Employment Generation
for the Rural Poor in Asia:
Perspectives, Patterns, and Policies

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This paper reviews the literature on rural employment and employment generation. It considers three models of rural employment: neoclassical, dual economy, and dynamic linkages. Evidence favors the third model, which explains rural underemployment in terms of labor surplus, and points to local economic linkages as a means for the rural economy to absorb its own surplus labor. The paper summarizes other patterns particularly in relation to the determinants of rural employment, and enumerates elements of an employment strategy for rural Asia. Two of these elements remain controversial, namely, asset reform and prioritization of agriculture. In some cases both elements prove to be beneficial in terms of generating employment; however the evidence is not sufficiently conclusive for a generalization. Hence the rural employment strategy, while rightfully focusing on the rural economy, should be flexible in terms of specifying the mix and focus of interventions within the sector.

I. INTRODUCTION

Labor is a factor of production that the poor possess in relative abundance. Reducing poverty entails the provision of decent work opportunities for the poor. As poverty in Asia remains largely a rural phenomenon, employment generation is a key strategy in reducing rural poverty. In the neoclassical model of rural employment generation, labor market allocation is viewed as efficient. Hence, the potential for further employment expansion is minimal. Employment policies may aim at increasing returns from employment through skill formation and promoting technical change; however there is no justification for a special treatment of rural areas. In the dual economy model, the pervasiveness of market failure in the rural economy is recognized. Underemployment is considered as a serious problem; however, the main engine of employment generation is the urban and not the rural economy. The third model, dynamic linkages, likewise recognizes the underemployment problem, but identifies the rural economy itself

as the main source of employment. The key to employment generation is the sustained expansion of nonagricultural activities in rural areas.

Each of the three models has dramatically different implications for policy. Identifying the right facts about rural employment is therefore crucial for formulating an employment strategy. The weight of the evidence favors the third view. Based on this and other stylized patterns, one may identify the elements of a rural employment strategy that offers the best prospect for sustained poverty reduction.

This paper synthesizes theoretical and empirical work on the broad theme of rural employment generation. The review is organized around the three different perspectives of the rural labor market. The rest of the paper is organized as follows: Section II discusses the three models of rural employment in greater detail. Section III compares the evidence for the three models. Section IV examines more evidence, highlighting factors that determine patterns of rural employment. Section V draws implications for the rural employment strategy. Section VI concludes.

II. MODELS OF RURAL EMPLOYMENT

A.   The Neoclassical Model

The neoclassical model assumes that labor markets are flexible and wages clear the market. The economy therefore operates at full employment, where labor is paid its marginal product. As pointed out in Rosenzweig (1988), the neoclassical model may be more relevant to the rural setting, where the ideal of free and flexible markets is more closely approximated. Of course regulation and organized labor are not literally absent in rural areas; in some countries, government regulations do reach rural labor markets (for example, migration restrictions in People's Republic of China [PRC]), and agricultural labor may be unionized (for example, in many plantations). Relatively speaking though, the notion of an unregulated informal sector is highly applicable to the rural economy.

There are three immediate challenges to the neoclassical model: first is the presence of unemployment or underemployment; second is the diversity of wages, suggestive of market segmentation; third is the prevalence of self-employment, which seems to be outside the standard depiction of workers hiring themselves out for wages.

The model however can be extended to incorporate these features. One can incorporate a "natural" rate of unemployment corresponding to unavoidable frictions in matching labor supply with labor demand. Another important extension is the concept of "human capital", embodied in labor. The diversity of wages observed in labor markets may simply be reflecting payments for different

marginal productivities, created by previous investments in education and skill formation. Lastly, self-employment can be incorporated by introducing an agricultural household model. The household is endowed with labor and assets (including land). These endowments can be sold to a factor market, or employed in household production. The household maximizes utility from consumption and leisure, subject to the factor endowment, factor prices, and the household production function. Self-employment results from the allocation of household labor time to household production. Depending on the land–labor ratio, the household may be a net supplier or net buyer of labor.

Based on this model, the economy will exhibit little potential for generating more jobs, as the labor market is already at or near full employment. Rather, employment generation will be limited to increasing the productivity of labor. This is done by human capital formation, which improves the quality of the labor being supplied; another measure is to promote labor-augmenting technical change, which (by raising labor productivity) increases the derived demand for labor. Even so the neoclassical model does not justify a special treatment for rural employment.

B.   The Dual Economy Model

Contrary to the neoclassical model, the dual economy model takes seriously the existence of unemployment and underemployment. As originally conceived by Lewis (1954), the economy is divided into a traditional and a modern sector. In the traditional sector, the relative abundance of labor drives its marginal product practically to zero. The wage however remains above the marginal product, as wages are determined by social sharing conventions related to average product. The result is surplus labor in the traditional sector. Meanwhile the wage in the modern sector is an exogenous differential above the traditional sector wage.

Under this model employment generation certainly make sense as a distinct policy goal. However the model takes a very dim view of employment potential within the traditional sector. Rather, it is capital accumulation in the modern sector that is responsible for the absorption of surplus labor. During the initial stage of this process, the marginal product of labor in the traditional sector remains low and wages are constant; eventually the reallocation of labor raises its marginal product. Ultimately wages equalize between the two sectors, marking the transition from the dual to the neoclassical stage of economic development.

Under this formulation, surplus labor may be present in the gamut of casual occupations both within and outside agriculture. Such occupations disguise unemployment among workers who are not actually working at full capacity. The explicit identification of the surplus labor sector with subsistence agriculture was

made by Ranis and Fei (1961). Since then the dual economy model has been taken to mean that agriculture is the traditional sector, while urban-based manufacturing is the modern sector. Accordingly, long-run growth and the provision of decent work require mass migration from the countryside to urban-based industries. Nevertheless, productivity growth in agriculture remains necessary to ensure adequate food supplies for both urban and rural populations.

