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Rural Growth, Food Security, and Poverty Alleviation in Developing Asian Countries

by

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Abstract

While agricultural growth has been recognized as the key to poverty alleviation in most developing countries, recent experience suggests that this is often not enough. The alleviation of rural food insecurity and poverty hinges critically on the response of rural nonfarm areas to the stimulus provided by this growth as well as by nonfarm (urban, export) demand growth. Using recent theoretical ideas and Asian experiences, the paper illustrates the influence of *initial conditions*—size distribution of incomes and physical assets, state of rural infrastructure and human capital, and macroeconomic political environment—in shaping this response and hence rural welfare outcomes.

I.   Introduction

The link between economic growth and poverty reduction is a dominant theme of policy discussions during the last two decades. A major strand of these discussions is the view that the link is weak owing to the inevitable rise in income inequality before its eventual fall as per capita income increases from initially low levels (i.e., the so-called Kuznets "U hypothesis"). Both recent theory and evidence now reject this view (Fields 1988; Bruno et al. 1995; Lipton and Ravallion 1995). That is, there is no compelling reason why economic growth in poor countries should systematically benefit only the relatively well-off members of the society. This is not to say, however, that any economic growth is always beneficial to the poor. The quality of growth matters. But, as elaborated in this paper, the main factors determining the extent of participation of the poor in the growth process are also largely the same factors determining the pace and sustainability of economic growth. Indeed, the usual growth-equity tradeoff depicted in the literature greatly exaggerates the limits of policy choices in developing countries.

Policy discussions have also increasingly recognized the importance of agriculture and rural development, particularly the expansion of employment in rural nonfarm activities, in poverty alleviation. This recognition is apparent: The large majority of the poor in developing Asian countries continue to live in rural areas and are dependent on agriculture or agriculture-related activities for livelihood. Moreover, in many of these countries, urban poverty is partly a spillover of extreme deprivation in rural areas; poverty in rural areas encourages migration to urban areas. The process is often facilitated by the concentration of social and economic services in urban areas, by pricing policies that tend to tilt in favor of urban consumers and industrial producers, and by legislation, such as the wage control law, that unduly raises private returns to factors of production in urban areas.

Surprisingly, development theory has traditionally cast a dark shadow on rural industries, viewing them as inferior to urban industries in generating national income growth and in raising the living standards of the population. Population shifts from the "traditional" rural sector to the "modern" urban sector are seen as the driving force to growth, distributional change, and poverty reduction. Recent evidence for developing countries shows, however, that the contribution of intersectoral shifts to national poverty change is much less than that of intrasectoral income (or consumption) growth (Ravallion and Huppi 1991; Balisacan 1995; Ravallion and Datt 1996).

Moreover, recent experience suggests that success in rural development—alternatively, rural poverty alleviation—is virtually synonymous with the growth of rural nonfarm activities, especially in developing economies with fast growing labor force (Ranis and Stewart 1993; Park and Johnston 1995; Otsuka 1996; Hayami et al. 1996). Indeed, in East Asia, even agricultural households have increasingly depended on non-agricultural incomes in the course of their agricultural and rural modernization (Oshima 1987). The driving force to this aspect of modernization is agricultural growth itself. Increases in agricultural productivity and farm incomes stimulate the growth of nonfarm activities and, hence, employment opportunities. Put differently, while agricultural growth reduces rural poverty and food insecurity directly by increasing

agricultural incomes, the indirect effects of this growth on the rural nonfarm economy through demand and supply linkages could represent an even more important sources of food security and rural poverty reduction in the long term. Indeed, improvements in the living standards of the rural population are now commonly associated with these linkages (Ahluwalia 1985; Bell and Rich 1994; Lipton and Ravallion 1995; Mellor 1995).

The experience is, however, not uniform. Some rural areas, such as those of Indonesia and of India's Punjab, have responded strongly to agricultural growth, while others, such as those of the Philippines, have not. Even within a country, large disparities in rural performance are evident [see, e.g., Datt and Ravallion (1995) on India]. The understanding of the reasons for success (or failure) is only beginning to unfold. From a policy perspective, the critical issue is whether the successful cases are replicable in other settings, or whether the necessary environment for successful rural development could be economically (or socially) "engineered." One can argue, as done in this paper, that the link between agricultural growth and rural poverty is weak in the absence of initial conditions allowing rural nonfarm industries to develop in response to the stimulus provided by this growth. Moreover, the conditions allowing sustained rural growth and economic development are virtually the *same* as those enhancing household food security.

In recent years, policy and institutional reforms in developing countries have received priority attention in view of unsustainable imbalances in both fiscal and external accounts. The extent in which these reforms have influenced rural performance is just beginning to emerge. In particular, the factors influencing the linkages of agricultural growth with the rural nonfarm economy have escaped comparative analysis. More importantly, there is a dearth of information on how recent structural adjustment policies and institutional reforms (e.g., decentralization) pursued by many of these countries—especially the transition economies of Asia—in recent years have affected agriculture and the various groups of the rural population.

The aim of this paper is to examine the link between agricultural growth and rural industrialization, on the one hand, and food security and poverty alleviation, on the other. The first section conceptualizes rural growth and the linkage of this growth with rural household welfare. The second section then provides an overview of recent growth and poverty alleviation in Asian countries. The third section specifically re-examines recent experiences on agricultural growth and rural poverty alleviation in developing Asian countries. Using some country cases, it illustrates the influence of *initial conditions*—distribution of assets and incomes, rural infrastructure and human capital, and macroeconomic and political environment—in shaping the response of rural poverty to the stimulus provided by agricultural growth. The fourth section examines how the same initial conditions can influence household food insecurity. The fifth section provides concluding remarks.

2.⁰⁵⁵ Conceptualizing Rural Industrialization and Household Welfare Response

Not until lately, the economic development literature is rather pessimistic about the potential role of rural industries in generating rural employment and household economic welfare. This literature sees the inevitable decline of rural industries as income expansion opportunities occur elsewhere in the economy (e.g., opening up of international trade for raw materials). One strand of the literature providing the conceptual basis to this view is represented by the influential paper of Hymer and Resnick (1969, hereafter referred to simply as HR).

