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**INVESTMENT PRIORITIES FOR HUNGER AND POVERTY**  
**REDUCTION IN ASIA**

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## **Investment Priorities for Hunger and Poverty Reduction in Asia**

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It is easy to talk about the successful story in Asia. Rapid economic growth, steep poverty reduction and overall improvement of various social development indicators are often cited evidence. However, it is still the case that Asia accounts for more than 60% of the total number of poor in the world, with South Asia alone accounting for almost 50%.

There is even a greater variation among countries in Asia (Chen and Ravallion 2007). At the regional level, Asia has achieved the MDG goal by halving the number of poor even by 2004, 10 years ahead of the schedule, but this is largely due to the great success in China. Even in India where the economy has been growing at more than 6% per annum since the 1990s, it is not clear whether the country will achieve the first target of the Millennium Development Goals. More than 370 million people in the country still live with less than one dollar per day in 2004. Many other countries like Mongolia, Laos, Myanmar, Nepal, Pakistan and Bangladesh have experienced both slower economic growth and sluggish poverty reduction.

Fortunately, many Asian countries have adopted the concept of Poverty Reduction Strategy Papers (PRSPs), or an equivalent, to outline strategic plans and to earmark financial resources to achieve their poverty reduction goals. If all these resources are in place, the key questions are: Can these pledged resources achieve the stated objectives of growth and poverty reduction? What types of public spending programs have the largest impact on the poor, and under what conditions? How should these resources be allocated among different sectors such as agriculture, infrastructure, health and education?

### **Government Spending in Asia**

Over the past two decades, total government expenditures in Asian developing countries<sup>1</sup> experienced rapid growth. During the 1980s, expenditures increased from \$500 billion<sup>2</sup> in 1980 to \$871 billion in 1990, with an annual growth rate of 5.7 percent. In the 1990s, governments increased their spending power by 9.1 percent per year. By 2000, total government expenditures increased to \$2,084 billion. It further reached \$2,921 billion in 2004. Therefore, we have seen accelerated growth in government expenditures in Asian developing countries.

Equally important is the composition of government expenditures, which reflects government spending priorities. Education spending was the largest among all government expenditures in the region, accounting for 12 percent in 2004. It is not surprising that Asia has the highest quality of human capital. Defense and agriculture spending ranked second and third, accounting for 8 and 7 percent, respectively in 2004, reduced from 18 percent and 15 percent, respectively, in 1980. Other expenditures (which include government spending in fuel and energy, mining, manufacturing and construction, and general administration) increased from 35 percent in 1980

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<sup>1</sup> Bangladesh, China, India, Indonesia, South Korea, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka and Thailand are included in our dataset.

<sup>2</sup> Figures are in 2000 international dollars.

to 63 percent in 2004. The large and increasing share of these expenditures may have competed with more productive spending items such as agriculture, education, and infrastructure.

Spending at the country level reveals a large variation. All countries have increased the share on education, minus India, Indonesia and South Korea. India spent 22 percent in the 1980s and 90s, but dropped to 9 percent in 2004. Indonesia's share dropped from 12 percent in 1980 to 4 percent in 2004. South Korea share has also fallen marginally.

The share of health spending has not varied much for most countries. The sharp contrast is between Sri Lanka and Thailand. Sri Lanka increased its share from 5 percent in the 1980s to 11 percent in 2004, whereas Thailand decreased its share from 20 percent to 10 percent in 2004. All countries have reduced the share of defense budget from 1980 to 2004, except Bangladesh, Nepal and Sri Lanka. Sri Lanka has the sharpest increase, 2 percent in 1980 to 18 percent in 2004.

Agriculture is the largest sector in many developing countries in terms of their shares of GDP and employment. More importantly, the majority of the world's poor lives in rural areas and depends on agriculture for their livelihood. Therefore, agricultural expenditure is one of the most important government instruments for promoting economic growth and alleviating poverty.

