy farms	138	71	1.59	88.7	11.2
Large paddy farms	250	92	1.64	91.3	8.7
Nonproject farms	116	269	1.06	50.0	50.0
Nonfarm households	17	896	1.14	17.5	82.5
<b>North Arcot, India, 1982</b> ( <i>Rupees</i> )					
<i>Rural Villages<sup>b</sup></i>					
Landless laborers	295	118	1.33	85.5	14.5
Nonfarm households	49	592	1.20	15.0	85.0
Small farms	457	309	1.32	70.9	29.1
Large farms	1,246	347	1.32	89.1	10.9
<i>Urban villages<sup>b</sup></i>					
Agriculturally dependent	648	384	1.28	82.2	17.8
Employed nonfarm	40	1,282	1.15	8.0	92.0
Self-employed nonfarm	55	2,684	1.18	4.5	95.5
<i>Towns<sup>c</sup></i>					
Agriculturally dependent	616	556	1.30	64.3	35.7
Employed nonfarm	22	1,366	1.18	3.6	96.4
Self-employed nonfarm	4	4,191	1.27	0.1	99.9

<sup>a</sup> For the Muda regions, the "project" is the irrigation scheme; for North Arcot, it is a decade of growth induced by the green revolution.  
<sup>b</sup> The classification of rural villages, urban villages, and towns is based on census definitions. Rural villages have populations of fewer than 5,000 people.  
*Source:* Hazell and Haggblade (1993), based on Muda: Bell, Hazell, and Slade 1982; and North Arcot: Hazell, Ramasamy, and Rajagopalan 1991.

play a role. But agriculture, because of its size and initial dominance, also plays a key role in developing a growing market for the output of the rural nonfarm sector.

## Agricultural Growth

Agriculture can influence nonfarm activity in at least three ways: through production, consumption, and labor market linkages. On the production side, a growing agriculture requires inputs (for example, fertilizer, seeds, pesticides, pumps, sprayers, machinery repair services), either produced or distributed by nonfarm firms. Moreover, increased agricultural output stimulates forward production linkages by providing raw materials that require milling, processing and distribution by nonfarm firms. Consumption linkages arise when growing farm incomes boost demand for a range of consumer goods and services. Demand increases as rising per capita incomes induce diversification of consumption into nonfood goods and services, many of which are provided by local firms. Consumption diversification into nonfoods proceeds rapidly as per capita incomes rise, with expenditure elasticities for home improvements, durables, services, transport, and education often well in excess of 1.0 (see, for example, Hazell and Roell 1983; Evans 1990).

The strength of the consumption linkages depends not only on the level of per capita farm income, but also on how that income is distributed. Studies by King and Byerlee (1978), Hazell and Roell (1983) and Deb and Hossain (1984) suggest that larger-sized farms and higher-income groups generate the greatest consumption linkages with the rural nonfarm economy, because they allocate larger shares of incremental income to locally produced nonfood goods and services. But since the largest farm sizes in these studies vary between 5 and 15 hectares, it cannot be concluded that really large, wealthy farms and estates should receive priority treatment. On the contrary, there are good reasons to expect that large farm households have much weaker consumption linkages to the local economy

and that they spend much larger shares of incremental income in cities and abroad.