HR considered an agrarian economy in which the set of alternatives facing the rural households includes traditional nonagricultural activities producing so-called Z-goods.[1] The opening up of profitable trade opportunities (i.e., the linking of the rural economy with the world economy) induces a movement of rural labor from the production of inferior, non-traded Z-goods to the production of cash (export) crops. The export earnings from cash crops enable the economy to import manufactured goods which are assumed to be of higher quality and to fulfill a wider range of needs than Z-goods. The production of food for domestic consumption is assumed to have no potential for dynamic growth and to be broadly unaffected by trade. An improvement in the terms of trade (i.e., an increase in the price of the export crop relative to that of the manufactured import) permits an expansion of cash crop activities; the increase in income (measured in terms of manufactured imports) in turn raises the consumption of manufactured goods and further reduces the consumption of inferior Z-goods. There is thus a tendency for rural nonfarm activities to shrink and perhaps even to become extinct in the course of economic development. Resnick (1970) observed that the pattern of continuous shrinkage by the Z-goods sector was evident in the Philippines, Myanmar (formerly Burma), and Thailand during the early part of this century.

The dark shadow cast over rural industries by the HR model could partly explain the neglect of the rural nonfarm sector in economic development literature (Fabella 1990). This is reinforced by the continued popularity of dual-economy type models (e.g., Lewis 1954; Fei and Ranis 1964) that virtually assumed away the heterogeneity of the rural (as well as the urban) economy. The rural nonfarm sector is subsumed in the backward sector that is usually identified with agriculture. In these models, the technologically stagnant agriculture sector is viewed to be the (passive) supplier of surplus fueling the more dynamic sector that is commonly associated with the urban or industrial sector. Poverty reduction in rural areas would have to be anchored on outmigration of labor from the stagnant to the dynamic sector.

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[1]Generally labor-intensive, these activities whether carried on in the household or in small-scale service and artisan establishments in the village, include "processing of food and fuels, spinning, weaving of textiles... as well as investment in house building, fence repairing, and services such as recreation, protection, transport, and distribution" (HR, p. 493).

Increasingly, the empirical strand of the development literature shows growth, not decline of rural nonfarm activities in dynamically growing economies (Anderson and Leiserson 1980; Shand 1986; Liedholm and Kilby 1989; Park and Johnston 1995; Otsuka 1996). This was especially so in the development experience of East Asian economies, particularly Japan and Taiwan where nonfarm income took an increasing proportion of the total income of farm households as industrialization proceeded (Oshima 1987). Moreover, in these economies, the Z-goods either retained their importance in the rural economy or became dominant in the course of industrialization.

Evidently, as carefully demonstrated by Ranis and Stewart (1993), the HR model's restrictive assumptions are inappropriate for understanding rural industrialization. First, the assumption that the Z-goods sector is broadly homogenous, composed of traditional nonagricultural activities carried out in the household or in the village, glosses over the enormous heterogeneity of these goods, both in terms of their labor intensity and in their demand responsiveness to changes in household incomes. At one end of the spectrum are the "traditional household products and processes" (e.g., handloom weaving) which probably shrink in the course of rural income growth, while at the other end are "non-traditional or modernizing rural nonagricultural products and processes" (e.g., mechanized rice mills and garment-making for exports) which may respond positively to the growth in rural income. As exemplified by the East Asian experience, the latter are likely to respond to productivity-raising technological change, to have higher quality, and to be located in rural towns rather than in households or villages. The growth in rural incomes stimulates growth in these goods and can possibly even substitute for imported manufactured goods.

Second, the treatment of domestically oriented food production sector as having no potential for dynamic growth implies that the sector has weak growth linkages. No compelling reason could be found in support of this view. On the contrary, the development record of East Asia and many developing Asian countries demonstrates that the relative scarcity of land in these countries has led to the adoption of land-saving, yield-increasing biological innovations (Hayami 1997). In areas where this occurred and where the macroeconomic environment was conducive to broad-based growth, technological productivity growth in the food sector was accompanied by a dynamic rural nonfarm economy. Rural poverty reduction and, to a lesser extent, income inequality reduction also accompanied this growth (Mellor 1995; Lipton and Ravallion 1995).

Third, the HR model glosses over the basic structural features (initial conditions) of post-colonial economies—agrarian structure, state of rural infrastructure, human resources, macroeconomic environment, etc. A rapidly growing agriculture taking place in an environment with highly skewed size-distribution of agricultural landholdings is hardly expected to have strong linkages with the rural nonfarm sector. The consumption pattern of large farmers is most likely geared to those goods with high import (or urban) content. Similarly, where public provision of rural infrastructure is biased in urban centers or where public policies create incentives for large-scale, capital-intensive, urban-based industries at the expense of small-scale, rural-based industries, technological change in agriculture (whether in domestically oriented food sector or in

cash crop export sector) is not expected to have strong stimulative effect on the growth of the rural nonfarm economy. In these cases, rural nonfarm activities can indeed shrink, but not because of the inherent tendency of the development process to be Z-immiserizing. Put differently, the linkages of agricultural income growth are weak in setting in motion a sequence of employment and income multiplier effects on the rural economy, thereby limiting the impact of this growth on the poor.

That agricultural growth stimulates expansion of income and employment elsewhere in the economy is apparent. But a simple, yet unsettling, question remains: Why would industries choose to locate in rural rather in urban areas, or in some rural centers but not in other rural areas?

It is evident from the above discussion that the emergence of local demand for nonfarm-produced goods and services, partly stimulated by agricultural income growth, forms a major part of the explanation for the rise of rural industries. The emergence is expected since, as borne out by household consumption studies, the demand for these goods is expected to rise faster than that for food as income increases (for staples, the income elasticity of demand becomes even negative at some income levels). It is also expected that the more equally distributed the benefits of agricultural income growth are, the greater the stimulus is on local demand for rural nonfarm goods and services.[2] Put differently, the more unequal is the distribution of benefits of agricultural growth, the smaller is the size of the employment multiplier effects of growth on the rural economy despite the rise in local demand (since labor intensity is lower), all other things remaining the same.

But local (rural) demand alone may constrain sustained expansion of rural industries or prevent them from moving to a higher growth path. Exporting (to urban areas or to the outside world) offers additional avenue for rural growth. But the question posed earlier now becomes even more unsettling: Why would enterprises targeting at exports choose to locate in rural rather than in urban areas?