Agricultural expenditures in Asia more than doubled in the past two decades, with an annual growth rate of 4.2 percent. Compared to developed countries, agricultural spending as a percentage of agricultural GDP is extremely low in developing countries. The former usually has more than 20 percent, while the latter averages less than 10 percent. For Asia its percentage remained constant at 8.5-10 percent. South Korea spends close to half of its agricultural GDP. It is followed by China and Thailand, which spent 11 percent of agricultural GDP. For many countries the shares whether in terms of their percentages in agricultural GDP or total national budget have dropped over time. The decline is particularly sharp in Bangladesh, Sri Lanka, Nepal, Indonesia, and Myanmar. This will have important implications on their future productivity growth in agriculture and poverty reduction.

### **Effects of government spending**

For the last several years, IFPRI has conducted numerous case studies to quantify the effects of various government spending on poverty reduction through long term growth.<sup>3</sup> These studies differ from previous ones in several aspects. First, most types of public investment and expenditures are included in the assessment to avoid upward bias in the estimates of returns to specific investments (e.g. agricultural research), and to compare and rank returns of various types of investment. Second, these studies have identified different channels through which government investments affect growth, inequality, and poverty. Understanding these different effects provides useful policy insights to improve effectiveness of government poverty alleviation strategies. Third, these studies calculated economic returns and poverty reduction effects measured by the number of poor people raised above the poverty line for additional units of expenditure on different items. In this section, we synthesize the major findings from these case studies.

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<sup>3</sup> Most of these case studies have been peer reviewed and been published in various international journals

### *India*<sup>4</sup>

Poverty in rural India has declined substantially in recent decades. This steady decline in poverty was strongly associated with agricultural growth, particularly the Green Revolution, and rural non-farm activities, which was a response to massive public investments in agriculture and rural infrastructure. Fan, Hazell and Thorat (2000) used a system of econometric equations to identify the relative role of different government spending in agricultural growth and rural poverty reduction using state level data from 1970 to 1993.

The results show that additional government expenditure on roads has the largest impact on poverty reduction as well as a significant impact on productivity growth (Table 1). For every one million Rupees spent on rural roads, 124 poor would be lifted above the poverty line, the largest poverty reduction among all types of investment. One Rupee invested in rural roads would generate more than 5 Rupees in returns in agricultural production, the largest production growth effect only after agricultural R&D. It is a dominant “win-win” investment. Additional government spending on agricultural research and extension has the largest impact on agricultural productivity growth with a benefit-cost ratio of 13 and leads to large benefits for the rural poor. Additional government spending on education has the third largest impact on rural poverty reduction, largely as a result of the increases in non-farm employment and rural wages that it induces.

Additional irrigation investment has a strong impact on agricultural productivity growth but only a small impact on rural poverty reduction. Additional government spending on rural development and poverty reduction programs contributes to reduction in rural poverty, but its impact is smaller than expenditures on roads, agricultural R&D, and education. Additional government expenditures on soil and water conservation and health have no impact on productivity growth, and their poverty effects through employment generation and wage increase are also small.

In another study, Fan and Hazell (2000) attempted to estimate the returns of various public investments in different regions of India using district level data. Using district-level data for 1970–95, an econometric model was estimated to measure the impact of different types of public investments on agricultural production and rural poverty.

For every investment, the highest marginal impact on agricultural production and poverty alleviation occurs in one of the two rainfed lands, while irrigated areas rank second or last. Moreover, many types of investments in low-potential rainfed lands give some of the highest production returns, and all except education have some of the most favorable impacts on poverty. These results strongly support the hypothesis that investments in less-favored areas are becoming win-win opportunities and that more investment should now be channeled to less-favored areas

### *China*<sup>5</sup>

China achieved immense success in reducing its rural poverty during the past two decades, despite the slowdown in global poverty reduction. Contributing to this success were a series of policy and institutional reforms, promotion of equal access to social services and production assets, and public investments in rural areas. Yet, as China’s economy continues to grow, it is

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<sup>4</sup> India case study was drawn from Fan, Hazell and Thorat (1999) and Fan, Hazell and Thorat (2000).

<sup>5</sup> The China case is heavily drawn from Fan, Zhang and Zhang (2004).

becoming harder to reduce poverty and inequality further. How the government can better design its policies, particularly public investment policy, to promote growth while reducing poverty and regional inequality is debated in both academic and policy circles.