Even from Malthus' time, the limited labor requirement of agriculture has been fairly well understood. Hence, the stereotype association of rural areas with agriculture is largely responsible for the notion that the rural economy has a weak employment potential. Hymer and Resnick (1969) were first to call attention to the rural nonagricultural economy; however, instead of refuting the notion of limited local employment opportunities, their study simply reinforced it. In their model, nonfarm activities arise from the autarky-like condition of backward rural areas. These nonfarm activities produce nontradables, called "Z-goods", composed of inferior products and services, and low-productivity manufacturing. Rural development entails market integration and trade with the mainstream economy, which leads to increasing specialization in agriculture and displacement of the Z-goods sector.

Once Z-goods and surplus labor had been conceptualized, the temptation to link the two became irresistible. For example, the monsoon economy hypothesis (Oshima 1986a and 1986b) associates swings in nonfarm employment with the agricultural cycle in monsoon Asia. Farm employment is divided into absolute and seasonal components. The latter is reserve labor for farm work during the peak agricultural season, and is channeled to nonfarm work during off-peak periods (Choe 1986). Surplus labor in rural areas is now seen to be disguised in the form of casual labor in both farm and nonfarm activities, that is, in Z-goods production (Mazumdar 1999).

C.   The Dynamic Linkages Model

From the 1970s onward however, an alternative view of the rural nonfarm sector has gained prominence. Mellor (1976) and others argued that rural nonfarm activities play a vital role in propelling and sustaining growth in the rural economy. Agriculture remains important in the initial stage, as it catalyzes the development process by undergoing modernization. As the income of agriculture-dependent households increases, due to their higher propensity to consume locally made goods, demand for rural nonfarm goods increases. Labor is reallocated from the farm to the nonfarm sector as food supply and labor productivity in the former rises. Mutual causation drives the growth process, as the nonfarm sector supplies inputs to agriculture and in turn is supplied raw materials for processing (Timmer 1988). According to this line of thinking (Rosegrant and Hazell 2000, 81):

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.

Ranis and Stewart (1993) show how a simple extension of Hymer-Resnick analysis can reverse the prediction of a vanishing rural nonfarm economy. They differentiate between *traditional* Z-goods and nontraditional or *modern* Z-goods; from the consumer's viewpoint, modern Z-goods are comparable in quality to imported products or urban-manufactures. With increased productivity of nontraded agriculture (in staples), modern Z-goods production in the rural economy expands together with export-oriented agriculture.

The concept of surplus labor makes an analogy to Keynesian unemployment inevitable. As a counterpart to the aggregate demand multiplier, the rural development literature formulates localized, value-added multipliers (Bell and Hazell 1980, Haggblade and Hazell 1989). The value-added multiplier arises from intermediate demand linkages between farm and nonfarm sectors in the rural area, consumption linkages with a household sector, and existence of excess capacity as exemplified by surplus labor. These multipliers may be calculated through social accounting matrix analysis (Pyatt and Round 1979 and 1985) conducted at the community level. The multiplier approach synthesizes the surplus labor model with the production linkages framework of Hirschman (1958), although departing from the latter's pessimism regarding the linkage prospects of agriculture.

Most recently, a few studies have shown that surplus labor and undercapacity are not the only means for deriving demand multipliers. These multipliers may be obtained from "new economic geography" models, which assume locally increasing returns in the rural nonfarm sector. Fafchamps and Helms (1996) model a village economy with multiple equilibria, arising from nonhomothetic preferences combined with internal economies of scale. These features lead to local externalities, which may place the village economy in a poverty trap. The multiplier effect is observed as rural industrialization propels the village economy from a low-level to a high-level equilibrium. Another rural poverty trap is obtained by Murata (2002) from insufficient specialization in agricultural intermediate inputs, arising from insufficient labor supply to this sector.

It is premature to say whether the presence of scale economy models will replace surplus labor as the main explanation for a multiplier effect. One crucial difference is that in the excess capacity models, any demand injection is expected to have a multiplier effect, whereas in the new economic geography models, a boost must exceed some critical threshold to have a multiplier effect. Reinert (1998) hints that a synthesis of underemployment with increasing returns should make for more empirically useful models.

III. RURAL EMPLOYMENT: THE EVIDENCE

A.   The Existence of Surplus Labor

Lack of employment seems to be a pervasive feature in rural labor markets. Dasgupta (1993) cites studies for India showing that even during peak agricultural periods, unemployment of casual workers can range from 14% to 20%. Note however that lack of employment need not show up as outright unemployment, but may be more accurately captured by underemployment. For 2000, labor survey data for India estimated about 11% underemployment among males, and about 8% among rural females (NSSO 2000). For the PRC, data cited in Brooks and Ran (2004) arrives at a figure of about 150 million underemployed rural workers in 2002 (about 20% of the total labor force). The proportion has remained relatively stable, i.e., earlier estimates set the surplus labor at 25% of the rural labor force in the 1980s (Banister and Taylor 1989).

For Indonesia, Wiebe (1996) finds that 13% of the rural labor force is underemployed. Half of underemployment is accounted for by workers under 30 years of age (who make up less than a third of the labor force); nearly 80% of underemployment is accounted for by workers under 40 (who comprise about 60% of the labor force). That is, underemployment is not concentrated among older and presumably less productive workers about to exit the labor force. Finally, workers in farming and plantation agriculture have above-average levels of underemployment. Among the classified occupations, the highest rates of underemployment are found for livestock, fisheries, forestry, and hunting.

These magnitudes and patterns appear to warrant an explanation beyond mere frictions in the labor market. The more natural interpretation is that persistent underemployment represents surplus labor. However, several studies do suggest the presence of measurement error in reckoning underemployment. For example, the massive surplus labor figures for the PRC are considered highly overestimated (Ng et. al. 2000). On the other hand, also for rural PRC, another study has found that during macroeconomic downturns, agriculture has shown a capacity to reabsorb labor it had earlier contributed during periods of high aggregate demand (Zhang et al. 2003). This is consistent with a hypothesis of disguised farm unemployment.