Rural infrastructure, human capital, and institutions (defined broadly to encompass social relations and norms prevailing in rural areas) limit the extent of specialization of industries in rural areas. There are three main elements to this. One is the cost of producing industrial goods in rural areas vis-à-vis urban areas. Assuming that the main factor of production in producing these goods is labor and that labor is cheaper in rural than in urban areas, then there are advantages of producing the goods in rural areas.[3] However, these would have to be weighed against higher

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[2]Fafchamps and Helms (1996) have explored the role of local demand in rural industrialization.

[3]Developing economies are often characterized as exhibiting labor market dualism in which labor wage rates are higher in the formal sector (typically in large, urban-based firms) than in the informal sector (in small firms, including those in rural areas). Indeed, wage rates appear to be positively correlated with firm size (Mazumdar 1994). A large, urban-based firm minimizing

transaction costs—the second element of the supply-side consideration—arising from the generally poorer state of infrastructure in rural areas. High transport and communication costs could easily weigh down the labor-cost advantage of locating industrial production in a rural area. Finally, there are costs associated with enforcing and monitoring labor contracts in rural areas.[4] It is expected that as the scale of rural specialization increases, these costs rise, thereby also adding to the disadvantage of locating in rural areas. However, as argued below, enforcement costs are not likely to be any more prohibitive in rural areas than in urban areas; they are also not expected to be more constraining than rural infrastructure.

Figure 1 depicts the aforementioned cost considerations impinging on the number of rural industries (scale of rural specialization). This depiction is very much in the spirit of Otsuka's (1996) novel characterization of rural industrialization. The line PC captures the rising labor-cost advantage of operating small-scale industrial enterprises in rural areas, holding total output constant. The vertical intercept is the cost of producing the same output in urban areas. The line EC represents coordination and contract enforcement costs of locating in rural areas. Assume, initially, negligible transport costs. The total agency cost of operating in rural areas is the (vertical) sum of the two cost curves, given by the line TC. The optimal number of small-scale rural enterprises (extent of rural specialization) is determined at the minimum point of the TC curve.

In practice, as in successful cases of rural industrialization in Taiwan and many parts of Asia (Anderson and Leiserson 1980; Otsuka 1996; Hayami et al. 1996), subcontracting may be the preferred organizational arrangement. This involves an urban-based enterprise contracting rural-based enterprises to produce the output at agreed-upon unit price, volume, and quality. In many Asian rural societies, the arrangement is effectively supported by personal and community ties. As in agrarian relations (Hayami and Otsuka 1993), such ties play a critical role in contract enforcement and organization of marketing networks. Close social interactions reduce opportunism, cheating and shirking. One party's dishonest behavior is known by neighbors and can easily spread to other members of the community by word of mouth. In such an environment, it entails high cost for a subcontractor to violate time-honored customary rules and moral principles. This tends to be the case in areas where both contracting parties live in the same community. In Figure 1, these ties reduce the cost of coordination and enforcement (shifting the EC curve downward).

High transport and communication costs substantially reduce the opportunity for subcontracting, hence weakening the linkage between urban and rural areas and between agriculture and the rest of the rural economy. In Figure 1, high transport costs shift the PC curve (and hence the TC curve) upward and to the left, thereby reducing the extent of rural

wage cost may therefore have the incentive to contract work out to small firms rather than to hire in labor within the firm.

[4]To be sure, these costs are also present in urban areas.

specialization in industry. An extreme case would be that represented by TC' which reflects prohibitively costly production in rural areas. In this case, rural enterprises would not emerge; all nonfarm production activities would be located in urban areas. This formally establishes the crucial role of infrastructure in rural industrialization.

### Figure 1. Transaction Costs and the Extent of Rural Industrialization (à la Otsuka)
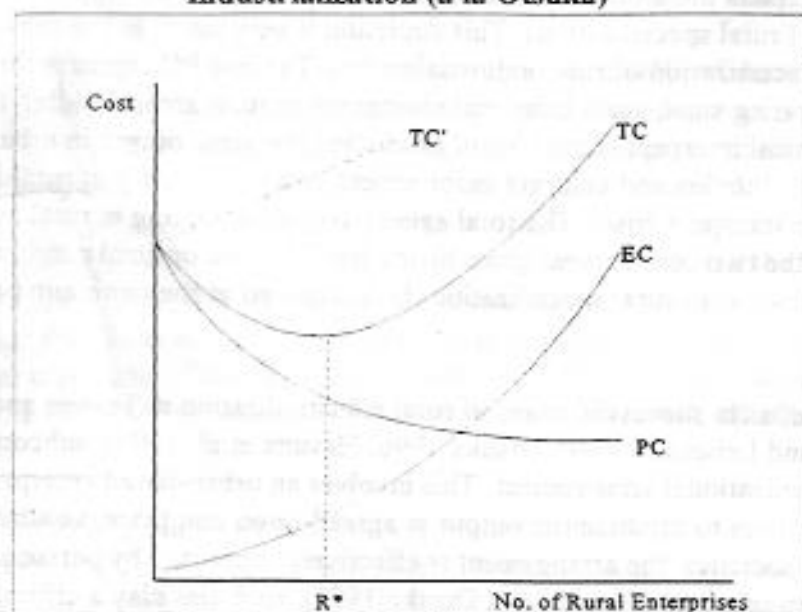
The availability of rural entrepreneurs is also critical to the growth of rural industries. In order for rural products to compete effectively with urban products, rural enterprises must have to adopt to changing technologies and demands. Hence, the importance of investments in human capital in rural areas cannot be overemphasized.

From a policy perspective, the critical link between agricultural growth and rural industrialization, on the one hand, and rural household welfare (viewed here narrowly in terms of food and income entitlements), on the other, is summarized in Figure 2. Clearly, the extent by which agricultural growth (technological change) benefits the rural population depends on the response of the nonfarm rural sector to the stimulus provided by this growth. In turn, this response is influenced by the initial conditions prevailing in both the rural and overall economy, i.e., the distribution of physical and human assets, rural infrastructure, and macroeconomic and political environment (including the degree of openness to trade). To be sure, while not explicitly

shown in Figure 2, these factors also affect agricultural growth, both directly and indirectly. Improvement in the household's access to food, for example, may increase farm productivity through the effect of nutrition on the quality of farm labor.