Using provincial-level data for 1970–2000, Fan, Zhang and Zhang. (2004) developed a simultaneous equations model to estimate the effects of different types of government expenditure. The results show that government's production-enhancing investments, such as agricultural R&D, irrigation, rural education, and infrastructure (including roads, electricity, and telecommunications) contributed not only to agricultural production growth, but also to reduction of rural poverty and regional inequality (Table 2).

However, variations in the magnitude of the effects are large among different types of spending and across regions. Based on actual investments in 2000 and the parameters estimated from the model, the authors calculated the marginal returns of various investments to growth in agricultural and non-farm production and reduction of rural poverty and regional inequality. These returns were calculated for the nation as a whole and for three different economic zones. Since the estimated returns are recent, they can serve as a direct input into the current policy debate.

Government expenditure on education had the largest impact in reducing rural poverty and regional inequality and had significant impact on production growth. Increased rural nonfarm employment was accountable for much of this poverty- and inequality-reducing effect. Government spending on agricultural R&D substantially improved agricultural production. In fact, this type of expenditure had the largest impact on agricultural production growth, which is much needed to meet the increasing food demands of a richer and larger population. Benefits of agricultural production growth also trickled down to the rural poor. The poverty-reduction effect per unit of additional agricultural R&D investment ranked second after investment in rural education.

Government spending on rural infrastructure (roads, electricity, and telecommunications) had substantial impact in reducing poverty and inequality, owing mainly to improved opportunities for nonfarm employment and increased rural wages. Investments in irrigation had only modest impact on agricultural production growth and even less impact on rural poverty and inequality, even after accounting for trickle-down benefits. A striking finding is the minimal impact of specifically targeted government anti-poverty loans. In fact, the poverty reduction impact of these loans was the least of all the types of government spending considered in the study.

Disaggregating the analysis into different regions reveals that, for all types of government spending, returns to investments in poverty reduction were highest in the west (less-developed region), while returns in agricultural production growth were the highest in the central region (more developed region) for most types of spending. Furthermore, investments in the western region led to the greatest reductions in regional inequality for all types of government spending, while investments in either coastal or central regions worsened existing large regional inequalities.

However, the government public investment variable is highly aggregated. While the total length of roads or average years of schooling is a useful indicator of the road infrastructure availability or education level in a country, it is important to account for quality differences because different types of roads or education (e.g. rural vs. urban) can have very different economic returns and poverty impacts. Second, most studies have only focused on rural poverty since urban poverty

has only recently emerged as an important and growing problem. To address these limitations, Fan and Chan-Kang (2005) disaggregated road infrastructure into different classes of roads to account for quality. The study also estimates the impact of road investments on overall economic growth, urban growth, and urban poverty reduction, in addition to agricultural growth and rural poverty. The most significant finding of their study is that low grade (mostly rural) roads have cost-benefit ratios for national GDP that are about four times larger than the cost-benefit ratios for high quality roads. Even in terms of urban GDP, the benefit/cost ratios for low grade roads are much greater than those for high quality roads. As far as agricultural GDP is concerned, high grade roads do not have a statistically significant impact while low grade roads are not only significant but generate 1.57 yuan of agricultural GDP for every yuan invested. Investment in low grade roads also generates high returns in rural nonfarm GDP. Every yuan invested in low grade roads yields more than 5 yuan of rural nonfarm GDP. In terms of poverty reduction, low grade roads raise far more rural and urban poor above the poverty line per yuan invested than do high grade roads.

### *Thailand*<sup>6</sup>

Thailand is a middle-income country. The question is whether public investment is still important in reducing rural poverty. Fan, Jitsuchon, and Methakunnavut (2004) show that, despite Thailand's middle-income status, public investments in agricultural R&D, irrigation, rural education, and infrastructure (including roads and electricity), still have positive marginal impacts on agricultural productivity growth and rural poverty reduction (Table 3).