B.   The Agricultural Household Model

Self-employment is common in agriculture. For example, in Bangladesh a survey of rural households in 2000 shows that agricultural self-employment is the primary occupation for 36.7% of households, whereas agricultural wage employment is the primary occupation for only 11.8% (Hossain et al. 2003). Similarly, in a Philippine village, off-farm agricultural work accounted for only 16% of household agricultural income (Leones and Feldman 1998). A survey of villages in India for 2001 shows that agricultural wage labor accounts for as low as 29% of farm employment (Som et al. 2002).

The agricultural household model, as exemplified by the family farm, provides an obvious explanation for this form of employment. It also provides a framework for stating more rigorously both the neoclassical and surplus labor perspectives. Sen (1966) shows that if labor markets are missing entirely, then the agricultural household can disguise unemployment by keeping the family workers on-farm, even though these workers are redundant at the margin. On the other hand, the neoclassical model requires complete markets that adhere to the law of one-price (that is, free of market segmentation). Both types of assumptions yield their respective testable predictions. Under the missing-markets assumption, household production should be highly (at the extreme, perfectly) inelastic to marginal changes in the household labor endowment. On the other hand, under the complete-markets assumption, agricultural households behave in accordance with separability: allocation of household resources should be determined purely by profit maximization, and would be independent of household preferences.

The empirical literature has addressed these polar hypotheses. Rosenzweig (1988) points to a number of instances in which the hypothesis of inelastic household production fails the empirical test. As a matter of fact, household production does fall when a family worker detaches from the household. However the opposite extreme of complete markets (a standard feature in market clearing and neoclassical models) also appears to be empirically unfounded. The evidence for separability is mixed, at best; the majority of the studies reviewed in Behrman (1999) reject the assumption.

The reality is not as extreme as the hypothesis of complete or missing markets. Nevertheless, within this large middle ground, the existence of surplus labor is perfectly possible. As discussed above, accepting its existence appears to be a more natural approach to reconcile the available data on underemployment.

C.   Wage Rigidities

The neoclassical and the dual economy models make very different assumptions about wage setting. While the neoclassical model treats wages as

flexible and competitively determined, the dual economy model requires wage rigidity. Wages are based on average rather than marginal product of labor, consistent with sharing rules. However, critics of the dual economy model find appeals to social convention too *ad hoc*, and cite the absence of microfoundations for the alleged wage rigidity. The closest candidate for such a microfoundation is the nutrition efficiency wage. That is, wages that are too low, i.e., below subsistence, reduces the productivity of labor by not allowing enough food consumption. However, empirical confirmation remains elusive; Swamy (1997) for example reviews the available evidence and finds that adequacy of nutrient intake alone could not account for the patterns in the data.

But wage rigidity, in the sense of some dualism between urban and rural factor returns, does show up in the data, for example, in cross-country income regressions (Bourguignon and Morrison 1998). Other than cross-section data, time series information on wages provides additional confirmation. There is a time lag between the period of accelerated productivity growth in agriculture, and the subsequent increase in real wages. This experience has been observed in England (1780–1840); Japan (1870–1920); and Taipei,China (1950–1970). This is consistent with the turning point prediction in the dual economy model, but is not readily explained within a neoclassical framework (Ranis 2004). In short, there is some underlying wage rigidity that needs to be explained, though the explanation (in terms of microfoundations based on optimization) is yet to be found.

D. Employment Composition by Sector

The stereotype of rural as being almost entirely agricultural is refuted by data from village and household surveys worldwide. For Asia, Reardon et al. (1999) find that an average of 44% of rural employment is accounted for by nonfarm activity. For Bangladesh, Indonesia, and Sri Lanka, in 1986 about 34−55% of the rural labor force was engaged in nonfarm activity (Ahmed 1996). The large magnitude of the employment share is consistent with findings on income share. Reardon et al. (1999) averages estimates of the nonfarm income share in rural income, and arrives at a figure of 32% for Asia (35% for East Asia and 29% for South Asia).

A more detailed sectoral breakdown is found in Table 1 with respect to sector of primary occupation. The composition of employment varies widely across countries. These figures are comparable to estimates by Chuta and Leidholm (1979), who indicate a band for manufacturing of around 22−46%. Anderson and Leiserson (1980) meanwhile estimate the breakdown as follows: 20−30% for manufacturing, 20−35% for services, 15−30% for commerce, 10−20% for construction and transport, and the rest in other employment. Islam (1996), reviewing several nationwide surveys in Asia, reports that between 18%

and 34% of the labor force engaged in nonfarm activities is found in manufacturing.

Table 1. **Nonfarm Employment in Rural Areas as a Proportion
of Total Employment and Sectoral Breakdown (percent)**

Country	Nonfarm	Manufacturing and Construction	Services	Others (not elsewhere classified)
Bangladesh (1991)	39.9	10.2	35.4	50.2
Sri Lanka (1981)	44.3	26.4	51.5	22.1
India (1994)	23.0	42.3	53.1	4.6
Indonesia (1995)	36.9	33.2	66.6	2.2
Thailand (1996)	50.1	50.8	46.9	1.3

Source: Based on data from Rosegrant and Hazell (2000).

Contrary to the Hymer-Resnick prediction, the rural nonfarm sector appears to expand rather than contract over time. Lanjouw and Lanjouw (2001), in their evaluation of data sets in developing countries, suggest that employment and income shares of the nonfarm sector have on the whole been growing. Moreover, there is some evidence for a shift toward services and away from manufacturing, at least for the smaller, developing localities. The most prominent example of a declining share of agriculture in the rural economy is found for East Asia (Table 2). The exception seems to be Republic of Korea (Korea). Nevertheless, even for Korea, from the 1980s onward, the share of off-farm income in farm household income continued to rise, albeit gradually (relative to the other East Asian high performers), from 22% in 1983 to 41% in 2000 (Suh 2004).