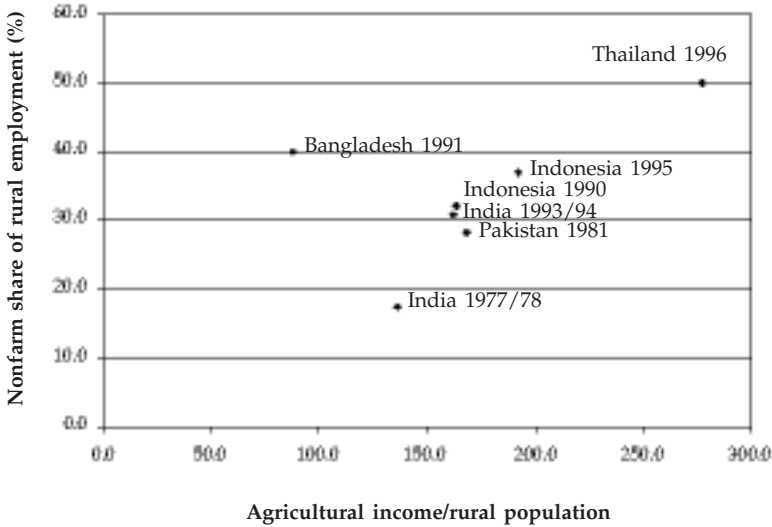
Demand for production inputs varies across agricultural zones and with technological change. Irrigated agriculture demands considerably more inputs than rain-fed agriculture, while mechanized and animal traction systems require more tools, equipment and repair services than do hand-hoe cropping systems. Technological change that increases the demand for modern inputs (for example, improved seeds, fertilizer and pesticides) also enhances the strength of agriculture's linkages to the nonfarm sector.

Agriculture also influences the supply side of the rural nonfarm economy, primarily through the labor market. Wages in agriculture set the opportunity cost of labor directed to nonfarm activities, while seasonality of labor demand in agriculture affects the supply of labor available for nonfarm activities. The type and volume of agriculture's output also influences the kind of agricultural marketing, processing, and transport systems that can prosper.

Cross-country plots of the relationship between agricultural income (measured as agricultural income per capita of the rural population) and the nonfarm share of total rural employment show a positive relationship between the two (Hazell and Haggblade 1993). The relationship is particularly strong when rural areas are defined to include rural towns as well as rural areas. Figures IV.1 and IV.2 plot more recently available data for selected Asian countries and for individual states in India. In both cases, a positive relationship is evident, even though the data do not include rural towns. The time series observations for India and Indonesia in Figure IV.1 are particularly interesting, showing sharp rises in nonfarm employment shares over time as per capita agricultural incomes have increased.

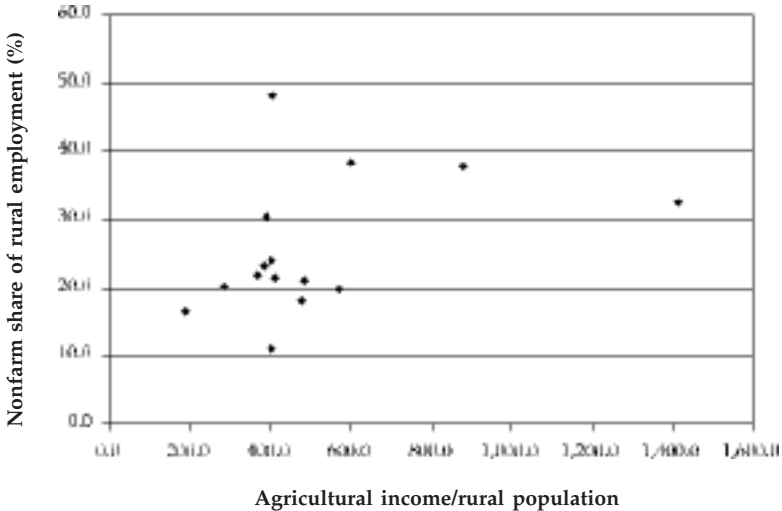
To infer causality, more formal analysis of the relationship between agricultural growth and the nonfarm economy is required. Most studies of Asia using semi-input-output models (which are more defensible than input-output models for this purpose; see the review in Haggblade, Hammer, and Hazell

Figure 4.1: Rural nonfarm employment as a function of agricultural income - by country