By using the regional data from 1977 to 1999 they show that additional government spending on agricultural research and development improves agricultural productivity the most and has the second largest impact on rural poverty reduction. Investments in rural electrification reduce poverty the most and have the second largest growth impact. These two investments dominate all others and are win-win for growth and poverty reduction. Road expenditure has the third largest impact on rural poverty reduction, but only a modest and statistically insignificant impact on agricultural productivity. Government spending on rural education has only the fourth largest impact on poverty, but a significant economic impact through improved agricultural productivity. Irrigation investment has the smallest impact on both rural poverty reduction and productivity growth in agriculture. Additional investments in the Northeast region contribute more to reducing poverty than investments in other regions. This is because most of the poor are now concentrated in the Northeast and it has suffered from under investment in the past. The poverty reducing impacts of infrastructure investments, such as electricity and roads, are particularly high in this region. The growth impacts of many investments are also greatest in the Northeast than in other regions, hence there is no evident tradeoff between investments for growth and investments for poverty reduction.

Thailand is a middle-income country and it is insightful to compare these results with similar studies undertaken in low-income countries like India, China, and Uganda. Some of the results are similar, for example, the high returns to public investments in agricultural research and some kinds of rural infrastructure arise in most countries because of the inherent market failures associated with these types of public goods. But others results are different. For example, the returns to public investment in education in Thailand are quite low, partly because of increasing

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<sup>6</sup> The results of Thailand case is drawn from Fan, Jitsuchon and Methakunnavut (2004).

private investment but also the inappropriate composition of much public spending on education. Within infrastructure, results from low-income countries often show higher returns to road investments than telecommunications and electricity. But in the case of Thailand, it is investment in electricity that shows the highest return. Thailand has invested heavily in rural roads and a dense road network has already been built, suggesting that additional investment may yield diminishing returns. Also, there has been significant investment by the private sector in rural telecommunication, leading to a much-reduced role for the public sector.

#### *Vietnam*<sup>7</sup>

Recent progress in reducing poverty in Vietnam has been remarkable, with the number of people living below the poverty line falling from 58 percent in 1993 to 28 percent in 1999 (IMF, 2000). Reforms implemented in the late 1980s and early 1990s, particularly those which decentralized the responsibility for agricultural production to individual farmers and permitted the establishment of household enterprises, led to dramatic increases in agricultural production. However, in addition to the reform programs, public spending has also been used by the Vietnamese government for promoting growth and poverty reduction. Without this spending, improved education, infrastructure, and health would have not been possible. The rapid economic growth and large poverty reduction would have also not been possible.

It is important to evaluate the relative contribution of these government expenditures for two reasons. First, gains in poverty reduction in the past are fragile. Many of those who escaped poverty in recent years remain vulnerable to household- and community-level shocks. More and more poor are concentrated in unfavorable economic environments such as mountainous areas, and belong to minority groups. It has become increasingly hard to gain further reduction in poverty. Second, it is likely that public spending may decline as part of macro-economic reforms. Therefore the government is required to do more with less. Relative contributions of various government spending will help the government to better target its resources to achieve the twin goals of economic growth and poverty reduction more efficiently.

Fan, Huong and Long (2004) used the provincial level data and a similar approach to Indian and Chinese case studies to estimate the returns of various government investments on agricultural growth and poverty reduction. The results reveal that government investment in education has the largest poverty reduction impact, followed by roads, and agricultural research. On the other hand, agricultural research has the largest return to agricultural growth, followed by road investment. Irrigation investment has the smallest impact on both agricultural growth and poverty reduction. Large poverty impacts following investment in education and roads are derived from improved non-farm employment opportunity. Improved non-farm employment accounted for 89% of the total education impact on poverty, while the rest is from improved agricultural production. For roads, improved non-farm opportunities account for 67% of total poverty effect of road investment.

## **Conclusions and future investment priorities**

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<sup>7</sup> Fan S, Huong and Long (2004) Government Spending and Poverty Reduction in Vietnam, mimeo (Washington: International Food Policy Research Institute).