Table 2. **Percentage Shares in Income of Farm Households
in Selected Asian Economies**

Japan		Taipei,China		Korea		PRC	
Year	On-farm Income	Year	On-farm income	Year	On-farm Income	Year	Primary Sector[a]
1950	73.0						
1955	71.4						
1960	55.0			1962	84.6		
1965	48.0	1966	72.9	1965	84.3		
1970	36.5	1970	54.7	1970	82.1		
1975	33.6	1975	51.9	1975	86.3	1978	68.6
1980	21.1	1980	34.2	1978	79.7	1980	68.9
						1983	66.7
						1985	57.1
						1987	49.6
						1990	46.0

[a]Column figures denote shares in total product of rural areas.
Sources: Japan; Korea; and Taipei,China from Oshima (1986b); the PRC from Chadha (1992).

Increasing rural diversification has also been found in other countries that have undergone rapid growth. For example in Indonesia, nonfarm earnings rose from a quarter to a half of rural income over a 10-year period (1983−1992), when economic growth averaged 8% per annum (Tambunan 1997). For other Southeast Asian countries the change may not have been so dramatic. In Thailand, the nonfarm share in rural income grew from 46% in 1972 to 63% in 1996 (Onchan 2004). Even slower is the case of Pakistan, which has not entered a phase of rapid and sustained growth. The share of nonagricultural work in rural employment stood at 31% in 1980, and by 1997 the share had risen to less than 40% (Khokhar 2004).

For India the changes in sectoral composition are also gradual; however if one examines the absorption of incremental labor force in the 1990s, a sharp contrast emerges. From 1993 to 2000, in the wake of economic reforms, agriculture absorbed only 22% of the additional rural labor force, as against a 63% absorption in the previous decade (1983−1993). Industry meanwhile absorbed 48% of the additional rural labor force, while services employed 30%. Within manufacturing, 80% of the employment generated for the incremental labor force was for agromanufacturing activities (Chadha 2003).

E.   Form of Employment in the Rural Nonfarm Sector

While self-employment is clearly the dominant form of farm employment, it is unclear whether the same holds true for nonfarm employment. If it does, then this suggests the possibility that nonfarm self-employment, parallel with agricultural self-employment, functions as a "sponge" to soak up surplus labor. Some evidence points to the prevalence of self-employment in the nonfarm sector: For a group of Bangladeshi rural households reporting nonfarm employment as the primary occupation in 2000, only one third report wage labor as the main form of employment (Hossain et al. 2003).

The finding is not surprising given that the bulk of rural firms may be classified as microenterprises, with as much as 85% employing fewer than five persons (Leidholm and Mead 1987). In Bangladesh, India, and Pakistan, at least 80% of manufacturing employment is in small and cottage industries; for Nepal and Thailand the shares are, respectively, 96% and 64% (Islam 1986). Hence in a survey of Bangladesh rural enterprises, it is found that paid employment is a low proportion of nonfarm work (Varma and Kumar 1996).

However, if employment is measured at the household level (rather than at the community level) there are indications that wage employment is the more dominant form, considering that household employment income includes migrant remittances. Data reviewed in Saith (1991) suggest that wage and salary employment has been rising in importance within rural nonfarm employment over the decades. This is seen in several villages in the Philippines, where longitudinal

data suggests an evolution of employment form from farm self-employment to wage employment. By 1994, as much as 70% of nonfarm income came from wage employment (Estudillo and Otsuka 1999). Similarly, for the PRC back in 1981, nearly 85% of rural individuals were fully involved with farming. Off-farm workers were three times more likely to reside in their own homes than to live away from home. However, by 2000 residence of off-farm workers were nearly evenly split between home and off-home. Workers continued to send home part of their income; some data indicate that such remittances account for up to 20% of rural incomes (Zhang et al. 2003).

F.   Diversity of Labor Earnings

For rural households in the Philippines, Leones and Feldman (1998) calculate average household earnings per day by activity (incorporating information on time per task). Observed variations in daily earnings within the categories of agricultural work are large, as are variations between various types of nonfarm work. On average daily earnings in on-farm work is 48% higher than daily earnings in agricultural off-farm work. Nonfarm work earns 19% more on a daily basis, and is therefore more remunerative than on-farm work. In fact the highest daily earnings are provided by certain types of nonfarm work, such as government employment (116% higher), trading and hauling (77% higher), and carpentry (53% higher).

This diversity has led some authors to abstract a dual structure of earnings in the nonagricultural sector, based on low- versus high-labor productivity. For India, while nonagricultural earnings are found to be higher than agricultural wages, sub-sectors within own-account manufacturing pay wages lower than in those in agriculture. However the larger rural enterprises (six workers and above) paid an average of about double the agricultural wage (Acharya and Mitra 2000).

Similar findings are obtained from Bangladesh. Varma and Kumar (1996) use the distinction between permanent and household establishments in an enterprise survey. They find that labor productivity in permanent establishments is double the agricultural wage for food manufacturing, textiles, transport, wholesale trade, and retail trade. However labor productivity in household establishments does not compare favorably with the agricultural wage, except for tailoring, furniture-making, and wholesale trade. For food manufacturing and textiles, labor productivity in permanent establishments is more than double that of household establishments. Over time, it is the higher-productivity establishments that have grown faster (Bakht 1996, Ahmed 1996).

G.   Rural Economic Linkages

According to the monsoon economy hypothesis, nonfarm employment should be countercyclical, as it is substituting for missing agricultural work during the off-season. However, in the Philippines, while such countercyclical behavior is found for some types of off–farm employment (such as government and domestic services); other important categories (manufacturing, construction, commerce, and transportation) are procyclical (Fabella 1986). For a poor region in Bangladesh, nonfarm work tends to be countercylical only for villages whose workers are better skilled and equipped for off-farm work. Even so this type of work is unable to offset the slack in agriculture (Hossain 1987).

Contrary to the hypothesis, one may view the rural nonfarm sector as a source of meaningful employment in its own right, which may then form production linkages with agriculture. Backward linkages were observed during the Green Revolution in Asia, which led to a manufacturing boom in rural areas for small-scale machinery (Johnston and Kilby 1975). As for forward linkages, a more disaggregated look at the composition of rural industries shows that food, textiles, and garments are the dominant enterprises. For some Asian villages, these enterprises absorb more than half of manufacturing employment. In Bangladesh and India the proportion can rise to as much as 75% (Mukhopadhyay and Chee 1985). In a mostly rural region of Thailand, agroprocessing accounts for 47.5% of manufacturing employment, while textiles comprise 19.4% (Parnwell and Khamanarong 1996).