1991), estimate regional income multipliers at between 1.5 and 2.0. That is, each dollar increase in agricultural value added leads to an additional \$0.5 to \$1.0 of value added in the rural nonfarm economy (which is defined to include local towns). See, for example, studies by Bell, Hazell and Slade (1982) of the Muda river region in Malaysia; by Hazell, Ramasamy, and Rajagopalan (1991) of North Arcot district, Tamil Nadu, India; and more generally, Hazell and Haggblade (1991). These studies also attributed the largest shares of the multiplier to household consumption linkages (between two thirds and 80 percent), showing that the production, or inter-industry linkages, are relatively less important. This confirms expectations by Mellor and Lele (1972) and Mellor (1976), as well as the careful descriptive analysis undertaken by Gibb (1974) in Nueva Ecija province, the Philippines. Gibb documented the changes in the number and composition of firms in the region's towns over a decade of rapid agricultural growth and found the most rapid expansion to be among firms that served consumer-related

Figure 4.2: Rural nonfarm employment as a function of agricultural income - by country  
 Indian states, 1993/94



needs. Gibb also documented the rapid gains in employment among nonfarm firms and found that each 1 percent of growth in agricultural output led to a 1-percent increase in nonfarm employment.

Agriculture’s growth linkages to the nonfarm economy have been most studied in India. The mere fact that the nonfarm share of total national employment did not change for over a century until the full force of the green revolution was underway in the 1970s provides strong circumstantial evidence of the importance of agricultural growth as a motor for the nonfarm economy. Although some initial studies of the relationship were negative (for example, Vyas and Mathai 1978), subsequent time series evidence from fast-growing states like Punjab and Haryana was more convincing (Chadha 1986; Bhalla et al. 1990; Bhalla 1981). Moreover, based on an analysis of an India-wide sample of districts, Hazell and Haggblade (1991) estimated that each 100-rupee increase in agricultural income generated between 37 and 54 rupees in additional rural nonfarm income,

the difference depending on whether or not the feedback effects of rural nonfarm growth on agricultural income are included in the analysis.

They also found that the income multipliers from agricultural growth were stronger in areas with better infrastructure, higher population density, and higher per capita agricultural incomes. The multipliers were particularly large in Punjab and Haryana, which score highly on these characteristics, and small in Bihar and Madhya Pradesh, which score poorly. Hazell, Ramasamy, and Rajagopalan (1991) used a semi-input-output model to estimate the income multiplier arising from the spread of high-yield rice varieties in North Arcot district in Tamil Nadu during the early 1980s, and found that each dollar of additional agricultural income led to an additional \$0.80 of income in the region's nonfarm economy as a result of growth linkages. In an econometric study of the national economy, Rangarajan (1982) found that a 1-percent addition to the agricultural growth rate stimulated a 0.5 percent addition to the growth rate of industrial output, and a 0.7 percent addition to the growth rate of national income.

## Population Density

Higher population density can impact on the rural nonfarm economy in a number of ways. By increasing the need for agricultural intensification, it leads to greater private investment in new technologies and land improvements and hence to increased production and investment demands for nonagricultural goods and services (Boserup 1965). Higher population densities also make possible more rapid attainment of minimum efficient scales of nonfarm production and service delivery. More densely populated areas are also more likely to be able to afford and maintain a denser network of roads and other rural infrastructure and to populate the rapidly growing towns, both of which activities foster development of nonfarm activity. Finally, higher population densities help keep wages low, at least in the early stages of the transformation when

population growth is more likely to outstrip growth in agricultural employment; this is important for the nonfarm economy because of the labor intensity of much of its activity (Mellor 1976; Gibb 1974; Johnston and Kilby 1975).

Cross-country plots show a positive relationship between rural population density and the share of the rural labor force engaged in nonfarm activity (Haggblade, Hazell, and Brown 1989). Population density also emerged as a significant explanatory variable in the cross-state regression analysis undertaken by Hazell and Haggblade (1991) to explain differences in rural nonfarm employment in India.