Figure 2. Links of Agricultural and Nonfarm-Demand Growth to Rural Welfare
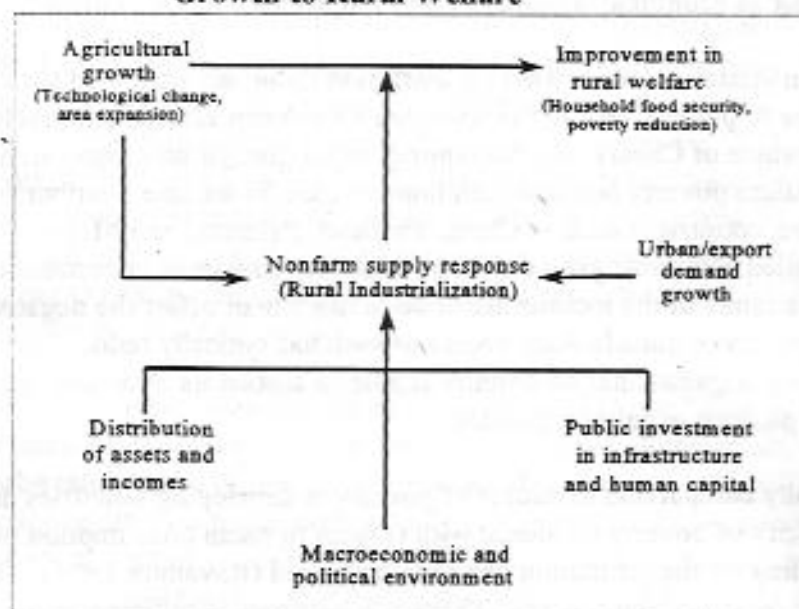
The succeeding sections further examine the aforementioned determinants of rural nonfarm response and household welfare in the context of recent experiences of developing Asian countries. A fitting starting point would be a description of the recent profile of aggregate poverty in these countries.

3.   **Growth and Poverty in Asia**

While the link between economic growth and poverty alleviation is a relatively old theme in economic development literature, it has regained prominence in policy debate in recent years. This has come at a time when many developing countries, including the formerly centrally planned economies, are embracing growth-oriented policies following years of growth crisis. The claim has been made that the poor lose—either absolutely or relatively—from such policies. Does the

recent evidence for Asian economies provide support to this claim? What lessons have emerged from the Asian experience?

Economic growth in Asia during the last two decades dwarfs those in the other regions of the world. But growth has not been uniform across Asian subregions and countries. GNP per capita growth during the 1980s and the first half of the 1990s was much faster in East Asia (at about 6% a year) than in South Asia (about 3% a year). Even within East Asia where most of the spectacular growth performers in the world are located, some countries (e.g., Indochina and the Philippines) were just as economic laggards as those in South Asian countries.[5]

Invariably, in Asian countries where growth was rapid and sustained for a considerable period, the incidence of poverty fell. In the so-called East Asian economic miracles [Japan, Korea (Rep), Taiwan (Province of China), and Singapore], rapid growth was associated not only with rapid decline in absolute poverty but also with improvement in income distribution (World Bank 1993). In other Asian countries (such as China, Thailand, Pakistan, and Malaysia), rising inequality accompanied economic growth, but absolute improvement in command over basic services in the entire range of the income distribution more than offset the negative effect of inequality on poverty. Even outside Asia, recent growth has typically reduced poverty. Indeed the worldwide experience suggests that no country is able to sustain its efforts in reducing poverty without continuing positive economic growth.

Internationally comparable measures of poverty in developing countries during the 1980s show that the elasticity of poverty incidence with respect to mean consumption per capita was -3.5 to -2.4, depending on the estimation methods employed (Ravallion 1995). This suggests a considerable impact of growth on poverty. There are, however, significant interregional and intercountry variations to the response of poverty on growth, mainly because of differences in initial conditions (including initial mean income and inequality levels). In India, for example, the historical elasticity of poverty incidence to mean consumption is about -0.75 to -1.21, depending on the method of estimation of mean consumption (Ravallion and Datt 1996). The much weaker response compared to the average for developing countries is likely a combined influence of many factors, especially its historically inward-looking policies that favored capital-intensive production—at the expense of labor-intensive sectors, including agriculture—and promoted socially wasteful rent-seeking activities (Srinivasan 1996). Highly unequal access to land, credit, and infrastructure appeared to have also prevented many poor, isolated areas to respond favorably from pockets of growth elsewhere in the economy (Dev et al. 1992; Vyas 1995). In contrast, in East Asian countries, the response of poverty to growth was stronger than the average for the developing countries owing to their generally more favorable initial conditions (especially physical infrastructure and already relatively low levels of income inequality). For the newly industrialized East Asian economies, this response could have actually become stronger in the course of sustained economic growth owing to the considerable importance given to human capital development, infrastructure, and governance, thereby allowing broad-based participation to

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[5]From hereon, Indochina refers to Cambodia, Lao PDR, Myanmar, and Viet Nam.

growth. Indeed, for these economies, inequality *fell* during the period of sustained positive growth (World Bank 1993).

Poverty continues, however, to be a major challenge in developing Asian countries, even in East Asia. Though the incidence of poverty was on a downward trend in both East and South Asia from the second half of the 1980s to the early 1990s (World Bank 1996), the bulk (74%) of the poor in the developing world continue to be located in Asia. New estimates of internationally comparable income levels also show that the extent of poverty in Asia, particularly China and Indochina, is much higher than was earlier reported (in, say, World Bank 1993). Using an international yardstick of one US dollar (at 1985 purchasing power parity) per capita per day as poverty line, the World Bank's recent estimates indicate that some 26% of the population in East Asia (including China) were poor in 1993. At about 450 million people, this accounted for about one-third of the world's poor. South Asia, which had a poverty incidence of 43%, contributed about 40% of the world's poor. These estimates also indicate that poverty incidence in China (29%) was much higher than what the official figures would show (i.e., about 8% in 1993). In Indochina, about one-half of the population were deemed poor on the basis of the international yardstick. Indonesia and the Philippines, which together accounted for about 15% of East Asia's population, had a poverty incidence of 10-15%.

