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**Rural and Urban Dynamics and Poverty:  
Evidence from China and India**

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## **Abstract**

The rural and urban sectors of an economy are interconnected economically, financially, and socially. Ideally, resources such as capital and labor should move freely between these two sectors. In an undistorted economy, marginal returns to production factors should be equal. As a result, labor productivity and consequently per capita income should be the same. Many have argued that there should not be any distinction between rural and urban sectors. Indeed, there has been a growing interest in the development literature on the linkages between rural and urban development (DfID 2003).

However, the relationship between urban and rural sectors in many developing countries is still characterized by an economic dualism, in other words, by the coexistence of a modern urban sector and a traditional rural sector. This duality arose because many developing countries, including China and India, pursued a heavy industrialization development strategy based on the transfer of resources and labor surpluses from the traditional (or rural) sector to the modern (or urban) sector. This development strategy largely favored the development and growth of the urban sector at the expense of rural areas. China initiated its reform in agriculture in the late 1970s and India began its macroeconomic reforms in the early 1990s. In both countries, these reform policies have corrected the urban bias to some extent. But the urban bias still persists. Whether measured in terms of income, literacy, or access to social services, a large gap is present between the rural and urban areas.

The framework we used in this analysis is based on the equalization of returns to factors between rural and urban areas. Within this framework, any distortions that affect the free movement of resources should be removed. Government policies should be designed to correct market failures in order to achieve higher efficiency and also better income distribution. Under this circumstance, both efficiency and equality can be achieved, and greater synergies can be obtained between the two sectors.

Our hypothesis is that further correcting urban bias would lead to higher growth in agriculture and therefore larger poverty reduction in both rural and urban areas, as a result of better rural-urban linkages. To test this hypothesis, panel data are used from

China and India to measure (1) the contribution of rural growth to the reduction of both rural and urban poverty and (2) the impact of urban growth on rural and urban poverty reduction.

For China, the results showed that agricultural growth has contributed to poverty reduction in both rural and urban areas. But the effect on rural poverty is larger than the effect on urban poverty. On the other hand, urban growth contributed to only urban poverty reduction and its effect on rural poverty reduction is negative or statistically insignificant. The results for India show that rural growth helps to reduce rural poverty, but its effect on urban poverty reduction is statistically insignificant. On the other hand, urban growth contributes to urban poverty reduction and its contribution to rural poverty reduction is not statistically robust.

For both China and India, poverty rates are higher in rural than in urban areas. In addition, rural areas are still home to most of the total population. Poverty is thus concentrated in rural areas. Therefore, any policy that leads to higher growth in rural areas will also lead to greater poverty reduction. China and India both implemented development policies biased in favor of the urban sector. The terms of trade for agriculture have improved as part of the reform process, leading to some correction in urban bias. But other types of biases still exist. Among these, government investment has been one of the most important. To achieve greater poverty reduction, both governments need to correct this bias urgently by investing more in rural areas. Infrastructure such as transportation and communication, for example, is crucial for achieving better rural-urban linkages as it facilitates mobility and therefore access to markets, employment, and services for the rural population. Moreover, empirical evidence on the economic returns to public investments from both countries has shown that more investment in rural infrastructure as well as in agricultural research and development, and education will yield the largest returns in terms of both growth and poverty reduction. In poor areas such as western China and Eastern India, the poverty reduction effect from these investments is particularly high, and therefore deserves more investments from the government.

The government should also reform its policies to nurture the further development of rural industries and small towns that play a key bridge role between rural farming communities and urban centers.

**Key words:** urban-rural linkages, poverty, China, India

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## 1. Introduction

Rural and urban areas are interdependent in many ways. A growing body of literature argues that rural and urban areas should not be treated as two distinct entities because the livelihood of many households includes both rural and urban components. Nonetheless, many developing countries have done exactly that. Development strategies in many countries have concentrated resources in the urban sector and consequently increased the development gap between rural and urban areas. Labor productivity and income per capita in rural areas have lagged behind that in urban areas, increasing the concentration of poverty among the rural population.

In particular, both China and India each followed a development path where policies treated rural and urban areas separately. Development strategies relied heavily on industrialization, which was viewed as a symbol of modernization and as a way to catch up with the higher-income Western countries. After the establishment of a new government in 1949, for example, China embarked on an urban-biased development scheme. India adopted a similar model after its independence in 1947. Economic rents and surpluses were transferred from rural to urban sectors through various explicit and implicit interventions, such as state pricing and procurement of agricultural products, fiscal transfers and investment, and restrictions on labor movement. These policy biases continued for decades.

In the late 1970s, however, China initiated agricultural reforms. India instituted macroeconomic reforms in the early 1990s. Whether intended or not by the policymakers, these changes began a process of correcting the urban bias in many respects. In China, agricultural prices were raised, the state procurement system was abolished, and many of the restrictions on movement of labor were lifted, improving rural-urban linkages. In India, the implementation of macroeconomic reforms led to an improvement of the terms of trade for agriculture. As a result of these corrections, agricultural growth accelerated, and rural poverty declined.



A better understanding of rural-urban linkages and of how urban-biased policies interfered with these linkages has important implications for the design of development strategies to promote growth and reduce poverty. To now, however, little information has been available on the nature and the magnitude of these linkages and interdependence in China and India.

In this paper, we examine the history of the relationship between the rural and urban sectors in China and India, including the development of policies that influenced this relationship and their impact on poverty in China and India. Although the policy bias toward urban areas has diminished somewhat in both China and India, we will argue that continued action to redress urban bias is crucial to strengthening and exploiting the synergies between the rural and urban sectors in both countries.

This paper is organized as follows. We first present a conceptual framework to define and measure the extent of urban bias. We then review policies that have contributed to such bias and their changes over time in China and India. Next, we present an analysis that uses a panel data set to evaluate (1) the contribution of rural growth to the reduction of both rural and urban poverty, and (2) the impact of urban growth on rural and urban poverty reduction.

In the following section, based on evidence from the literature, we discuss how the government can use policy instruments, particularly investment policy, to correct urban bias, strengthen rural-urban linkages, and maximize the impact of policies on both growth and poverty reduction.

## **2. Definition, Causes, and Consequences of Urban Bias: A Conceptual Framework**

The development literature has exhibited a growing interest in the linkages between rural and urban development. These linkages matter because rural and urban livelihoods are interconnected economically, financially, and socially. From a rural perspective, most farmers depend on urban markets to secure their livelihoods. Rural

households also depend on urban centers or small towns for various services (e.g., hospitals, banks, and government offices) and for the provision of various private and public goods. Moreover, the rural sector benefits from remittances sent by urban-based family members (DfID 2003).

Likewise, urban areas are linked to the rural sector through several channels. For example, various urban businesses and enterprises depend on rural demand for their goods and services. They also rely on rural areas for the supply of raw materials. Urban consumers, on the other hand, benefit from cheap and sustained food supply from rural areas (Fan 2003; Fan, Fang, and Zhang 2003). Furthermore, many poor urban households partly depend on rural activities (e.g., farming) for their livelihoods (DfID 2003). The rural sector can also act as a buffer from the impact of macroeconomic shocks on the urban economy (World Bank 1999).<sup>1</sup> Links between the rural and urban sectors also include flows of information, such as markets and employment opportunities, as well as flows of people moving between rural and urban centers on a temporary or permanent basis.