The final set of linkages is with household consumption, whose strength has been related to household income. The lower-income groups display greater demand elasticity for local products, as in the Philippines (Ranis et al. 1990). However, from the viewpoint of local nonfarm production, the most promising source of demand would be middle- and higher-income groups in the community; in Bangladesh it is these households that tend to have a greater incremental budget share for nonfarm goods (Ahmed and Hossain 1990).

The value added multiplier is a summary indicator of the strength of local economic linkages. Table 3 presents a range of estimates typically obtained from Asia and Africa. The highest multiplier is 1.74, while the lowest is 1.38 for smallholders in Africa. Estimates for Asia, all of them for irrigated areas, belong to the high range. Most of the multiplier effect (from 78% to 91%) arises from consumption linkages.

Table 3. **Estimated Multipliers for Irrigated Rice Villages in Developing Countries**

	Value	**Percent Due to Consumption**
By Size of Farm		
Small	1.55	78.2
Medium (average savings)	1.64	81.2
Medium (low savings)	1.74	83.7
By Variety		
Traditional	1.38	84.2
High-yielding (oxen)	1.56	78.5
High-yielding (tractors)	1.56	78.5

Source: Haggblade and Hazell (1989).

Linkages also span industrial relations between rural and urban areas. Studies on supply linkages in nonagriculture show that rural manufacturing enterprises supply labor-intensive goods to urban-based firms for further processing and marketing, often under subcontracting arrangements. Hayami (1998) argues that the appropriate organizational mode for urban−rural production linkages is relational contracting. The theoretical and empirical understanding of such relations remains at a nascent stage, with some recent efforts at modeling organization and location choice by Hanson (1995) and Briones (2002b).

A specific case study of relational contracting for Japanese textiles describes a putting-out system, developed after the opening of Japan to international trade in the 19th century. Traders advanced imported yarn and leased out looms to farm households. This putting-out system has survived technological transformation of textile manufacturing, and has even nurtured the emergence of other high-technology industries (Itoh and Tanimoto 1998). The combination of commercial and paternal relations is also found in the Punggi district in Korea, renowned for its traditional woven fabrics. Most potential entrepreneurs start out as workers, and after a long employment experience, they would spin off as a small business, often as a subcontractor of their original firm. The parent firm assists in establishments by providing machines (paid by installment) and orders. Once stabilized, the new entrepreneur may then seek out other wholesalers (Lee and Suh 1998).

H.   Summary

Empirical findings from the literature point out the following:
(i)   There is a significant amount of measured underemployment in rural areas, which corresponds closely with the concept of labor surplus in the dual economy model.

(ii)   Self-employment in agriculture is widespread, due to the prevalence of family farms. However, extreme versions of the neoclassical as well as dual economy models of the agricultural household have failed empirical tests.

(iii)   Wage movements exhibit rigidities that are consistent with the dual economy model, but the microfoundations of these rigidities require more careful elaboration.

(iv)   The rural nonfarm sector is a sizable and growing component in the rural economy. Within rural areas, self-employment is the common form of employment. Occupations within the nonfarm economy exhibit tremendous diversity, with some low-productivity, casual work existing side-by-side with productive activities strongly linked to local demand.

(v)   Local demand linkages for nonfarm activities are mostly in the form of consumption, though forward and backward linkages (especially with agriculture) are also important. Some types of linkages span both rural and urban areas, and are supported by rather novel organizational arrangements.

IV. OTHER STYLIZED PATTERNS IN RURAL EMPLOYMENT

While the foregoing review has covered much ground, a large amount of empirical work relevant to framing a rural employment strategy is yet to be examined. In particular, other stylized patterns that identify factors determining rural employment are discussed in the following.

A.   Household Assets and Employment

In rural areas, landholdings are a significant form of access to productive assets. In terms of sector of employment, one expectation (consistent with the agricultural household model) is that as landholding decreases, households would shift from farm self-employment to off-farm employment. Evidence from East Asia suggests that households do rely more on nonfarm employment and earnings as landholdings decrease. As industrialization advances, so does dependence on off-farm income, as in in Japan where farm households with the smallest landholdings earned 80% of their incomes from off-farm activities. The same proportion was reached for similar households in Taipei,China as early as 1962, though for Korea this was reached only by 1996. For the largest landholding category, meanwhile, the shares are at most 36% during the same years (Kada 1986, Ho 1986, Choi 1997).

For Bangladesh, Sen (1996) reports that of households with primary occupation in rural off-farm work, 67–87% have zero to negligible landholdings. Van de Walle (2004), in a study of Viet Nam, shows that access to land has a

negative impact on the probability of obtaining off-farm self-employment. For the PRC, a negative correlation between landholding size and individual off-farm employment status has also been detected (Zhang et al. 2001). Household data for two East Asian economies (Korea and Taipei,China) as well as India and Thailand, suggest that as landholding declines, the share of nonfarm income rises (Rosegrant and Hazell 2000). In absolute terms though, bigger landholdings per capita lead to a higher per capita nonfarm income, as was found for India (Lanjouw and Sharif 2004).

Household assets (or wealth) are another important determinant of employment diversification and earnings, particularly when market failure limits credit availability. In fact, poorer households tend to concentrate on labor-intensive nonfarm wage employment, as well as low-wage farm work; enterprises requiring physical capital (such as cottage industry or trade) are undertaken by the wealthiest households (Reardon et al. 1999). In a survey of rural nonfarm entrepreneurs, access to credit appeared as the top-ranked business need, ahead of market access, skills, raw material supply, infrastructure, or social stratification (Som et al. 2002). Wandschneider (2003) synthesizes a set of studies on nonfarm employment covering India, Uganda, and transition economies (including some from Central Asia), and finds that access to formal credit is often the main constraint to investment and entrepreneurship. Hence, investment becomes dependent on the size of household savings, availability of assets readily convertible to cash, access to remittance income, and networks of relatives and friends with loanable funds.