The dependence of poverty estimates on the concept of "poverty" employed is, of course, well known; indeed there are divergent views on how poverty lines should be set.[6] However, within any country, the information on *changes* in both incidence and severity of poverty over time (or between policy regimes) is much more relevant for poverty monitoring and policy than that on *levels* of poverty at a given time, provided of course that the concept of poverty employed is consistently defined over the data domain. On this count, poverty reduction in China is impressive by international standards. Both international and official yardsticks unambiguously show a reduction by about one-half of the poverty incidence from the early 1980s to the turn of the 1990s.[7]

The rise in inequality in recent years for some of the rapidly growing Asian economies is raising concern that the present growth is already failing to deliver continued poverty reduction, thereby posing a major stumbling block to the sustainability of economic growth itself. Indeed

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[6]Within any one country, it is natural to employ a concept of "poverty" appropriate for that country. However, for international comparisons, it makes more sense to ignore the poverty lines of individual countries and use a concept common for all countries. The more important issue is achieving comparability across countries. On this and related methodological issues, see Ravallion (1996) and Chen et al. (1994).

[7]The official figures show a reduction from about 20% in 1980 to slightly less than 10% in 1990-94. On the other hand, based on international yardstick of one US dollar per capita per day, the World Bank's recent estimates show poverty incidence falling from about 60% to slightly less than 30% during the same period.

measurable increases in inequality are notable for China, Thailand, and possibly Malaysia.[8] In the Philippines, Indonesia, and India, public policy discussions have often centered on rising inequality despite limited empirical evidence demonstrating that inequality has actually been increasing. Across developing Asian countries, marked regional income disparities are sensitive matters, particularly if these reflect inequalities by ethnic or social group. And so are perceptions about widening income disparities between urban and rural areas. Note, however, that the main source of a country's overall inequality may not be found in differences in inequality between regions or between urban and rural areas. As increasing number of studies show, differences in living standards within regions or socio-economic groups typically dominate differences between such groups [see, e.g., Balisacan (1996) for the Philippines and Ravallion and Datt (1996) for India].

The channels by which inequality may inhibit subsequent economic growth are only gradually being understood. One strand of the literature appeals to political economy considerations: Concentration of wealth and resources lead to policies that protect sectarian interests and obstruct growth for the rest of society. High inequality may also fuel social discontent, thereby increasing socio-political instability which, in turn, reduces investment. Since investment is a primary engine of growth, income inequality and growth are inversely correlated.

Another strand (though not unrelated to the first one) focuses on the role of imperfect credit and insurance markets and how these inhibit intertemporal financial intermediation and cause poverty traps in which the poor get caught.[9] With imperfect credit markets, the poor may be prevented from investing in human capital and productivity-enhancing technologies with high fixed costs. Such investment will be confined to the owners of initial wealth.

Empirical evidence, albeit still limited, tends to show a link running from inequality to subsequent economic growth (Alesina and Perotti 1994, 1996; Bruno et al. 1995). A robust predictor of future growth is access of the population to basic schooling, health, and nutrition. This suggests that countries which give priority to these basic human capabilities not only directly enhance well-being but also see improving income distribution and higher average incomes over the longer term. Improvement in access to land is also a good predictor; a more egalitarian distribution of land, by improving access to credit and reducing malnourishment (and thus improving the employability of the currently employed), reduces poverty and boosts productivity.

Despite rapid urbanization in many Asian economies during the last two decades, rural poverty remains a rural phenomenon. For this reason, agricultural growth also remains central to poverty alleviation in rural areas. This is even more so for the transition economies where

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[8]Gini indices for China rose from 0.31 in the 1980s to 0.36 in the 1990s, while those for Thailand increased from 0.46 to 0.50 during the same period (Bruno et al. 1995).

[9]There is a rich literature on imperfect credit and insurance markets and their implications for efficiency and equity. For the implications of this literature on poverty alleviation in developing countries, see Dasgupta (1993) and Bardhan (1996).

approximately two-thirds of the labor force are dependent either directly or indirectly on agriculture. However, for poverty reduction in rural areas to be sustained, the rural nonfarm economy needs to respond strongly to the stimulus provided by agricultural growth.

4. Agricultural Growth and Rural Poverty Alleviation[10]

Developing countries with relatively high growth rates of agricultural output tended to have comparatively high growth rates (World Bank 1986; Timmer 1988). This correlation is clear for the developing Asian countries in Table 1. This observation is, of course, not surprising given that agriculture and agriculture-dependent manufacturing is a large fraction of the economy at early stages of development.

The varied experience of the developing Asian countries in rural poverty alleviation reflects the underlying character of their economic growth, agrarian structure, physical infrastructure, human capital, and social and political institutions. Not surprisingly, therefore, for the developing Asian countries in which comparable data on rural poverty performance are available, the correlation between agricultural growth and rural poverty is rather weak, while that between overall growth and rural poverty is somewhat strong (Figure 3). Rural poverty reduction is relatively impressive in Indonesia, Malaysia, Thailand, Bangladesh, China, and, to some extent, India. These countries have economic growth ranging from modest (Bangladesh and India) to rapid (Indonesia, Malaysia, Thailand, and China) by international standards. Nepal, Pakistan, and the Philippines have unimpressive poverty alleviation record. In the Philippines, severe macroeconomic difficulties, political unrest, and natural calamities in the 1980s stood in the way of economic growth and poverty reduction.

As noted earlier, poverty in the developing Asian countries has a mainly rural origin. Rural poverty accounts for about three fourths of the various countries' total poverty. Of the rural poor, the large majority of them depend on agriculture for employment and income. The landless farm workers account for about 40 percent of rural poverty in Bangladesh, 45 percent in India, and 15 percent in the Philippines.[11] The rest are mainly small owner cultivators and tenants. Given this character of rural poverty, agricultural growth offers a potentially enormous source of poverty reduction, *provided growth is broadly based.* It appears that the relatively high growth of agriculture in Indonesia, Punjab of India, and China has contributed enormously to the observed decline of rural poverty in these countries.

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[10]This section has drawn extensively on Balisacan (1996a).

[11]For sources, see Balisacan (1996a).

Rapid Agricultural Growth, Sluggish Poverty
Reduction: The Philippine Case

The Philippine experience with agricultural growth offers a clear illustration of the importance of initial conditions, including policy regime, to rural poverty alleviation. While agricultural growth faltered in the 1980s and early 1990s, the agriculture sector in the Philippines performed remarkably well vis-à-vis other developing Asian countries from the second-half of the 1960s to the late 1970s (see Table 1). However, during this period, the ranks of the unemployed and the underemployed continued to swell, real wages persistently fell, and the incidence of rural poverty remained high and seemed unaffected by the rapid agricultural growth then taking place (Balisacan 1993a, 1993b). The size distribution of income also became less egalitarian. The farm-nonfarm growth linkages expected to be induced by agricultural growth were simply weak or non-existent.