Development policies that facilitate these rural-urban linkages can promote economic growth and poverty reduction. But how does this balancing and synergistic relationship work? Economic theory suggests that resources should move freely so that marginal returns are equalized between sectors and regions. An increase in agricultural productivity may precede the growth of urban settlements. But as new innovations take place in the urban sector, urban labor productivity and wages rise, making migration from the rural to urban sector attractive. In the meantime, urban development may also improve access to capital, inducing further mechanization or other innovations relevant to agricultural production. As a result, agricultural productivity grows, narrowing the productivity and income gaps between rural and urban areas. When innovations take place again in the urban sector, the gap in productivity and income widens between the

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<sup>1</sup> The rural sector provides labor when the urban economy flourishes and absorbs labor back in times of economic contraction (Zhang et al. 1999).

two sectors. Rural labor begins to migrate to the urban sector, and capital moves to rural areas. A new equilibrium emerges.

This process of moving from disequilibrium to equilibrium due to technological innovations in both sectors is the major source of economic growth and development. But many developing countries disrupt this natural economic development process. Very often governments interfere in favor of the urban sector, distorting capital and labor markets to favor urban over rural areas, in an attempt to jumpstart development or leapfrog this process. As a result, overall efficiency is lost, as resources do not flow to their “free-market” locations where they would naturally earn the highest rate of return. As a consequence, the rural-urban gap increases, and the natural growth that would occur in rural areas, as well as in urban areas, is circumvented.

In fact, in developing countries, we typically observe the coexistence of a modern urban sector and a traditional rural sector. In these countries, the urban population is often better off than their rural counterparts. This rural-urban divide evolves when governments in developing countries give preference to the urban sector in their public policies. Such preferential practices may include, for example, price policies, public investment, and welfare transfers that favor the urban over the rural population. In part this urban bias may also occur because urban centers in developing countries may be better organized politically and thus have greater influence on policy makers than the rural population (Lipton 1977; Bates 1981).<sup>2</sup>

We see the effect of urban bias in the gap between urban and rural areas in terms of labor productivity, per capita income, and poverty rates. The greater the gaps among these indicators, the larger is the bias.<sup>3</sup> Naturally, per capita income and productivity differences have to be adjusted by labor quality and cost of living in the two sectors.

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<sup>2</sup> Another source of the urban bias is the assumption by many policymakers that modernization results from industrialization not from improvement of the agricultural sector.

<sup>3</sup> In this we argue that spending policy is an instrument that creates the gap, and not the measure of the gap. The measure of the gap is the income difference between rural and urban areas, adjusted for cost-of-living. Of course, the income differential is the result of many factors, which we do not discuss here, but these factors are nevertheless the causes of the gap, not the measure of it.

For India and China, urban bias has usually arisen from the combination of three different but related policies. The first and most common one relates to policies affecting the terms of trade (i.e., price policies). Very often agricultural outputs are under priced, with levels that are much lower than those that would result from a free market situation or in the international market.<sup>4</sup>

Second, overvalued exchange rates in most developing countries exacerbate this bias, adversely affecting all traded goods, but frequently agricultural products in particular. If labor and capital are fully mobile, they may move towards the urban or industrial sectors if the returns there are more favorable. In the long run, however, even in the presence of distortion in the output markets, the marginal returns to different factors between rural and urban sectors will converge as long as there is no distortion in the factor (input) markets. Unfortunately, many countries like China have also heavily distorted factor markets by restricting the movement of labor and capital. The Household Registration System, or *hukou*, in China, for example, did not allow farmers to move to urban centers despite the presence of a huge labor surplus in the rural sector and the lower marginal return to labor there. After the reforms in 1978, farmers were allowed to migrate to urban areas, but many restrictions on their employment in urban centers remain.

Third, governments' tendencies to favor urban centers are reflected in their spending policies. Like other government policies, public spending endeavors to promote more equitable development and increase efficiency by correcting market failures.<sup>5</sup> In many cases, governments may have to trade off efficiency and equity goals. But it is also important to recognize that equity-efficiency trade-offs are not always present. Where market failures are more pervasive among the poor (i.e., the poor are

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<sup>4</sup> Recent studies have shown that the bias from this source has declined but is still present (Jensen, Robinson, and Tarp 2002).

<sup>5</sup> The sources of market failures typically are: the absence of competitive markets, the existence of positive or negative externalities in consumption and production, the undersupply of public goods by the market, imperfect information on production and consumption opportunities, missing or imperfect markets, and coordination failures.

poor because they are disproportionately affected by market failures), this leads to the presence of so-called “win-win” possibilities where government intervention leads to both a more efficient and a more equitable allocation of resources. For example, public investment in rural infrastructure has not only generated economic pay-offs by correcting market failures but has also led to poverty reduction.

The consequences of urban-biased policies are obvious. First, these policies lead to larger gaps between rural and urban areas in terms of many development indicators, such as education, health, nutrition, per capita income, and poverty. Second, rising inequality may lead to tensions that constrain the prospects for future growth through a variety of social, political, and economic mechanisms.

### **3. Rural-Urban Dynamics: A Historical Perspective in China and India**

Using the framework developed in the previous section, we review below the major policies that have led to urban bias in China and India and discuss its consequences.

#### **China**

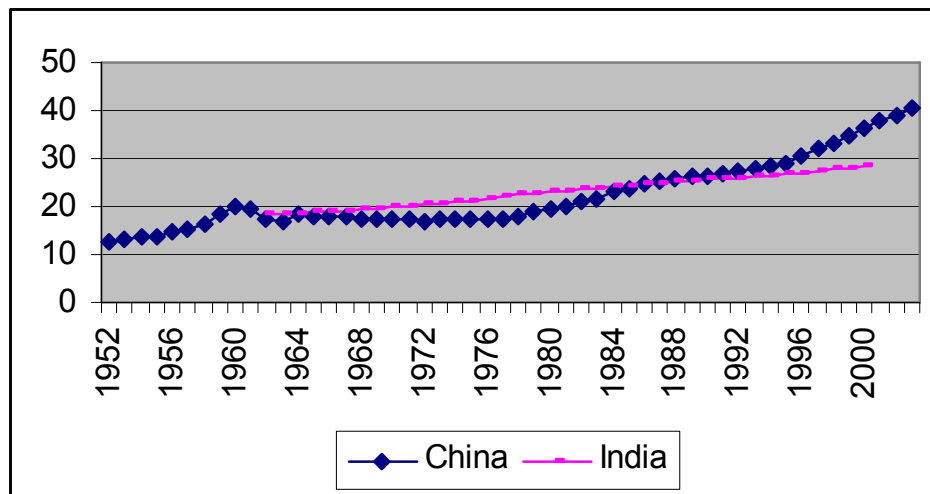
The urban bias that prevails in China finds its roots in the country’s history. After the establishment of the communist regime in 1949, China adopted a development strategy that emphasized urban industries with capital-intensive technology through various implicit and explicit transfer programs.