### **Rural Towns**

The development of rural towns has positive effects on rural nonfarm economic growth, because they offer large enough markets to capture economies of scale and scope for many types of nonfarm firms and because their higher levels of infrastructure development help reduce costs and facilitate communications and market reach. As the economic transformation proceeds, towns also become important centers of demand for their own production and consumption needs; this in turn creates new market opportunities for agriculture and rural nonfarm activity. Recent examples in Asia have been the explosion in urban demand for higher-value agricultural products (especially milk, meat, vegetables, flowers, and fruits), and the subcontracting of many lower-level manufacturing processes to rural nonfarm enterprises, both of which have boosted income and employment opportunities in surrounding rural areas (Otsuka 1998). These reverse linkages to the rural hinterland take on particular importance as rural towns become better integrated into the urban economy and develop manufacturing and service activities that serve urban and export demands in addition to rural needs. Such towns can become important growth poles for their surrounding regions and, as in the Japanese and Taipei, Chinese experiences, can lead to considerable income diversification even amongst farm

households (Ho 1986a). Rapid growth of the urban economy in India in recent years has stimulated corridors of development along major highways and transport routes (Bhalla, 1997).

Rural towns can also stimulate additional agricultural production by improving the range and quality of available farm inputs, financial services, and agricultural marketing and processing services. A common example in Asia has been the benefit to agriculture of the development of local manufacturing of farm machines (Johnston and Kilby 1975). Often beginning as an outgrowth of traditional blacksmithing, local entrepreneurs respond to increasing demands for simple tillage, pumping, and threshing machines and provide products that are much better adapted to local conditions than machines purchased from outside. In the Indian Punjab, the initial spread of tractors spurred many blacksmiths to diversify into service and repair activities as their traditional work declined. Some of these “firms” subsequently expanded into the manufacture of locally designed tillage instruments for tractors, and then later into threshing machines and combine harvesters.

## Rural Infrastructure

The development of rural infrastructure has powerful growth effects on the rural nonfarm economy. In the first place, it stimulates agricultural growth by lowering transport costs and increasing access to markets; this in turn leads to additional demands from the nonfarm sector. It also increases the access of rural people to nearby towns and rural market centers, enabling them to diversify and expand their consumption of nonfood goods and services.

Infrastructure development also impacts on the supply side of the rural nonfarm economy. Electrification, for example, is especially beneficial to small manufacturing and processing enterprises, shops, and service establishments, giving them a more reliable and cheaper source of power. Rural roads facilitate the movement of raw materials to rural towns and villages and of final products to their main markets—and at lower cost; they

also enable firms to increase market size by giving them improved access to larger geographic areas and to increase rural labor mobility so that more village-based workers can take advantage of nonfarm employment opportunities in nearby towns. Telecommunications are increasingly important in linking rural firms to their customers and to the larger economy, enabling them to provide better and more timely service.

Improved infrastructure also facilitates the most economical location for different types of nonfarm activity. While many manufacturing and wholesale trading activities tend to concentrate in rural towns, many small-scale manufacturing activities (e.g., cottage industry and milling) and service activities (e.g., retail shops, coffee and tea shops, and personal services) expand in villages and rural market centers as infrastructure and agricultural development proceeds (Wanmali 1983). Ahmed and Hossain (1990) document how villages with better infrastructure increased their share of nonfarm income over similar villages with poorer infrastructure.

Infrastructure development also opens up the rural economy to greater competition from outside. This may take the form of cheaper products from lower-cost sources of supply or new or improved products that may displace some locally produced items. Improved infrastructure increases the exposure of rural people to urban tastes and products and this leads to changes in consumption behavior. The availability of electricity in a village, for example, creates demand for electrical goods (like radios, televisions and refrigerators) that are imported or produced in urban areas. Better roads and transport also lead rural people to travel to town more often and, once there, to purchase goods and services that they could not easily obtain before or that cost more at home. Some traditional rural and cottage industries lose their markets, but other types of activities expand and prosper (Jayaraman and Lanjouw 1998). The resulting changes in the composition of rural nonfarm activity have already been described in an earlier section.

## Macro and Trade Policies

Apart from some manufacturing activities, the rural nonfarm sector until recently was largely ignored by policymakers. Because it depended heavily on agriculture either directly or indirectly for much of its demand, it suffered as a result of policies that discriminated against the agricultural sector. Recent macroeconomic policy reforms that have benefited the agricultural sector (e.g., currency devaluations and trade liberalization) should, therefore, have led to positive growth-multiplier benefits for the rural nonfarm economy. The policy reforms have also favored tradable goods production in general and this should have been directly beneficial to much rural industry.