B.   Distribution of Earnings from Farm and Nonfarm Employment

The link between household wealth and employment sheds some light on the role of nonfarm work on income distribution and poverty. The rural poor exhibit a greater dependence on off-farm employment, hence off-farm work may reduce income inequality. Sen (1996) finds that poverty incidence among households whose primary occupation is wage labor (including agriculture) is about 84%, whereas among farmers the incidence of poverty is only 41%. Jayaratna (2004) reports that in a household survey for Sri Lanka, poor rural families are observed to obtain nearly half of all income from nonfarm sources. For Viet Nam, van de Walle (2004) shows that it is the poorest households whose earnings are most dependent on farm employment.

Direct evidence on the role played by nonfarm incomes in income inequality is also available. Decomposition analysis for Pakistani villages shows most of the income inequality across households is accounted for by inequality of agricultural incomes, with nonfarm incomes accounting for only 6–19% of overall income inequality (Adams 1994). In the PRC, data from four provinces

point to the distribution of grain income as the primary source of inequality, with the distribution of nonfarm income being a secondary contributor (Ravallion and Chen 1999).

However other data sets point to the opposite direction. For the PRC's counties with off-farm income shares of one third or less of total rural income, the contribution of off-farm income inequality averages nearly one half (Kung and Lee 2001). In a resource-poor village in the Philippines, nonfarm income does increase overall inequality; however, this is mostly due to migrant income, which contributes over half of total income inequality even though it contributes less than a quarter of household income. The rest of the nonfarm income contributes proportionately to income inequality. Moreover, nonfarm income (excluding remittance income) helps reduce income inequality between households with unequal access to land (Leones and Feldman 1998).

Other studies suggest nonmonotonic patterns. Literature reviews by Leidholm and Kilby (1989) as well as Von Braun and Pandya-Lorch (1991) point to a J-curve, in which the lowest and highest household income groups have the greatest dependence on nonfarm income. Again, contrasting results are available for India. Lanjouw and Shariff (2004) find that as household quintile increases, income share from farm self-employment rises, and farm wage labor falls sharply as the household quintile increases. Hence there exists a mild *inverse*-U relationship between household income and nonfarm income share. The lowest income groups are most reliant on farm wage work and the highest group on farm self-employment, rather than nonfarm employment.

C.   Individual Characteristics and Employment

Other than physical household assets, human capital endowment is also known to exert considerable influence on employment. Within self-employed agriculture, education has been found to exert a strong and favorable impact on farm productivity. One reason is that in a period of rapid technological change in agriculture, farmers are still learning novel farming techniques. Better-educated farmers may be more adept in learning and applying the new science-based technologies introduced by the green revolution (Ali and Byerlee 1991).

Outside agriculture, Yang (1997) finds that education raises off-farm wages in the PRC. Education also promotes income diversification. In the PRC, increases in experience and education have a positive effect on individuals' decisions to move off-farm (Zhang et al. 2001). Studies for rural India, cited in Coppard (2001), show a positive link between education and nonfarm employment. Aside from mere diversification, the importance of education in securing profitable businesses or high-wage employment is widely acknowledged (Reardon et al. 1999). For Viet Nam, education increases income diversification as well as household welfare (van de Walle 2004). In India, the effect of

education on nonfarm earnings is particularly strong. Other factors constant, a person with secondary education can generally earn over 168% more than a person who has not completed formal schooling (Lanjouw and Shariff 2004).

Another important determinant of rural employment is gender. Women tend to be as active in farming as men, though tasks may be gender-sorted. In India, women have lower participation in the nonfarm sector than men (Coppard 2001). Where women are engaged in nonfarm employment, they tend to be found in manufacturing and services, from 19% for manufacturing in Bangladesh up to 56% for services in the Philippines (Rosegrant and Hazell 2000). A number of studies have pointed to the disadvantages faced by rural women in the labor market. Surveys in rural India cited in Dasgupta (1993) points to the higher rates of unemployment for rural women. Likewise, for Indonesia Wiebe (1996) finds that working women who are underemployed are slightly more numerous in percentage terms than working men who are underemployed (13.8% versus 12.6%).

Women also earn lower than men per unit time of employment; this discrepancy holds for workers in both developing and developed countries, but the gap is greater in the former (Robinson 2001). The gap extends to rural areas, whether one considers agricultural or nonagricultural wages, as for Bangladesh with a differential in the range of 30–40% (Varma and Kumar 1996). What accounts for this difference is unclear, although in rural PRC, the observed male–female market wage differential could be explained by gender differences in reservation wages (Hare 1999). Finally, while rural women in Indonesia and India have benefited in terms of nonfarm employment in recent years, employment growth remains higher for men (Rosegrant and Hazell 2000).

D.   Community Characteristics and Employment

A survey of the nonfarm sector for India (Coppard 2001) cites studies that link rural infrastructure to employment outside the farm. The positive role of transport infrastructure and rural electrification is highlighted. The presence of roads meanwhile has different effects, being favorable for trading and nonhousehold manufacturing, but unfavorable for household manufacturing. Likewise Lanjouw and Lanjouw (2001) underscore the importance of rural infrastructure for the growth of nonfarm employment, citing studies on rural electrification for the PRC and Indonesia, as well as for rural roads in the Philippines.

The location of the rural community is also an important factor in the rural nonfarm economy. For India, studies reviewed in Rosegrant and Hazell (2000) show that multipliers from agricultural growth are greatest in areas with better infrastructure, higher population density, and higher per capita incomes from

agriculture. In the case of Viet Nam, location variables explained most of the variations in household consumption and the probability of escaping poverty. Location also explains the variations in probability of off-farm employment as well as labor supply toward off-farm work. Moreover, the favorable influence of location on off-farm employment is positively correlated with the positive impact of location on household welfare (van de Walle 2004).