The rationing system introduced in the 1950s enabled urban residents to have equal access to food and other necessities at much lower prices than would have occurred without state intervention. Almost all urban residents of working age had guaranteed jobs in the state- or collective-owned sectors. Because these jobs were permanent and labeled the “iron rice bowl,” urban unemployment was virtually nonexistent. These jobs also provided urban residents with many benefits, such as free or subsidized housing and health care. On the other hand, rural residents were confined to their production units

where they produced agricultural commodities under strict state planning. The government was able to monopolize agricultural production in the rural sector while controlling the distribution of food and other products in the urban sector. These commodities had to be sold at government prices that were lower than international prices. Huge rents were thus transferred to urban centers for the development of heavy industry. The surpluses arising from the agricultural sector not only contributed to capital accumulation in industries, but also supported urban-based subsidies.

The strict control of rural-to-urban migration through *hukou* reinforced the segmentation of China's rural and urban sector. *Hukou*, put in place in the 1950s, assigned a place of residency and employment for the entire population, and defined one's rights for social and economic activities within a specified locality. Because of *hukou*, the share of urban population remained constant at 20 percent from 1952 to 1970s (Figure 1).

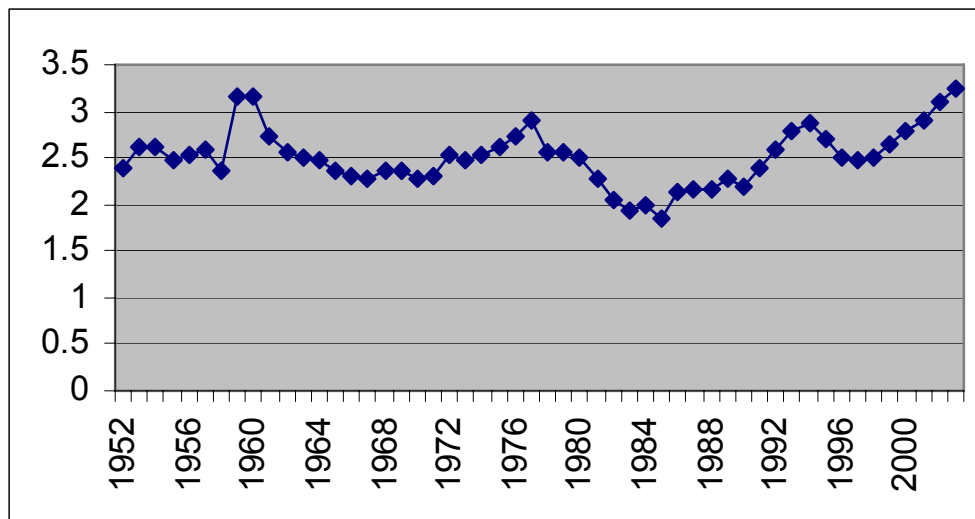
**Figure 1—Urbanization rate in China and India**



The heavy-industrialization development strategy, combined with the *hukou* system, enabled the government to obtain agricultural products at lower prices, to maintain low urban consumption (through rations), to control the mobility of labor, and to increase industrial investments. All these elements contributed to the concentration of

capital investment in the urban sector. Consequently, even accounting for cost-of-living differences, the income of urban workers was far greater than that of their rural counterparts (Figure 2). In 1978, for instance, per capita income in rural areas was only 34 percent that in urban areas.<sup>6</sup> Moreover, poverty in the rural sector was far more prevalent than in the urban sector. More than 75 percent of rural households were living below the poverty line in 1980 compared to 8 percent of their urban counterparts (Figure 3).

**Figure 2—Urban-rural per capita income gap in China**



Sources: China Statistical Yearbooks, SSB.

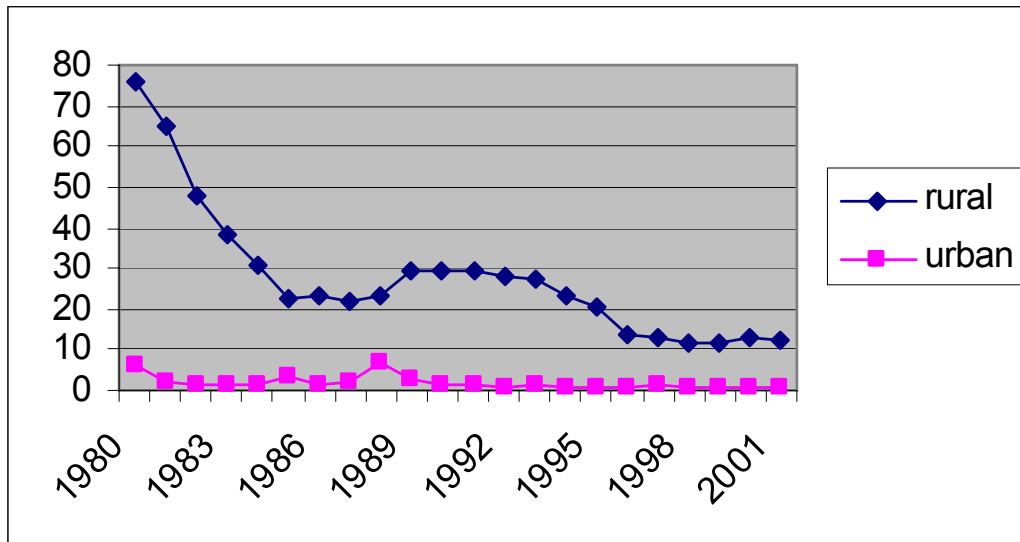
Note: The per capita consumption was used for the years before 1978.

The economic reforms in 1978 promoted overall economic growth but included provisions focused on increasing farmers' income. In fact, the first phase of the economic reforms (1978 to 1985) targeted the rural sector. The most important institutional reform was the adoption of the Household Responsibility System (HRS). The HRS made the individual household, rather than the collective team, the main unit of agricultural production. The government also introduced price reforms that increased procurement prices for agricultural products. Moreover, local markets were liberalized,

<sup>6</sup> Since all prices were controlled by the government at the same level, the difference in cost of living between rural and urban was small prior to the reforms in 1978.

and the number of commodities subject to state procurement was reduced. Consequently, agricultural production grew at more than 7 percent per annum from 1978 to 1984.

**Figure 3—Rural and urban poverty rate in China**



Sources: Chen and Ravallion (2004).

Note: The poverty line for rural area is 850 yuan measured in 2002 price, while the urban poverty line is 1,200 yuan measured in 2002 price.

Another important development during the first phase of economic reforms was the emergence of rural industry clusters known as Township and Village Enterprises (TVEs). The development of TVEs strengthened the linkages between the rural and urban sectors due to the relaxation of restrictions on movement of labor out of agricultural production. For example, urban industries outsourced part of their production to the TVEs to benefit from the cheaper rural labor force, existing machineries, and more relaxed enforcement of environmental, health, and safety regulations in rural areas. Urban industries also used labor and raw materials from the rural areas, which led to an increase in agricultural labor productivity and farmers' income. These links promoted the development of many small rural towns that served as a bridge between rural areas and urban centers.



These reforms helped to counter the earlier urban bias. Rural per capita income tripled between 1978 and 1985. Consequently, the ratio of urban-to-rural per capita income fell below 2 during 1983-85, a historic low in China since 1949 (Figure 2).