The policy reforms can be a two-edged sword for the rural nonfarm economy, however. On the one hand, they create more opportunities for rural regions to produce and sell nonfarm tradables beyond their boundaries. They also reduce the price of nontradable goods relative to tradable goods, and this should help expand demand for many rural nonfarm services. On the other hand, the policy reforms also increase competition within rural areas between locally produced goods and cheaper, often higher-quality goods produced in urban areas or abroad, leading to the displacement of many traditional nonfarm activities.

The rapid growth in rural nonfarm activity in many Southeast Asian countries in recent years (e.g., Indonesia and Republic of Korea; see Table IV.6) suggests that the net impact of the policy reforms on the rural nonfarm economy has been very positive. While some changes in the composition of nonfarm activity have been necessary, the sector has been able to make these adjustments quickly.

A negative impact of the policy reforms in some countries has been a cutback in public expenditure in rural areas. Reductions in government investments in rural infrastructure can be expected to slow agricultural growth and the development of the rural nonfarm economy. In some countries, too, government expenditure in rural areas has been an important direct source of nonfarm employment, both for

government employees residing in rural towns (civil servants, military personnel, etc) and for poor people participating in government employment schemes. In India, for example, government expenditure on rural-development and drought-relief employment schemes was a major and growing source of employment for the rural poor; the cutbacks in public spending on these schemes experienced during the policy reforms of the early 1990s contributed to a surge in rural poverty (Sen 1996).

### **Rural Industrialization Policies**

Recognizing that the rural nonfarm economy can play an important role in creating employment and containing the growth of large cities, many governments have intervened with policies to promote the growth of their rural nonfarm economies. Typical interventions include

- creation of industrial estates in rural areas and smaller towns where firms receive privileged treatment in terms of infrastructure support and technical assistance;
- subsidies, tax breaks, foreign exchange licenses, etc., that give targeted firms a competitive edge in the market;
- technical-assistance and subsidized-credit programs that are targeted to certain types of nonfarm firms; and
- macro and trade policies that promote exports and protect domestic firms against cheap imports, at least during the early stages of an industry's development. Such policies have been used in a number of East Asian countries (beginning with Japan) to promote manufacturing more widely, but they also impact on rural industry as well.

Some countries, for example, the PRC and India, have also developed their own unique approaches to rural industrialization. The PRC's successful experience with "township-village enterprises" represents a rational response to the unique economic conditions created in rural areas by the absence of efficient factor

and product markets (Otsuka 1998). Since workers and capital have not been free to migrate to larger cities, many small and medium-sized industries have grown up in rural towns and villages that might otherwise have been expected to locate in larger towns and industrial regions. This approach may well have relevance to other transforming economies in Asia. India developed a policy of protecting certain reserve industries as the unique domain of small-scale firms and cottage industry, prohibiting imports or the emergence of large-scale competitors. This approach helped create a great deal of employment, but retarded technological advance and growth in factor productivity (Chadha 1993; Singh 1990).

Apart from India's attempt to protect selected small-scale industries, policies to assist the rural nonfarm economy have generally favored manufacturing rather than service activities and large- rather than small-scale units of production. In many cases, small firms have effectively been placed at a competitive disadvantage against their larger-scale rivals (e.g., they do not receive the same subsidies and tax benefits) and this has encouraged more capital-intensive patterns of development than is optimal.

Even with this limitation, the success of rural industrialization programs has varied widely across countries. Rural nonfarm activity has flourished in Japan and Taipei, China in the post-World War II period, while in the Republic of Korea it has not, despite the promotion of rural industry in all three countries. In 1980, farm households in Japan and Taipei, China earned 80 percent and 65 percent, respectively, of their income from off-farm sources, three fourths of it in high-paying wage employment in rural towns and urban areas. Yet Republic of Korea farmers earned only 33 percent of their total household income from nonfarm sources (15 percent if remittances are excluded), with less than half in wage employment (Ho 1986a; Oshima 1986; Park 1986).