Table 1. Average Growth of Agriculture and GDP
### in Developing Asian Countries
(% per year)

Country	Agriculture		GDP	
	1965-80	1980-94	1965-80	1980-94
Indonesia	4.3	3.3	8.0	6.5
Malaysia	...	3.5	7.3	6.1
Philippines	4.6	1.2	5.9	1.2
Thailand	4.6	3.7	7.2	7.8
Bangladesh	1.5	2.5	2.4	4.3
India	2.5	3.0	3.6	5.2
Nepal	1.1	3.2	1.9	4.7
Pakistan	3.3	3.8	5.1	5.8
Sri Lanka	2.7	2.1	4.0	4.5
China	2.8	5.4	6.4	10.4

... Not available.
Sources: Asian Development Bank, *Key Indicators of Developing Asian and
Pacific Countries*, 1995.
World Bank, *World Development Report*, 1990, 1996.

Figure 3. Rural Poverty Reduction in Relation to Agricultural
Growth and GDP Growth
(1970s-early 1990s)

(A) Agriculture

(B) Gross Domestic Product
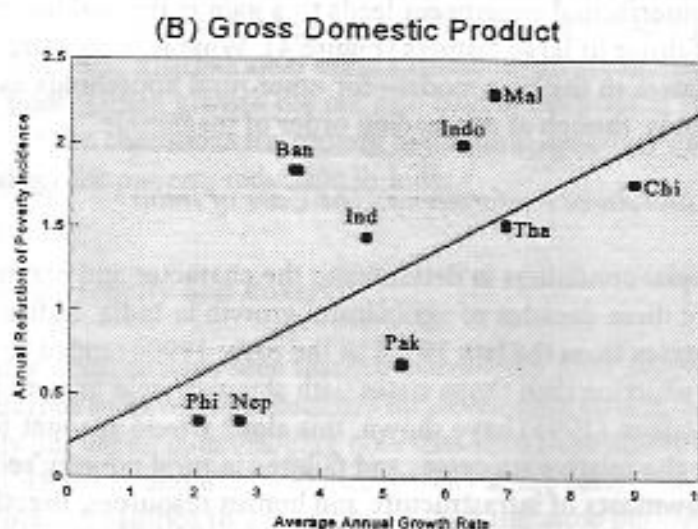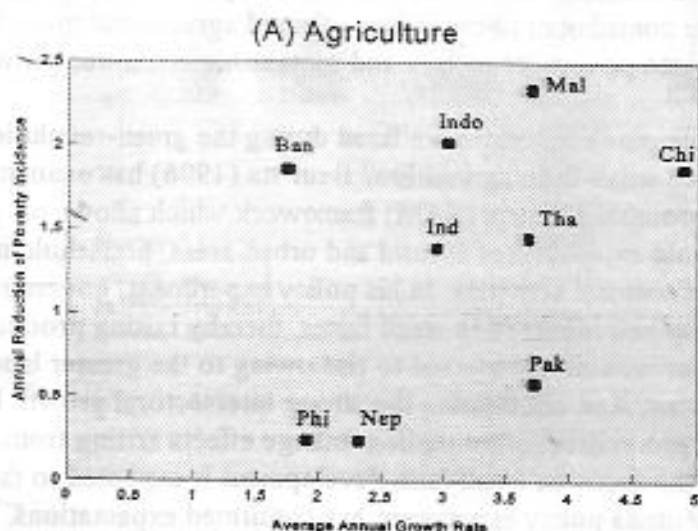
Note: Annual reduction in poverty is in percentage points.

Sources: Balisacan (1996a).

Before and during the high-growth period, small farmers received less attention and support from government in comparison to large farmers and agri-business enterprises. Benefits of public investment in agricultural research, input and output subsidies, and infrastructure accrued disproportionately to the large-size farms. Public spending was heavily biased in favor of urban areas. The unfavorable effects of foreign trade and payments restrictions, the low interest rate policy, and the effective rationing of institutional credit impinged much more heavily on small farmers. These factors have contributed to the failure of rapid agricultural growth observed during the period to be translated into poverty reduction and sustainable economic growth.

How would the Philippine economy have fared during the green-revolution period under conditions more favorable to small-farm agriculture? Bautista (1996) has examined this issue using a modified Social Accounting Matrix (SAM) framework which allows for interrelations among production, household expenditures in rural and urban areas, household incomes, and the macroeconomic linkages of sectoral activities. In his policy experiment, government investments and subsidies are assumed to be redirected to small farms, thereby raising productivity and value added for these farms. Labor income is expected to rise owing to the greater labor intensity of production in small-size farms. And considering the strong intersectoral growth linkages of small farms, including the direct and indirect consumption-linkage effects arising from increased income of small-farm households, the focus on small farm development is expected to favor both equity and growth. Indeed, the Bautista policy experiment has confirmed expectations. That is, had the observed sectoral growth during the green-revolution period taken place in an environment in which public investments and subsidies did not discriminate against small farms, poverty reduction and economic growth in the Philippines would have been substantially higher than what was actually achieved. The counterfactual experiment leads to a gain in the real incomes of small farmers and a reduction of those of large farmers (Figure 4). What is even more remarkable is that incomes also increase—relative to the base model—for other rural households as well as for urban and Metro Manila households, though at descending order of magnitude.

Initial Conditions and Rural Performance: The Case of India

The influence of initial conditions in determining the character and pattern of rural welfare is also demonstrated by the three decades of agricultural growth in India. Indian states with substantial farm yield increases from the late 1950s to the early 1990s tended to have achieved more rapid rural poverty reduction than those states with sluggish yield growth performance. However, as Datt and Ravallion (1995) have shown, this alone would account for only a small part of the explanation for the relative successes and failures in rural poverty reduction across states of India. Initial endowments of infrastructure and human resources, together with state development spending, played a major role. Specifically, higher initial irrigation intensity, higher female literacy, and lower initial infant mortality have contributed to higher long-term rates of consumption growth and poverty reduction in rural areas.