The second phase of the reform program (1984-1991) broadened the reforms to include promotion of industrial enterprises in urban areas, creation of market institutions, and dismantling of the central planning system. Two particularly important policies were introduced: the dual-track pricing system for industrial goods and the enterprise contract responsibility system. Under dual-track pricing, prices were gradually deregulated and markets played an increasing role in setting prices. The enterprise contract responsibility system granted greater autonomy to particular enterprises to make their own production and employment decisions. But these policies caused high inflation in the economy, which in turn led to a deterioration of the terms of trade for agriculture. Soaring inflation led the government to allocate significant subsidies to urban workers and to increase subsidized credit for the urban sector during this period (Yang and Zhou 1996). Not surprisingly, rural-urban consumption and income differentials increased during the second phase of reforms and reached a historic high of 3.5 in 1993 and 1994 (Figure2).

The third phase of the reform program (1993 to the present) established a socialist market economic system, under which the economy continues to remain primarily under public ownership but market forces are allowed to play a fundamental role in resource allocation and distribution decisions. To achieve this goal, several measures have been instituted to reform the financial and fiscal sectors, as well as to facilitate rural labor mobility. The government has also resumed agricultural price increases in order to further correct the former under-pricing of agricultural goods. Moreover, in order to achieve balanced growth on a regional basis, priority has been given to developing the central and western regions of China.

One of the most significant developments during this period is rapid urbanization (Figure 1). The share of urban population in the total population has risen from 28 percent in 1993 to more than 40 percent in 2003. This rapid urbanization has been accompanied by employment growth in the urban sector. The rate of job creation in the

urban sector was five times the corresponding rate in the rural sector during the 1990s (Huang and Cai 1998). Consequently, the urban sector now accounts for an important share of nonfarm employment.

Cities have become an attractive place to migrants. Millions have flocked to the urban areas of China in the past decade. An estimated 100 million rural workers and self-employed traders moved to the cities and coastal regions during the 1990s (Huang and Cai 1998). About 40 percent of rural residents<sup>7</sup> working in the nonfarm sector are employed in the urban sector (Gale, Somwaru, and Diao 2002). The relaxation of the *hukou* registration system in the mid-1980s, combined with looser labor restrictions, have contributed to the growing number of rural migrants to the urban sector.

Most of the rural migrants send remittances back to the rural sector. In 1994, some 37 million rural migrants in 23 cities remitted 75 billion yuan to the rural sector (World Bank 1999). The remittances benefit the rural sector directly and indirectly. They have a direct impact on the income of the households that receive these remittances. An indirect impact occurs when the increase in household income stimulates local demand and therefore local production. Migration also benefits the rural sector by improving access to information and capital. Migrants that intend to return to their rural hometown or village often save to invest in a business. They also bring skills, contacts, and experience that they gain from the urban sector (Davin 1999).

Despite the policies aimed at modifying some of the regional and rural-urban imbalances, the ratio of urban to rural per capita income remains high, averaging 3.3 in 2003 (Figure 2). The causes of the rural-urban divide in China have changed over time. During the central planning period, the rural-urban gap was mainly a result of the government's pursuit of an urban industrialization development strategy. This conformed with economic thinking of the time. In the past two decades, however, political pressure from the relatively more powerful urban population has resulted in various transfer programs to promote income growth disproportionately in the urban

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<sup>7</sup> Despite the removal of some restrictions on labor movement, elements of *hukou* are still in place. Under Chinese law, each citizen is still required to register in one and only one place of regular residence.

sector (Yang and Fang 2000; Fang and Chan 2004). The central government maintains this urban bias to preserve regime stability and political legitimacy. Urban-based price subsidies still prevail; between 1985 and 1998, total price subsidies from the government increased from 26.2 billion yuan to 71.2 billion yuan. Thus, political factors, along with remnants of distortions in the labor and capital markets inherited from the centrally planned system, seem to have contributed to an urban bias in the economy that continues somewhat into the present time (Fang and Chan 2004).

### **India**

India has followed a somewhat similar path. During the first three Five-Year Plan periods (1951-1966), the newly independent India emphasized self-reliance and gave priority to rapid industrialization. This development strategy required a substantial amount of investment in urban industries from the state at the expense of the agricultural sector (Teitelbaum 2004). The first Five-Year Plan (1951-56) allocated 31 percent of the budget to the agricultural sector (Chandra, M. Mukherjee, and A. Mukherjee 2000). Rural outlays, however, decreased thereafter to 20-25 percent as India formally adopted the socialist strategy of heavy industrialization during the Second Five Year Plan (1956-61). Under this strategy, agricultural policy was infused with a pro-urban bias. In order to provide cheap food and cheap basic inputs for industrial development, farm prices were kept artificially low and agricultural exports were curtailed through quantitative restrictions and an overvalued exchange rate. Moreover, basic food products were made available at subsidized prices in urban areas and food deficit regions. The government concerned itself with controlling the price of foodgrains because the relative price of foodgrains was thought to be an important determinant of savings and investment rates.<sup>8</sup>

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<sup>8</sup> It was thought that high food grain prices would discourage investment in the industrial sector as they would increase pressure to raise wages, which would in turn increase labor costs and consequently decrease profits (Suryanarayana 1995).

An important element of India's food policy and food security system is the Public Distribution System (PDS), which started as a rationing system in the 1940s. The PDS aimed at "protecting low-income groups from increases in retail prices by purchasing grain from farmers (at the support price) and selling it to consumers at subsidized prices" (Persaud and Rosen 2003). But the urban sector profited most from the PDS. Suryanarayana (1995), for example, observed that the relatively more urbanized states of India, such as West Bengal, Maharashtra, and Tamil Nadu, benefited largely from the PDS allocation. Likewise, Gulati, Sharma, and Kahkonen (1996) indicated that the PDS was biased in favor of the urban sector and found that the quantities of foodgrains purchased through the PDS were higher in urban than in rural areas. Similarly, Suryanarayana (1985), Pinstруп-Andersen (1988), and Tyagi (1990) also found that the PDS favored mostly the urban sector.

After the mid-1960s, India's government began to prioritize the development of the agricultural sector. The government adopted an agricultural strategy aimed at improving productivity in the agricultural sector (Suryanarayana 1995). Under this strategy, various agricultural price support mechanisms and input subsidies were introduced, which helped the success of India's Green Revolution.<sup>9</sup> Emphasis was also given to the development of small-scale industries in rural areas. Various measures were adopted, including subsidized loans to promote the development of rural industries.