A large body of literature shows that public investments in rural areas have contributed significantly to agricultural growth and rural poverty reduction. These investments have also contributed to urban poverty reduction through growth in the national economy and lower food prices. Without these investments, agricultural growth and national economic growth would have been much slower, and there would be much more rural poor and urban poor in many developing countries. Despite of these successes, there are still 775 million rural poor in Asia (Ravallion et al, 2007), of which India and China account for 80 percent in 2002.

Since significant increases in public rural investment seem unlikely, countries will have to give greater emphasis to using their public investment resources more efficiently. This requires better targeting of investment to achieve growth and poverty alleviation goals, and improved efficiency within the agencies that provide public goods and services. Reliable information on the marginal effects of various types of government spending is crucial for government to make sound investment decisions. Without such information, it is difficult for governments to hone in on future investment priorities to achieve national development goals. Despite vast differences in economic systems, natural sources endowments, socio-economic conditions, and sizes, these case studies offer some important lessons:

1. Returns to public investments vary drastically across different types of investment and regions even within the same country. This implies that there is a great potential for more growth and poverty reduction even with the same amount investment if these public resources can be allocated optimally. This strongly suggests that it is important to include all (or most) types of public investment when assessing their impact on growth and poverty reduction.
2. Various studies that include only one type of spending, and more importantly, a few case studies that include most of government investment, all concluded that agricultural research, education, and rural infrastructure are the three most effective public spending items in promoting agricultural growth and poverty reduction.
3. Evidence from China also indicates that it is often the low quality/low cost types of infrastructure that may have highest pay off per unit of investment in growth and poverty reduction. In the case of China, rural road investment not only contributes to rural growth and rural poverty reduction, but also to urban growth and urban poverty reduction.
4. The trade-off between agricultural growth and poverty reduction is generally small among different types of investments and between regions. For agricultural research, education, and infrastructure development, they have large growth impact as well as large poverty reduction impact. Regional analysis conducted for China and India suggests that more investments in many less-developed areas not only offer the largest poverty reduction per unit of spending, but also lead to the highest economic returns.
5. Government spending on anti-poverty programs generally has small impact on poverty reduction, mainly due to inefficiency in its targeting and misuse of the funds. Although many governments have realized the seriousness of the problem, more efforts are needed to better target the funds to the poor, or otherwise use the investments to improve rural education and infrastructure, which promote long-term growth and thereby offer a long-term solution to poverty reduction.

6. Government spending in irrigation played an important role in the past in promoting agricultural growth and poverty reduction. But today this type of spending has smaller marginal returns in both growth and poverty reduction for many Asian countries. Increased investment on irrigation should be replaced by increasing efficiency of the current public irrigation system.

The case studies also show that the different spending priorities are needed in different stages of development; pointing out that one-size-fits-all strategy does not work. In the first phase, strategy should focus on reducing widespread poverty through broad based economic growth which reaches rural areas. In subsequent phases, more direct attention is needed to reducing the poverty and income inequalities that arise and persist despite reform by concentrating on lagging sectors and regions, as well as on poverty at the community and household levels.

Many Asian countries are still in the first phase. These countries include Myanmar, Nepal, Laos, Pakistan and Bangladesh. Investments in support of economic growth remain central to reduction of their mass poverty. In these countries, governments have the central responsibilities of forging a well-sequenced and coherent growth strategy, and of determining which public investments are required. Public investment in infrastructure and agriculture are the main areas needing attention.

Countries like China, India, Vietnam and Thailand have successfully completed the first phase and now need to progress towards addressing issues of regional inequities and poverty issues at the household level. China has traditionally favored a sectoral and regional targeting approach to deal with rising inequalities such as with employment actions but has recently expanded to more household and community targeted programs. India, on the other hand, has concentrated on targeting specific sections of the population and has involved a large set of actors including NGOs and civil society, and recently expanded employment programs, too. The experience of India shows that the use of variety of targeted programs directed to specific sections of the poor can help improve targeting compared with the broader income- or area-based approaches.