Figure 4. Income Effects of Small-Farm Development
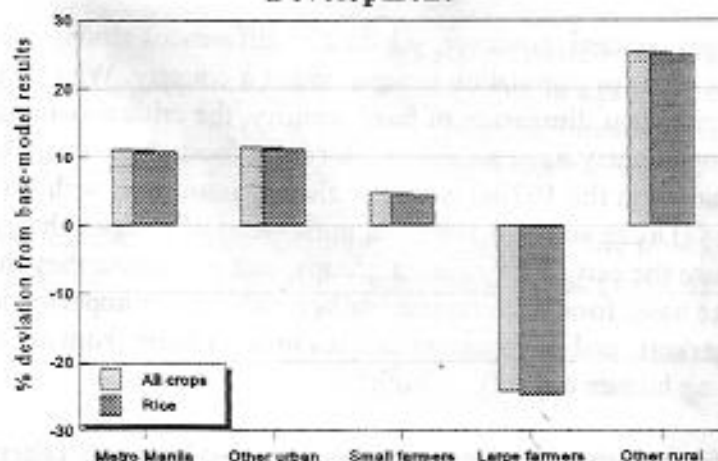
The Indian experience also shows the quantitative importance of rural economic growth to national poverty reduction. Growth within the rural economy contributed the bulk to national poverty reduction in India during the last three decades (Ravallion and Datt 1996). Rural growth, led by agricultural growth, benefited the poor in both rural and urban areas. By contrast, urban growth in India had adverse distributional effects within urban areas, which militated against the gains to the urban poor. Urban growth did not also benefit the poor in rural areas. Thus, it appears that fostering the conditions for growth in the rural economy must be considered central to an effective strategy for poverty reduction in India.

4.   Rural Food Insecurity and Poverty

The last three decades have seen marked increases in food supplies (hereafter interchangeably referred to as food availability) for developing countries and for the world as a whole. Food supply per capita in developing countries rose from an average of about 2.0 calories per day in the early 1960s to about 2.5 calories per day in the early 1990s; the availability for the world increased from 2.3 calories to 2.9 calories during the same period.[12] The increase occurred in all major regions of the world, except in Sub-Saharan Africa where food availability per capita actually fell during this period. East Asia had the lowest food availability (1.7 calories per day) in the early 1960s, but ended the 1990s with higher than the average for all developing countries.

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[12]These and the following figures are based on FAO (1996).

The progress was slower in South Asia where the incidence (and perhaps severity) of poverty is higher than that in East Asia. In the early 1990s, average food supply per capita in South Asia was lower than those for East Asia and the developing world.

Regional averages conceal, however, substantial differences among countries within the region as well as across areas or population groups within a country. While regional or national food availability is an important dimension of food security, the critical issue is whether all population groups in any country have access to affordable food at all times. Indeed, famines in recent memory (e.g., India's in the 1970s) were not always associated with severe shortages of aggregate food supplies (Dreze and Sen 1989). In most cases of hunger, the problem is usually "food entitlement" failure for certain population groups, either because they do not have sufficient resources to acquire the basic food requirement, or because market imperfections, especially in credit and insurance markets, and government failures prevent them from accessing food and building assets (including human capital), or both.

It is useful to distinguish short-run versus long-run food security (alternatively, support-led security and growth-mediated security (Roumasset 1982; Ravallion 1992). The latter has to do with the development of human capabilities for meeting basic needs; growth enhances the attainment of these capabilities. The former recognizes social concerns other than growth; support systems (e.g., food aid programs) reflect the society's aversion to starvation and other less terminal forms of nutritional deprivation. Of course, in practice, the distinction is not always sharp. Most programs aimed at reducing household food insecurity have both short-run and long-run dimensions, but they differ in their emphasis. Employment programs designed for implementation during a period of macroeconomic stabilization and adjustment, for example, usually emphasize short-term considerations (i.e., the short-run income effects of the program for the poor and hence for household food security), while recognizing that they also induce long-run food security via their effects on asset formation (e.g., infrastructure) and hence labor productivity.[13]

The distinction is important, however, because it highlights possible tradeoffs between short-run and long-run benefits (and costs) of public action for enhancing household food security. UNDP's *Human Development Report* series reflects a stronger preference for support-led security measures; it de-emphasizes the presence of these tradeoffs. On the other hand, the World Bank's (1990, 1996) approach to poverty alleviation underscores the long-term opportunities foregone with short-term security measures. For most developing countries, especially those in transition from a centrally planned to a market economy, fiscal bind demands a serious recognition of these tradeoffs. This is not to say, however, that the character and dynamics of these tradeoffs are necessarily obvious. Analytically, one has to move beyond a macro approach to looking at food insecurity (for example, by simply looking at nationally

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[13]See von Braun (1995) for an examination of the employment-poverty-food-security links, especially the country cases in the same volume.

available food supplies) and seek as well a microeconomic understanding of the nature of food insecurity, especially in rural areas where poverty and hunger are usually concentrated.

It is important to recognize that given the overwhelming importance of agriculture in low-income countries, weather and price variability contribute enormously to rural income fluctuations (and, hence, to poverty arising from a failure to find protection against stochastic elements in the economic environment). At the same time, in these countries, financial institutions are poorly developed, especially in rural areas. Even social insurance institutions are often weak.

In seeking to understand rural food insecurity, consider the probability that a rural household is food insecure. Following Anderson and Roumasset (1996), this can be represented as

$$Pr(Z < 0), \quad Z = P(Q - C^m) + A,$$

where P is the local price of food, Q is the household's production (net of inputs) of food, C^m is "minimum" food consumption meeting nutritional requirements, A is incomes from sources other than farming (e.g., from fixed assets, labor incomes earned outside the farm, and income transfers), and Z is an index reflecting food insecurity (if $Z<0$) or security (if $Z>0$). For simplicity, it is assumed that C^m is not dependent on P. The household is a net supplier of food if $(Q-C^m)>0$; it is a net buyer if $(Q-C^m<0)$. Any net purchase of food is covered by A. While quite simple (and obviously ignoring dynamic aspects of food insecurity), this representation of the food insecurity problem is useful in understanding the stochastic aspects of food insecurity and poverty as well as in identifying specific areas for public action.

Clearly, a household is food-insecure if net production falls short of minimum food requirement and A is not adequate to cover the shortfall. What are the chances that this occurs? Assume first that P and Q do not co-vary (as might be the case if transport costs are low or if the local economy is integrated with the urban/global economy). Also assume that A and Q are uncorrelated.