Beginning in 1991, India adopted a series of sweeping macroeconomic and structural reforms in nonagricultural sectors including industry, exchange rate, foreign trade, and investments. Although the reforms were implemented in the nonfarm sector, they affected agriculture in at least two important ways. First, the reforms adopted between 1991 and 1993 resulted in rapid economic growth and therefore to a rise in per capita income. These improvements had a significant impact on food demand. Higher

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<sup>9</sup> Important policies were introduced during this period, especially those involving procurement and minimum support prices. Under these policies, the government intervened when market prices were high, such as in difficult cropping years, in order to protect the consumers. Conversely, the minimum support prices protected the farmers when the market prices declined in good harvest years. The government also increased subsidies for fertilizers and other inputs.

per capita incomes—which grew at 4.5 percent per annum in the early 1990s compared to 3.6 percent in the 1980s (World Bank 2004)—led to the diversification of food demand for non-foodgrain crops such as fruits and vegetables, as well as meat, poultry, and dairy products from a rising middle class. Second, the decrease in industrial protection significantly enhanced the incentive framework for the sector, as the domestic Terms of Trade (TOT) between agricultural and industrial prices improved during the 1990s. The TOT rose from 0.9 to 1.2 between 1991 and 2000.

The improved TOT for agriculture resulted in an increase in the profitability of the primary sector relative to industry. As a result, private investments in agriculture rose substantially and are now double the amount invested by the public sector. These private investments were increasingly directed to horticulture, and poultry, fish, milk, and egg production, in response to booming consumer demand for these high-value agricultural products. These changes in demand led to a remarkable growth in the production of these high-value commodities during the 1990s relative to the previous decade.

Despite these improvements, government fiscal and investment policy is still oriented towards the urban areas. New investments under the Structural Adjustment Policies (SAPs) privileged mostly urban areas as well as more prosperous regions (Bhan 2001). Gujarat and Maharashtra, for example, received 37 percent of industrial investments between 1991 and 1994 and within these two states a large share of the investment was concentrated near the large city of Mumbai. Moreover, the focus of government policies, subsidies, and fiscal incentives has shifted away from agriculture towards industry under the SAPs. For example, government subsidies are directed mainly towards high-skilled industries such as the software sector. These industries also benefit from exemptions from custom duties and corporate income taxes (Bhan 2001).

Likewise, government subsidies in the health sector tend to favor urban areas while the provision of basic health services in rural areas is still lacking. Overall expenditures on social services have declined under the SAPs in relative terms. Even more disturbingly, subsidies have been redirected away from rural areas towards urban industrial centers. While the rural sector is home to about 65 percent of the Indian

population, only 20 percent of the health subsidies are directed towards this sector, for example (Bhan 2001). Political intervention and economic forces, as well as government policies, have been identified as the sources of the skewed distribution of health-care services in favor of the urban sector (Bhan 2001; Kumar 2004). A similar disparity exists between urban and rural areas in terms of literacy. Typically urban populations have better access to schools and also enjoy better quality education.

As a result of this urban bias in policies, an income gap also exists between rural and urban residents in India, even after adjusting for cost-of-living differences, although it is smaller than that in China (Figure 4). In 1951, the ratio of urban to rural per capita mean income was 1.4, and gradually increased to 1.6-1.7 during 1954-55. It then declined to a historic low of 1.3-1.4 during 1966-69 due to the adoption of new technologies and greater agricultural production during this initial stage of the Green Revolution. But the ratio has stayed at 1.5-1.6 since then (Figure 4).<sup>10</sup>

The poverty rate in the rural areas is also higher than that in urban areas, although the difference is much smaller than in China (Figure 5). In 1999/2000, the incidence of poverty averaged 27 percent in the more populous rural areas, 3 percentage points higher than the poverty rate of 24 percent in the urban areas.

#### **4. Rural and Urban Growth and Poverty Reduction: An Empirical Analysis**

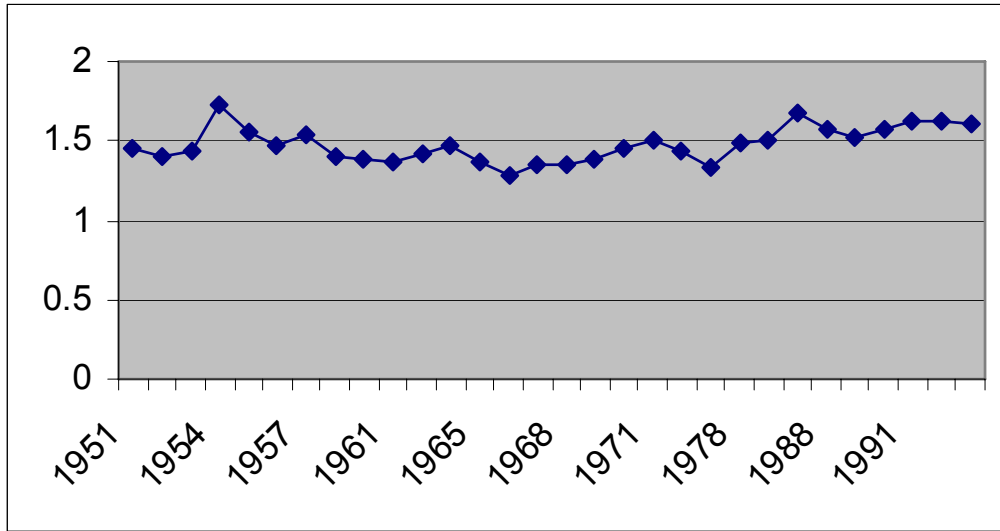
The objective of this section is to analyze the contribution of sectoral growth on poverty reduction using state and provincial data from China and India. Our hypothesis is that growth in one sector (for example, rural) would reduce poverty both in that sector

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<sup>10</sup> Others report much higher rural/urban disparities. Using data from the *Human Development Report of India*, Datta (2004) indicated large discrepancies in consumption expenditures between the two sectors. In 2000, per capita consumption expenditure in rural areas amounted to 486 rupees compared with 855 rupees in urban areas. Likewise, per capita expenditure on rural basic services was 24 rupees in 1998, half the amount spent in urban areas in that same year. In terms of per capita expenditure on poverty alleviation programs, the per capita expenditure for rural poor was only one-eighth of what the urban poor received (28 rupees per capita) in 2001.

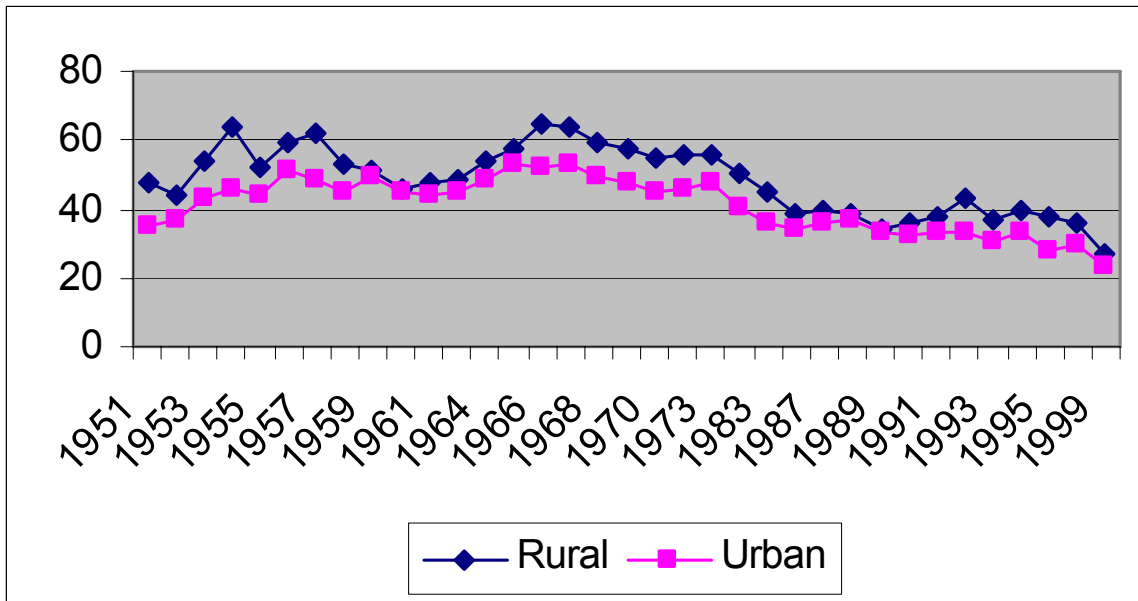
(rural) as well as in the other (urban). This section proposes to quantify these effects using panel data sets on poverty and sectoral growth for China and India.