In explaining this disparity, many analysts point first to differences in agricultural performance (see Ho 1979, 1982, 1986a; Kada 1986; Oshima 1986; Park 1986; Saith 1987). They identify lower initial agricultural productivity in the Republic

of Korea and a relative neglect of agriculture and its consequently lower growth, particularly since 1970. Weaker agricultural growth diminished rural consumption linkages and at later stages restricted the prospects for labor release from agriculture to high-paying, full-time, off-farm employment. In addition to more rapidly growing agricultural incomes, Japan and Taipei, China invested more heavily in rural roads, railroads, and electricity and adopted a policy environment supportive of dispersed manufacturing, commercial, and service activity. By the early 1960s, Japan and Taiwan boasted paved road and rural electrical networks with densities more than five times those in the Republic of Korea (Saith 1987), which chose instead to concentrate its industrial infrastructure in Seoul and Pusan.

Like the Republic of Korea, the Philippines has followed macro, trade and sector policies that have favored capital-intensive industry and urban areas. There has been rapid growth of urban areas, especially cities. In 1980, nearly half the total work force was employed in the nonfarm sector (48.5 percent), and 40 percent lived in urban areas (up from 32.7 percent in 1970). The Philippines now has one of most concentrated industrial sectors in the world for its level of per capita income; two percent of the firms produce 85 percent of industrial value added (Ranis, Stewart, and Angeles-Reyes 1990). There are few small and medium-sized enterprises but many cottage industries with low productivity. Urban concentration means that there are fewer opportunities for rurally based people to participate in the nonfarm economy and this has weakened the potential for farm-nonfarm linkages to create additional income and employment.

The experience with direct assistance programs for nonfarm firms has also been mixed and has led to generally disappointing results (see Haggblade and Mead [1998] for a recent review). Industrial estates for rural areas are widely viewed as expensive failures, while subsidized credit programs seem to have run into many of the same problems as agricultural credit programs (poor targeting, poor repayment, fungibility of capital, financial health of the lender, etc.). Technical assistance programs have had mixed results (Haggblade and Mead

conclude that only about one third of the technical-assistance programs reviewed had a favorable cost/benefit ratio); the strongest performers were focused on high-leverage interventions in specific commodity subsectors (e.g., rattan production for export in Indonesia). Hyman (1998) also reports on some successful examples of NGOs developing and transferring "appropriate" technologies to small-scale firms.

Microfinance (or minimalist credit) programs to assist very small firms and part-time nonfarm activity (especially among women and the poor) are currently very popular and are assisting a segment of the rural nonfarm economy that has not been widely reached before. These programs may well lead to favorable poverty-reduction effects for the direct beneficiaries, but whether they lead to any growth in total nonfarm income and employment is a moot point. Because most of the service and cottage industry activities promoted by microfinance programs are regional nontradables that are constrained by local demand, any increase in their aggregate supply that might be induced by microfinance could simply depress prices and incomes for other producers, some of whom may also be poor.

It also needs to be recognized that many farm and landless households are too poorly educated or skilled to become successful nonfarm entrepreneurs. There are powerful self-selection processes at work in the marketplace and the less able are all too often left behind. In targeting assistance programs, including microfinance, it is necessary to recognize these limitations and to provide the necessary training and skills. Ravallion and Wodon (1997) find that in Bangladesh, the poor can realize significant nonfarm income despite their inherent disadvantages. Although the gains are lower in the poorest rural areas, they find that efforts to promote the nonfarm sector there can nonetheless be justified.

A promising development in recent years has been the emergence of subcontracting arrangements between large urban-based industrial firms and small-scale nonfarm units in rural areas (Hayami 1998; Otsuka 1998). These are especially popular for some metal-fabrication and textiles activities, where key components of the production process can be partitioned

and the more labor-intensive components contracted out to small rural firms that have relatively cheap labor costs. Subcontracting requires good rural infrastructure and communications networks, effective laws and institutions to facilitate the enforcement of contracts, and a favorable growth environment for the industrial sector in general. The system played a key role in the industrialization of rural areas in Japan and has since spread to other East Asian economies.