Location captures numerous interdependent factors. Community infrastructure could be one, although this could vary over time. Agroclimatic condition is a more fixed determinant, obviously for farm productivity, but less obviously for employment diversification and nonfarm productivity. In localities with unfavorable agroclimatic conditions, households tend to earn most of their nonfarm income through temporary migration or migrant remittances. Conversely, areas with favorable agroclimatic conditions households earn nonfarm income locally, usually through activities linked to production or expenditure linkages to agriculture (Reardon et al. 1999). For Asia the available evidence points to some tendency for greater diversification of incomes in unfavorable areas. For example, in seven countries studied in David and Otsuka (1994), villages in irrigated lowland areas tend to have lower nonfarm income shares. Interestingly, income inequality (based on Gini ratios) is lower in these areas.

Finally, location could also be capturing proximity to urban centers and rural towns, which can be crucial for employment diversification and earnings. One estimate of the share of the rural labor force primarily engaged in nonfarm work in Asia is 26% without rural towns, and 36% with rural towns (Hazell and Haggblade 1993). Income diversification tends to be greater around cities, as in Java (Manning, 1988). Nonfarm earnings of villages also appear to diminish in absolute terms as the distance from the urban area increases (Khmana 1992). For Nepal, nonfarm employment concentrates near cities; farm wage employment meanwhile is the main occupation for villages remote from the urban centers. Isolated villages are predominantly subsistence economies (Fafchamps and Shilpi 2005). Rural towns, as dispersed centers of urban activity, also play a critical role in the development of the rural hinterlands. Rural towns generate demand for nonfarm outputs, and provide crucial marketing and financial services to support economic activity in the surrounding areas, thus functioning as "growth poles" in PRC; India; and Taipei,China (Rosegrant and Hazell 2000).

V. POLICIES FOR EMPLOYMENT GENERATION

A.   Country Experiences in Generating Employment

The foregoing literature survey, along with a few more case studies at the country level, will be the basis for this section's discussion on rural employment

generation. Ranis and Stewart (1993) recount the contrasting development experiences of Taipei,China and the Philippines, which have potent implications for the employment generation strategy. In Taipei,China, agricultural modernization was supported by a public investment policy that favored rural infrastructure and technical progress in farming. Land reform had succeeded in eliminating large wealth inequalities in the countryside, creating a wide base of purchasing power. Indirect policies such as tariffs, quotas, investment restrictions, and so forth avoided the anti-agriculture bias common in import-substitution regimes.

However such modernization steps were not taken by the Philippines. The public sector continues to underinvest in rural infrastructure, as well as in research and extension, despite the breakthroughs achieved during the Green Revolution. After several decades, the task of land reform is yet to be completed. Finally, the import substitution regime had made deep inroads into industrial and trade policy, creating serious price distortions against agriculture. While the export juggernaut propelled rural industries in Taipe,China, no such drive was forthcoming in the Philippines, as its trade and exchange rate policies constrained export growth and favored large-scale, urban-based firms producing import substitutes.

In short, these experiences illustrate the necessity of creating dynamic linkages in the rural sector to provide a sustained employment growth. The experience of Taipei,China illustrates the potential of agricultural modernization within an egalitarian society to generate positive and reinforcing feedback effects through local demand, reinvestment, producer services, and improved economic aspirations (Park and Johnston 1995). Meanwhile the case of the Philippines highlights the price of policy failure within an economically and politically polarized society (De Dios and Hutchcroft 2003).

The case of the PRC demonstrates the wider applicability of foregoing lessons. Following the 1978 reforms, agriculture was decollectivized and various types of business and employment restrictions were lifted. The rural nonfarm sector was a priority concern, as the government sought to generate employment in rural areas, so as to keep rural-urban migration at manageable levels. The result was the rapid growth of small-scale, labor-intensive firms called township and village enterprises (TVEs). From 1978 to 1996, TVE share in the rural labor force rose from about 10% to just under 30%; incredibly, TVE share in total industrial output expanded to a remarkable 58% in 1997, up from just 9.1% in 1998 (Lin and Yao 2001).

B. Elements of an Employment Generation Strategy

Based on these and other experiences, as well as the empirical findings in the previous sections, the following broad elements of a long-term employment generation strategy can be stated.

First is the modernization of agriculture, which entails investments in research and extension, as well as in infrastructure. A large part of modernization is the adoption of high-yielding agriculture, anchored on modern varieties, intensive systems, and massive investments in irrigation (Rosegrant and Hazell 2000). Irrigation, aside from having a powerful impact on farm productivity, increases the frequency of cropping and therefore the demand for farm labor. Price policies should also extend an even treatment between agriculture and nonagricultural sectors, implying that the bias toward capital-intensive industries (enforced through protectionist policies and exchange rate controls) should be removed.

Second, in addition to public investments to promote agriculture, rural infrastructure in general needs to be upgraded to increase economic opportunities for both farm and nonfarm activities. Rural road networks cut down on transport cost and widen market access. Electrification is another major factor in the formation of household and cottage industries in rural areas. One should also not underestimate the potential contribution to direct employment from rural works programs, particularly those implemented by increasing the labor content of rural infrastructure, rather than through traditional make-work schemes (Briones 2005).

Geographically, public investments should be focused in areas near cities and rural towns where linkage formation can be maximized. Admittedly such concentration may contribute to geographic inequality between rural areas, however it may mitigate inequality in other ways. For example, by bringing development to the countryside, it can reduce inequality by stemming the time of migrants (whose remittances are a major source of interhousehold inequality); furthermore it mitigates inequality between urban and rural areas.

Third is asset reform, which in rural Asia is often related to reforms on the distribution and allocation of property rights to land. With land reform comes a more even distribution of wealth and purchasing power, creating a network of consumption linkages that lay the basis for growth of rural industries.

Fourth is human capital formation, which requires large outlays for education. By implication, complementary investments in human resources, such as basic sanitation, public health, and nutrition, are also valuable for boosting long term employment prospects in rural areas.