**Figure 4—Urban-rural income gap in India**



Source: Datt (1998).

**Figure 5—Poverty rates in India**



Source: Indiastat, India Statistic at a Glance (2004).

The variables in this analysis differ between the two countries as explained below. Data for India are fairly consistent and available over a long time period (1970-1997). On the other hand, for China, data are available only for a shorter time period; official poverty data at the provincial level are available from 1985 to 1996 for the rural sector, but only from 1992 to 1998 for the urban sector. Consequently, we examine the dynamic effects of rural and urban growth on poverty for India, but unfortunately, cannot do so for China. In this case, we can only draw conclusions on the total effects of growth on poverty reduction, and are not able to disaggregate the effects into long and short terms.

### Model

For both countries, our basic model can be stated as:

$$RP_{it} = f(rg_{it}, ug_{it}, w),$$

$$UP_{it} = g(ug_{it}, rg_{it}, z),$$

where  $RP_{it}$  ( $UP_{it}$ ) is the change in rural (urban) poverty in the  $i^{\text{th}}$  province (state) in period  $t$ ;  $rg_{it}$  ( $ug_{it}$ ) denotes growth in the rural (urban) sector in the respective provinces (states) in period  $t$ ; and  $w$  and  $z$  are socioeconomic factors that affect the decline in poverty levels not captured by sectoral growth rates. Since the data set is disaggregated at the provincial (state) level,  $w$  and  $z$  capture the region-specific factors that affect the impact of growth on the rural and urban sectors in the two countries.

For estimation purposes, we specify the following two sets of regression equations. For China, we estimate

$$\Delta \ln(RP_{it}) = \alpha_0 + \alpha_1 \Delta \ln AgGDP_{it} + \alpha_2 \Delta \ln IndGDP_{it} + \mu_i + v_{it}; \quad (1)$$

$$\Delta \ln(UP_{it}) = \beta_0 + \beta_1 \Delta \ln AgGDP_{it} + \beta_2 \Delta \ln IndGDP_{it} + \eta_i + \xi_{it}. \quad (2)$$

For India, our estimation equations are



$$\Delta \ln(RP_{it}) = \alpha'_0 + \alpha'_1 \Delta \ln Rincome_{it} + \alpha'_2 \Delta \ln Uincome_{it} + \mu'_i + \nu'_{it}; \quad (3)$$

$$\Delta \ln(UP_{it}) = \beta'_0 + \beta'_1 \Delta \ln Rincome_{it} + \beta'_2 \Delta \ln Uincome_{it} + \eta'_i + \xi'_{it}; \quad (4)$$

where  $\mu_i$  ( $\mu'$ ) and  $\eta_i$  ( $\eta'$ ) are province-specific factors, and  $\nu_{it}$  ( $\nu'_{it}$ ) and  $\xi_{it}$  ( $\xi'_{it}$ ) are the error terms. We estimate the two sets of equations with alternative specifications of the error terms, testing for heteroscedasticity and autocorrelation between the error terms and the explanatory variables.

### **Data**

As stated above, the data for China and India are disaggregated at the provincial (state) level. Data on rural poverty in China are available between 1985 and 1996 and on urban poverty from 1992 to 1998 for 29 out of 31 provinces of the country. Although there was a minor reorganization of provinces in the late 1980s, the original classification is maintained throughout the period for our estimation purposes.

To capture the effect of rural growth, we use the log-difference of agricultural gross domestic product (GDP), which is available by province. We approximate urban growth by the log-difference of provincial industrial GDP, keeping in mind that there has been rapid growth of rural TVEs and other private enterprises over the last two decades in China. Some TVE clusters have grown into urban agglomerations, but are classified as rural. In our analysis, we would expect this close proximity of industrial clusters in rural China to exert significant impact on rural poverty.

For India, data at the state level are available for poverty, income, and State Domestic Product (SDP), separated by rural and urban areas. The data on some of these indicators are available from the 1950s. However, consistent data on poverty and income are available only from the early 1970s. Therefore, the time period of our analysis for India is from 1970 to 1997, covering 28 years.

Recent studies have pointed out certain irregularities in the SDP calculation in India.<sup>11</sup> Although SDP data are available at constant 1993-94 prices from the Central Statistical Organization (CSO), there are problems in extending the series backwards, especially before 1980. For instance, there are very long periods of unusually high agricultural growth reported for some states, as well as inconsistencies between input and output in agriculture and industry. In our estimations for India, therefore, we use rural and urban mean income as proxies for growth in the two sectors.

### Results

For both rural and urban poverty in China and India, we estimate the effects of rural and urban growth on poverty using a number of models. The use of these models can give some indication of the robustness of the results. The fixed-effects model controls for region invariant effects, while Maximum Likelihood Estimation (MLE) corrects for standard errors. The Generalized Least Squares (GLS) estimation corrects for heteroscedasticity across panels (GLS1). To correct for serial correlation, GLS2 estimates the model assuming common autocorrelation of order one (ar1) across panels.

The estimated results for rural and urban poverty for China are shown in Table 1. With regard to rural poverty, rural and urban growth are statistically significant across all models, but with opposite signs (Table 1). That is, an increase in the rural growth rate (agricultural GDP) is associated with a decrease in rural poverty, while a rise in the urban growth rate is associated with an increase.

Although this last result seems counterintuitive, we believe that barriers—such as inadequate infrastructure—still exist that prevent the spillover of urban growth effects to rural areas. Variation in rates of urban growth among regions may even counter efforts to reduce rural poverty. One factor might be that productive labor is being drawn away from agriculture to industry, especially from rural to urban areas in the Central and Western regions of the country. A number of studies are looking at the impact of rapid

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<sup>11</sup> See, for example, Bhattacharya and Sakthivel (2004).