Household income then varies directly with farm output which may fluctuate from season to season owing mainly to vagaries of weather. Obviously, low yield and variable farm output increase the chance of a rural household to become food-insecure. It follows that public action focusing on raising farm productivity and reducing farm profit variability enhances rural food security.

In Asia, the so-called green revolution has contributed to growth in crop yields and, in irrigated environments, has helped to reduce overall farm income variability. Moreover, the modern technology occurred quite evenly among farmers of all size groups and tenure. Large farmers tended to fully adopt the technology earlier than small farmers, but the gap in their adoption eventually disappeared. Available evidence also indicates that, in areas where there are no significant barriers to labor mobility, even subsistence-oriented farm households in unfavorable

(unirrigated) areas have benefited from the green revolution in favorable (irrigated) areas through their enhanced participation in the labor market. That is, the increase in labor demand in favorable areas raised wages in those areas, inducing workers from unfavorable areas to enter the labor market in favorable areas (David and Otsuka 1994).

Past public investments in agriculture focused on high-potential, usually irrigated areas. But given the gravity of poverty and environmental problems in marginal lands of many developing Asian countries, technology development would have to increasingly pay attention to rainfed areas. While the long-term solution to marginal areas might well be found in sustained expansion of high-paying employment opportunities in other regions/areas of the country and/or in nonfarm areas and, hence, in the migration of many inhabitants to these areas (Balisacan 1996b), it will take several decades for many of the agriculture-dependent developing Asian economies to ease population pressure on marginal lands. The interim solution requires raising agricultural productivity and enhancing indigenous capacity to manage fragile, complex agro-ecosystems.

Turn next to sources of household incomes other than farming (i.e., A). For the large majority of the poor, the only significant asset they have is their own labor. Thus a key factor enhancing household food security in a risky farm environment is the return to this asset in nonfarm activities.[14] A major part of a strategy for reducing food insecurity in low-income countries should therefore involve generating conditions for sustained expansion of employment opportunities in rural nonfarm (as well as urban) areas. The importance of basic rural infrastructure, human capital, and macroeconomic and political stability cannot be overemphasized.

The *effective* price of food faced by rural households distantly located from market centers includes the price quoted in these centers plus transport and time-costs (or, generally, transaction costs). If the household is a net buyer of food, the effective price is the quoted price *plus* these transaction costs; if it is a net seller the effective price is the quoted price *less* these transaction costs. If the transaction costs are high (as would be the case if rural transport and communication infrastructure is in dismal state), the divergence between the effective price received and the effective price paid may be very high in relation to the market price. In remote areas, these costs could lead to isolation of farm households from food markets (i.e., households choose to become subsistence-oriented). For these households, local supply shocks (owing to, say, drought or crop pest infestation) are disastrous to their food security. Sure, in Asian villages, there usually are

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[14]The scope for diffusing the risk of food insecurity through nonfarm employment is greater for the labor-surplus farm households than for labor-deficit households. In rural areas where the conditions for nonfarm employment generation are highly unfavorable, agroclimatic shocks may increase poverty and inequality, especially if households in the lower end of the income distribution are far more constrained in their income diversification than those at the other points of the distribution. This is the case observed by Reardon and Taylor (1996) for households from three agroecological zones of Burkina Faso.

indigenous communal insurance schemes that serve as imperfect substitutes for credit markets (Lipton and Ravallion 1995), but these schemes may not be sufficient to prevent them from experiencing hunger. Within a farm village or adjoining villages, the co-variance of yields (and incomes) tends to be high; drought, for example, reduces everybody's income. Even food surplus from other areas will, in the absence of public action, not help much in alleviating the situation. Precisely the same transaction costs, combined with reduced income-earning capability, prevent this surplus from becoming accessible to those in hunger.

Clearly, high transaction costs in rural areas are a major constraint to the eradication of hunger. Rural villages isolated from market centers owing to poor infrastructure are highly vulnerable to stochastic elements in the economic environment. Investment in rural infrastructure should therefore be a central element of any strategy for reducing household food insecurity and poverty in rural areas. If properly designed, infrastructure programs could serve as an effective instrument for reducing both short-term food insecurity arising from local shocks (through the employment it provides to those who are food-insecure and poor) and long-term food insecurity arising from lack of human capabilities and command over basic services (through asset formation and hence future sources of productivity and income growth).

5. Concluding Remarks

The popular claim in policy discussions that the link between economic growth and poverty reduction is weak is vastly exaggerated. No country in the world has ever sustained efforts in reducing poverty without continued overall growth. Moreover, the enabling conditions for sustained inequity and poverty reduction are essentially the *same* as those demanded for continued positive growth. The so-called East Asian economic miracles are not miracles at all. Policymakers in developing countries need not go far in search of "new models" to effectively alleviate poverty. Much can be achieved simply by improving performance in traditional areas of development management: the financing and public-sector coordination of investments in social and physical infrastructure, promotion of rules ensuring incentive compatibility in government and in the private sector, maintenance of macroeconomic stability, and pursuit of peace and order. Such improvements have been long delayed for still many developing Asian countries.

Despite the rising urbanization of poverty in most of these countries, it is likely to remain true for several years to come that—from the viewpoint of the poor—it is the rural economy, not the urban sector, that leads the way to national poverty reduction. Thus, fostering the conditions for rural development is central to an effective strategy for reducing food insecurity and poverty as well as for promoting overall economic growth in these countries.

Given declining arable land relative to population, technological progress would represent the main source of production growth in the foreseeable future for developing Asian countries. The future rate and character of technological progress will influence not only the contribution of

agriculture in national output and employment but also the pace of food-insecurity and poverty alleviation, especially in rural areas.

Broadly based rural growth anchored on technological progress in agriculture holds the key to the sustained alleviation of rural poverty in developing Asian countries. This type of growth requires that the *initial* conditions—size distribution of incomes and assets (including human capital), state of rural infrastructure, and macroeconomic and political environment—would have to be made more favorable than what they were in recent years for many of these countries (e.g., Philippines, India, and Indochina). The response of rural nonfarm areas (as well as urban areas) and, hence, of rural poverty to the stimulus provided by agricultural growth was weaker than expected owing to the poor state of infrastructure, the bias of public spending in favor of large farmers and agri-business enterprises (and against small farmers), the disproportionately negative effects of trade and exchange rate policies on small farmers, high inequality in the distribution of wealth (especially land), and political instability.

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