Fifth is the delivery of producer services to promote self-employment. This includes increasing availability of credit, as lack of credit access has been cited as a major constraint in small enterprise formation and growth. Moreover, provision

of producer services covers the provision of technical assistance, training and capacity building, market information, organization of producer associations, and other measures to promote self-employment.

Most of the elements recounted here are noncontroversial. They simply provide an employment slant on the principles of the Washington consensus, combined with the human development platform of the United Nations and development organizations from the 1990s onward. For example, the salutary impact of trade liberalization on growth and poverty for labor-abundant, agriculture-dependent developing economies is now well recognized, save for a few fringe critiques, mostly outside the professional literature. Two areas however remain open to considerable policy debate: first is the importance of asset redistribution, and second is the sectoral focus of public investments.

C.   How Important are Asset Reforms?

One fairly obvious way in which asset reforms can improve productivity occurs when property rights are ill-defined or dilute economic incentives. Reform can clarify use and access rights, thus boosting investment and entrepreneurship. In the PRC for example, the introduction of a household responsibility system was a major lift for farm productivity (Lin 1992). Asset reform may also take the form of redistribution, and for rural areas, land reform is the most prominent example.

Reducing income inequality is said to boost local demand and support the formation of dynamic linkages. Evidence for this claim, however, remains largely indirect. There is an emerging literature on cross-country regressions directly linking initial inequality with future growth. Deininger and Squire (1998) find that asset inequality harms future growth though contrary results, for example, a positive effect of income inequality on growth (Forbes 2000) have also been obtained. However the theoretical framework for these empirics assumes the aggregate production function, a world apart from dualism and dynamic externalities encountered in rural development models. Even a recent review of growth theory, which incorporates various market failures (including regulatory distortions, weak property rights regimes, credit constraints, and insurance market failure), omits dualism and multiplier effects (Banerjee and Duflo 2005). Such omissions in the literature are largely due to the weak theoretical connection between the dynamic linkages model (in its current versions) and overall economic growth. Filling up the theoretical gaps will animate much-needed empirical research on the impact of rural linkages on overall economic growth.

Aside from the circumstantial nature of the evidence on the importance of asset reform, there is, moreover, the problem of social cost in imposing a redistributive policy, which may ultimately outweigh the expected benefits. For

example, expropriation of land is never easy to implement, given opportunities to resist or evade expropriation; in the meantime, uncertainty lingers over the fate of the disputed assets, inhibiting further investments in their productivity. In the case of the Philippines, for example, land reform has been long delayed, with significant negative repercussions on agricultural investments (Habito, Briones, and Paterno 2003; Briones 2002a).

D.   Priorities for Public Investments

One virtue of multiplier analysis is to point out that simple benefit-cost considerations may skew investments away from impoverished rural areas. Only when long-run growth dynamics are considered—highlighted by the multipliers—can rural investments be justified as efficient. The form of the rural-based investment however remains open. According to the "post-Washington consensus", public investments should emphasize social safety nets, a prescription questioned by Hayami (2003), who fears that such an emphasis may divert scarce resources away from productivity improvements favoring the rural poor.

Followers of "agriculture on the road to industrialization" go further and pinpoint agriculture in particular as the appropriate focus of public investment. Agricultural orientation is a "first generation" solution, over (though not to the exclusion of) "second generation" solutions such as broadening participation to the poor and to women, maintaining growth beyond the cereal sector, and environmental concerns (Mellor 1997).

However it is not clear whether the agriculture-led industrialization experience (as witnessed in East Asia) can be generalized. Parikh and Thorbecke (1996), in a case study of a village in India, precisely apply a benefit-cost analysis which incorporates the value added multiplier; they show that a subsidy for rural industry is more cost-effective than irrigation investment in developing the local economy. Ravallion and Datt (1996) conduct a state-level study also for India, and find that growth in the secondary sector (inclusive of manufacturing) does not affect poverty; rather, it is the tertiary sector that joins agriculture in poverty reduction. Moreover, agricultural growth does not have an effect on the overall growth of the nonagricultural sector.

Foster and Rosenzweig (2004) note that empirical literature relating agricultural to nonagricultural growth is undecided, primarily due to data limitations. They conduct their own study using survey data on 240 villages in India and find, unambiguously, that rural industries have grown fastest where crop yields had in fact grown *slowest*. This is consistent with the model in which farm and nonfarm activities are predominantly substitute activities for the investor with mobile capital, rather than one in which complementary linkages between the two are prominent. Nonfarm activities are especially pro-poor, as

these would favor low-skilled labor, compared to agricultural activities, whose growth would tend to favor better-off households for which landholding is concentrated.

VI. CONCLUDING REMARKS

Labor surplus is a real and pressing problem in rural Asia, manifesting itself in underemployment among both wage workers and the self-employed. Contrary to earlier belief, the rural economy itself is capable of absorbing much of this surplus labor, through the expansion of the nonfarm sub-sector. Of course, not all of the nonfarm sector is expected to contribute equally to rural transformation. Some peripheral occupations may wane, while others with robust links to local and external demand would flourish. Ensuring that the poor gain access to the latter is the key to a pro-poor employment growth.

Of the various elements of the employment generation strategy for rural Asia, two issues stand out as winning the least consensus among development economists.

The first is in the area of asset reform. Whereas some country experiences as well as cross-country evidence link equitable asset distribution to growth, it is not clear whether rural growth dynamics and local externalities are the main channel of transmission. Given the uncertainty and potentially great costs of a redistributive policy, any proposed asset reform should be pursued expediently.

The second is in the area of public investment. The agriculture-led rural industrialization path characterizes several developing country experiences (particularly in East Asia). Recent empirical work however casts doubt on the conclusiveness of the evidence regarding its basic assumptions. The development paths of different countries may follow their peculiar trajectories. Clearly, priorities and interventions to boost rural productivity and employment should eschew sweeping generalizations in favor of a more flexible approach toward urban and rural, as well as agricultural and nonagricultural development.

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