**Table 1—Estimated coefficients for poverty in China**

	Rural poverty (1985 - 1996)				Urban poverty (1992 - 1998)			
	Fixed Effects (1)	MLE (2)	GLS1 (3)	GLS2 (4)	Fixed Effects (1)	MLE (2)	GLS1 (3)	GLS2 (4)
Rural growth	-5.261** (0.056)	-5.261* (0.016)	-4.421* (0.000)	-4.974* (0.000)	-0.310 (0.242)	-0.310 (0.161)	-0.320* (0.000)	-0.311* (0.000)
Urban growth	5.182** (0.058)	5.182* (0.017)	2.541* (0.004)	2.043* (0.015)	-1.361 (0.666)	-1.361 (0.606)	-3.533** (0.069)	-3.929* (0.019)
Constant	-0.326 (0.247)	-2.001* (0.047)	0.813 (0.484)	0.918 (0.301)	0.073 (0.845)	0.131 (0.672)	0.302 (0.367)	0.333 (0.183)
R-squared	0.132				0.028			
Log-likelihood	-116.7		132.9	-58.4	-64.3		-3.33	-28.4
Number of observations	348	348	348	348	203	203	203	203

Notes: GLS1: Heteroskedastic Panels; GLS2: GLS1 corrected for autocorrelation. \* significant at 5 percent level, \*\* significant at 10 percent level.

urban growth, especially in the coastal areas, to understand how this accentuates interregional inequalities. Large variation in the rates of growth of rural industries and skewed infrastructure investment between regions have been singled out as probable causes of this widening inter- and intra-regional inequality.<sup>12</sup>

In relation to urban poverty, only GLS models generate statistically significant results, but they are consistent: both rural *and* urban growth help to reduce urban poverty. However, the effect of urban growth on urban poverty is much greater than that of rural growth.

In India, in contrast to China, the fixed-effects and MLE models show that only rural growth is associated with rural poverty, and only urban growth is associated with urban poverty (Table 2). The GLS models largely mirror this result, although they suggest that urban growth does have a slight impact on rural poverty reduction. In any case, all models have the expect signs (i.e., an increase in growth is associated with a decrease in poverty). Except for the urban growth variable in the rural GLS models, the coefficients are approximately equal—around 1—so that, for example, one-percentage

<sup>12</sup> Fan, Zhang, and Zhang (2004); Zhang and Fan (2004).

**Table 2—Estimated coefficients for poverty in India (1970 – 1997)**

	Rural poverty				Urban poverty			
	Fixed Effects (1)	MLE (2)	GLS1 (3)	GLS2 (4)	Fixed Effects (1)	MLE (2)	GLS1 (3)	GLS2 (4)
Rural growth	-0.917* (0.000)	-0.927* (0.000)	-1.058* (0.000)	-1.049* (0.000)	0.176 (0.121)	0.174 (0.115)	0.073 (0.239)	0.075 (0.223)
Urban growth	0.006 (0.935)	0.011 (0.878)	-0.082** (0.102)	-0.088** (0.081)	-0.973* (0.000)	-0.968* (0.000)	-0.890* (0.000)	-0.896* (0.000)
Constant	-0.011* (0.013)	-0.011* (0.012)	-0.004 (0.818)	-0.004 (0.823)	-0.012* (0.017)	-0.012* (0.015)	-0.012 (0.233)	-0.012 (0.222)
R-squared	0.215				0.248			
Log-likelihood	415.5				498.8			
	499.1				358.7			
Number of observations	420				420			
	420				420			

Notes: GLS1: Heteroskedastic Panels; GLS2: GLS1 corrected for autocorrelation. \* significant at 5 percent level, \*\* significant at 10 percent level.

point change in rural growth rate will reduce rural poverty by similar magnitude. This makes sense when growth does not also alter income distribution.

Still, the lack of impact of rural growth on urban poverty reduction contrasts with other findings for both China and India (Fan 2003; Fan, Fang, and Zhang 2003) that show agricultural growth has a strong effect on reducing poverty in urban areas. Fan (2003) and Fan, Fang, and Zhang (2003) traced this effect through the reduction in food prices caused by increased agricultural production. But the current model and specification cannot capture this dynamic effect.

## 5. How to Promote Better Rural-Urban Linkages for Poverty Reduction

In both China and India, poverty is concentrated in the rural sector where the majority of the population resides. The results from our econometric analysis indicate that agricultural growth has a significant impact on rural poverty reduction, and can also, in the case of China, have an effect on reducing urban poverty. Therefore, policies that increase growth in agriculture and promote rural-urban linkages have the potential to reduce poverty.

China and India historically followed development strategies favoring the urban sector. However, in the past two decades, the terms of trade for agriculture have

improved as part of the reform process, and have somewhat countered the previous urban bias. The explicit restriction on labor movement in China has also been abolished. However, various types of urban bias still prevail, particularly in terms of government investment priorities, which disproportionately favor urban areas in both countries. To some extent, this impedes the efficient allocation of factors, therefore contributing to the unequal development between the rural and urban sectors.

Increasing public investment in rural areas is therefore crucial in order to achieve greater poverty reduction. Adequate provision of infrastructure such as transportation and communication, for example, is essential for achieving better rural-urban linkages as this would facilitate mobility and therefore access to markets, employment, and services for the rural population. In addition, promoting nonfarm employment, rural-to-urban migration, and the development of rural towns can also lead to much stronger rural/urban links and greater synergies between the two sectors.

Based on the results of this study and on previous research findings, we recommend the following policies to help correct urban bias, strengthen the links between rural and urban sectors, and promote growth and poverty reduction.

### **Increase Public Spending in Rural Areas**

Past studies have consistently shown that public investment in the rural sector promotes rural growth in China and India. Growth in the rural sector can also benefit urban areas in many ways. For example, as discussed earlier, the development of China's rural industrial sector contributed to growth of urban industries and vice versa. Growth in the rural economy also generates fiscal and financial outflows from rural to urban areas (taxes from rural-based industries for example).

In a recent study, Fan and Chan-Kang (2005) estimated the returns of rural and urban road development on rural and urban growth as well as on rural and urban poverty reduction. The study finds that benefit/cost ratios for rural roads are about four times larger than for urban roads when the benefits are measured as a contribution to national

GDP. Even in terms of urban GDP, these ratios are much greater for rural roads than for urban roads. In terms of poverty reduction, the study finds that for every yuan invested, rural roads raise far more rural and urban poor people above the poverty line than urban roads do.

One of the most direct impacts of agricultural growth on urban poverty is through reduced food prices. As the urban poor spend a very significant percentage of their income on food, a decline in food prices often benefits the urban poor proportionally more than the rural poor. For example, Fan, Fang, and Zhang (2003) and Fan (2003) illustrated that increased agricultural research investment (and therefore increased food production) has been one of the reasons behind the reduction in urban poverty in both China and India. Without agricultural research, food prices would probably be much higher today and as a result, urban poverty rates could be much higher.

The well-recognized linkages that exist between the farm and nonfarm sectors in rural India also support the importance of public investment in the rural sector (e.g., Mellor 1976; Rangarajan 1982; Hazell and Haggblade 1990).<sup>13</sup> The types of linkages that exist between the farm and nonfarm sectors include production, consumption, and investment linkages.<sup>14</sup> Rural economic growth consequently generates employment, income, and growth to the rest of the economy. Therefore, China and India need to

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<sup>13</sup> Mellor's (1976) influential work established the important linkages that exist between the farm and nonfarm sector in rural India. Mellor argued that rural income increases arising from agricultural productivity growth would be magnified by linkages with the nonfarm sector. Since then, considerable emphasis has been put on the significance of the Indian rural nonfarm sector. For example, Rangarajan's (1982) simulation results show that agriculture wields a significant influence on the growth of the industrial sector: 1.0 percent growth in agricultural output increases industrial production by about 0.5 percent and national income by 0.7 percent. Using an input-output model and data for 1979-1980, Hazell and Haggblade (1990) assessed the impact of agricultural growth on the national demand for nonfarm products in India. They found that a 100 rupee increase in irrigated agricultural output will generate 105 additional outputs in manufacturing and 114 rupees of additional tertiary output, and so a total of 219 additional rupees for the nonfarm sector.