## CONCLUSIONS

This discussion of the rural nonfarm economy suggests several entry points where policy makers can help promote its growth. First and foremost is the need for agricultural growth. Because the rural nonfarm economy produces many regional nontradables, it depends primarily on agricultural production and farm incomes for its demand. This is especially true during the early stages of the rural transformation. Policies to promote agricultural growth are critical if the nonfarm economy is to grow. Moreover, agricultural growth should be broad-based, involving small and medium-sized farms, because these kinds of farms have the strongest demand linkages to the rural nonfarm economy. Supply-oriented policies in the face of stagnant demand are counterproductive to rural nonfarm producers.

But even if agriculture grows, the linkages to the nonfarm economy are constrained without good infrastructure. Villages need to be connected to local towns so that agricultural inputs and outputs can flow freely and so that people can go shopping. Local towns also need good infrastructure, especially roads, electricity, schools, sewers, water, and communications, in order to attract new firms and to grow.

A good legal and regulatory environment (e.g., to secure property rights and enforce contracts) and effective financial institutions are also required in order to promote trade, commerce, and manufacturing. Efficient rural financial markets

that serve the full range of financial needs of farmers and nonfarm enterprises are more important than targeted credit programs. As the transformation proceeds, rural areas generate large capital surpluses; these need to be captured and managed more efficiently by the financial sector than seems to have happened in the past. Microfinance programs to help women and poor people develop nonfarm enterprises may contribute to poverty alleviation, but will probably contribute little to overall nonfarm economic growth. Microfinance also needs to be accompanied by appropriate training programs to give women and poor people the skills they need to compete in the market.

Rural people need adequate training if they are to have relevant technical, entrepreneurial, and management skills. The rural nonfarm economy provides much of its own training through apprenticeship schemes and on-the-job learning, but in an increasingly technical and communications-oriented world, specialized training schemes (e.g. computing, accounting) are needed, including programs for women, who dominate many service and trading activities.

Industrialization policies should foster the development of all kinds of rural nonfarm firms and not just manufacturing. It is an important fact that rural manufacturing (including agricultural processing and informal household manufacturing as well as formal manufacturing) only accounts for about 20 percent of total rural nonfarm employment in Asia. Most of the other 80 percent is to be found in the service, trade and construction sectors, which are dominated by small, labor-intensive, often part-time, and often women-led firms. Yet policymakers have been enamored by the manufacturing sector, and rural industrialization policies have showered manufacturing firms with all kinds of preferential tax, subsidy, licensing, and regulatory benefits, as well as with targeted and subsidized credit and technical-assistance programs. Moreover, these policies have typically favored larger capital-intensive manufacturing firms (the lure of the shiny rice mill or shoe factory) and neglected small labor-intensive firms and informal household manufacturing activities. Policymakers need to level

the playing field and to revamp rural industrialization policies to a) be more inclusive—they should become rural “enterprise” rather than rural “industry” policies—and b) remove all unnecessary subsidies and protective policies that prevent rural firms from becoming competitive in the marketplace. It is no accident that for all the publicity about rural industries in China, the most rapid growth in recent years has been in small private firms specializing in service, trade, and construction activities.

Finally, as the nonfarm sector grows, there is need for increasingly open-trade, and pro-market policies to encourage greater efficiency and expansion into export markets.

The rural nonfarm sector has tremendous potential to create additional productive employment in rural Asia, which will be critical for those countries that still have rapidly growing labor forces. Rapid growth of the rural nonfarm economy also helps keep rural people living in rural areas, preventing excessive migration to the cities and keeping families intact. But this potential is too often constrained by poor rural infrastructure and inappropriate industrialization policies. The rural nonfarm economy deserves greater and more enlightened attention in the future.