<sup>14</sup> The production linkages arise between these two sectors because increased agricultural output results in a growing demand for various goods such as inputs (i.e., fertilizers, equipments), usually supplied by nonfarm enterprises. On the consumption side, rising per capita income in the rural sector induces demand for consumer goods, which is likely to be met by enterprises in the urban sector. A rise in income from the agricultural sector also translates into greater savings and investments, which in turn has an effect on the rest of the economy.

continue to increase spending in rural areas in order to promote growth and reduce poverty in both urban and rural areas.

However, the share of government expenditures in the rural sector remains relatively low. In 2000, for example, nearly 65 percent of China's population resided in rural areas; however, rural investment accounted for only 20 percent of total government expenditures. Moreover, almost 50 percent of national GDP was produced by the rural sector (agriculture and rural township and village enterprises) in 2000. On the other hand, the government's rural spending as a percentage of rural GDP was only about 5 percent compared with 16.4 percent for the whole economy. India has a similar biased spending policy (Bhan 2001). These governments should therefore continue to prioritize public investments to the less developed regions of their countries; these would include the western part of China and the eastern region of India. The rural-urban linkages are particularly weak in those regions where rural nonfarm employment, development of rural small towns, and rural-urban migration lag far behind more developed areas.

### **Reduce Restrictions on Rural-Urban Migration**

One feature of rural-urban interdependence that has received considerable attention in the rural-urban linkage literature is rural-urban migration. Typically, as a country develops, urban economic growth takes place, which entices people to leave the countryside in search of new opportunities in urban areas. Following the economic booms of Japan, South Korea, and lately China and Thailand, rural-urban migration not only improved the well-being of the migrants, but also improved the land/labor ratio in the agricultural sector, enabling non-migrants to raise their labor productivity and income. For example, the increase in land/labor ratios in Japan and South Korea, and more recently in China, was the result of the net flow of rural labor to the urban and rural nonfarm sectors.

The economic benefits resulting from rural-urban migration in China and India has been formally assessed in a number of studies. De Brauw, Rozelle, and Taylor

(2001), for instance, investigated the impact of migration and migrant remittances on China's rural economy using econometric techniques on household survey data. They found that the remittances sent home partially or fully compensated for the loss of rural labor due to migration. These remittances have been particularly beneficial for households engaged in farm production, whose per capita income increased, on average, by 71 percent.

In India, Bhanumurthy and Mitra (2003) decomposed changes in poverty into a growth effect, an inequality effect, and a migration effect for two periods: 1983-1993/94 and 1993/94-1999/2000. The decomposition analysis showed that rural-to-urban migration contributed to poverty reduction in rural areas by 2.6 percent between 1983 and 1993-94. Poverty in the urban sector increased during the same period, but by a smaller rate than the reduction of poverty in rural areas. Therefore, the net poverty incidence for the country as a whole decreased over the period studied. Similar findings were reported for the 1993/94-1999/2000 period. Rural poverty declined by 1.64 percent as a result of rural to urban migration, while urban poverty increased by 1.43 percent.

Despite these overall positive effects generated by migration, formal and informal institutions and policy barriers still restrict the movement of the population. Lack of education and access to information and infrastructure are the most critical constraints. In China, many jobs in the urban areas still require urban residence. Farmers are, therefore, not eligible for many jobs. Even if farmers are employed, their rights are usually not protected. In addition, migrant farmers are not entitled to many social services, such as health care, education of children, retirement and unemployment benefits, to which urban residents are entitled. These restrictions and barriers should be removed to make large-scale migration possible, with additional investment targeted as needed to facilitate this movement and protect rural migrants.



### **Develop the Rural Nonfarm Sector**

The rural nonfarm sector is important for the growth of the rural economy as well as for poverty reduction. It also provides opportunities for livelihood diversification for poor rural households. Hazell and Haggblade (1993) showed that the share of household nonagricultural income is inversely related to farm size, with landless and near-landless workers deriving between a third and two-thirds of their income from off-farm sources. In India, Dev (1986) indicated the bulk of the poor are landless or live on small farms with inadequate land for their own food needs. Consequently they depend heavily on earnings from supplying unskilled wage labor to other farms or to nonfarm enterprises. Public investment in physical infrastructure (road, transportation, communication) as well as in education and health is crucial for the small farms to establish their own business and to access nonfarm jobs in the rural nonfarm sector.

### **Develop Small Rural Towns**

The proximity and accessibility to small rural towns and urban centers by rural residents is crucial for the rural economy, especially for the development of the rural nonfarm sector and for livelihood diversification (Bhalla 1997; Shukla 1992; Jayaraj 1994; Eapen 1995). These linkages are well discussed in Wandschneider (2004), who studied the impact of small rural towns in local economic development in Madhya Pradesh and Orissa, two poor states of India. The author found that small rural towns and nearby villages are strongly linked through consumption, production, employment, and financial linkages, and various types of economic and social service provision. While villages benefit strongly from small towns through these linkages, the reverse is also true. Small towns and urban centers depend and benefit from labor, inputs, and markets of nearby villages.

The development of small rural towns is also associated with better infrastructure (in terms of quantity and quality), which in turn will facilitate access to markets and lower transportation costs. Moreover, by absorbing agricultural labor surplus, small rural

town development in India and China helps to alleviate the pressure on bigger cities, while contributing to the growth of the national economy.

## **6. Conclusions**

Like many developing countries, China and India followed development strategies biased in favor of the urban sector over the last several decades. These development schemes have led to overall efficiency losses due to misallocation of resources among rural and urban sectors. It also led to large income gaps between rural and urban areas. The urban bias was greater in China than in India. Indeed, official data show that both the income gap and the difference in poverty rates between rural and urban areas are much larger in China than in India.

Both countries have corrected the rural-urban divide to some extent as part of reform processes. But the bias still exists. Other studies also support the idea presented here that correcting this imbalance will not only contribute to higher rural growth, but also secure future urban growth (Fan and Chan-Kang 2005). More important, correcting the urban bias will lead to larger reductions in poverty as well as more balanced growth across sectors and regions.

Correcting a government's bias towards investment in urban areas is one of the most important policies to pursue. In particular, more investment in education, infrastructure, and agricultural research and development have proved to be both pro-growth and pro-poor. Facilitating the mobility of productive factors, such as labor, is another means to correct any bias. In particular, providing health, education, housing, and pension services for rural migrants in urban areas is essential to promoting human capital movement from rural to urban areas or to the industrial sector. Promoting the development of the rural nonfarm economy and rural small towns is another effective way to correct rural/urban bias and to create significant synergies between the two sectors.

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