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Table 1. Returns to Public Investment, India State-level Analysis, 1993

	Returns in Rupee Per Rupee Spending	No. of Poor Reduced Per Million Rupee Spending
R&D	13.45	84.5
Irrigation	1.36	9.7
Roads	5.31	123.8
Education	1.39	41.0
Power	0.26	3.8
Soil and Water Conservation	0.96	22.6
Health	0.84	25.5
Anti-poverty Programs	1.09	17.8

*Source: Calculated by the authors from Fan, Hazell, and Thorat (2000).*

Table 2. Returns of Public Investment in China, 2000

	Coastal	Central	Western	Average
Returns to total rural GDP	<i>yuan per yuan expenditure</i>			
R&D	5.54	6.63	10.19	6.75
Irrigation	1.62	1.11	2.13	1.45
Roads	8.34	6.90	3.39	6.57
Education	11.98	8.72	4.76	8.96
Electricity	3.78	2.82	1.63	2.89
Telephone	4.09	4.60	3.81	4.22
Returns to agricultural GDP	<i>yuan per yuan expenditure</i>			
R&D	5.54	6.63	10.19	6.75
Irrigation	1.62	1.11	2.13	1.45
Roads	1.62	1.74	1.73	1.69
Education	2.18	2.06	2.33	2.17
Electricity	0.81	0.78	0.88	0.82
Telephone	1.25	1.75	2.49	1.63
Returns to nonfarm GDP	<i>yuan per yuan expenditure</i>			
Roads	6.71	5.16	1.66	4.88
Education	9.80	6.66	2.43	6.79
Electricity	2.96	2.04	0.75	2.07
Telephone	2.85	2.85	1.32	2.59
Returns to poverty reduction	<i>no. of poor reduced per 10,000 yuan expenditure</i>			
R&D	3.72	12.96	24.03	10.74
Irrigation	1.08	2.16	5.02	2.31
Roads	2.68	8.38	10.03	6.63
Education	5.03	13.90	18.93	11.88
Electricity	2.04	5.71	7.78	4.85
Telephone	1.99	8.10	13.94	6.17
Poverty loan	3.70	3.57	2.40	3.03

Sources: Fan, Zhang and Zhang (2004)

Table 3. Returns to Government Investment in Rural Thailand

Investment	Northeast	North	Central	South	Thailand
	<i>Cost-Benefit Ratio (Bhat/Bhat)</i>				
Agricultural R&D	n.a	n.a.	n.a.	n.a.	12.62
Irrigation	0.76	1.11	0.55	0.62	0.71
Roads	1.23	1.23	0.44	1.24	0.86
Education	1.26	2.92	2.89	2.51	2.12
Electricity	8.66	8.04	2.59	5.48	4.89
Phone	n.s.	n.s	n.s	n.s	n.s
	<i>No. of Poor Reduced per Million Bhat</i>				
Agricultural R&D	n.a	n.a	n.a	n.a	138.10
Irrigation	21.05	5.22	1.74	4.53	7.69
Roads	3.94.09	67.43	15.88	106.08	107.23
Education	34.74	13.71	9.08	18.53	22.75
Electricity	1,253.02	198.57	42.79	211.99	276.07
Phone	n.s	n.s	n.s	n.s	n.s

Notes: n.s. indicates statistically insignificant.

Source: Fan, Jitsuchon, and Methakunnavut (2004)

Table 4. Marginal Returns to Public Spending in Rural Vietnam

	Agricultural R&D	Irrigation	Roads	Education
<i>Dong Per Dong Spending</i>				
The Whole Country	12.22	0.42	3.01	2.06
Northern Uplands		0.21	1.87	0.95
Red River Delta		0.4	3.26	2.08
North Central		0.22	3.27	1.01
Central Coast		0.21	2.44	1.23
Highlands		0.28	3.09	1.97
Southeast		1.33	3.3	4.66
Mekong River Delta		0.37	3.4	2.08
<i>Number of Poor per Billion Dong</i>				
The Whole Country	338.96	12.93	132.34	76.4
Northern Uplands		12.03	153.04	65.6
Red River Delta		7.93	91.38	49.4
North Central		14.9	311.57	81.28
Central Coast		12.99	215.58	92.31
Highlands		8.37	130.54	70.14
Southeast		27.85	98.64	117.64
Mekong River Delta		5.68	74.14	38.24

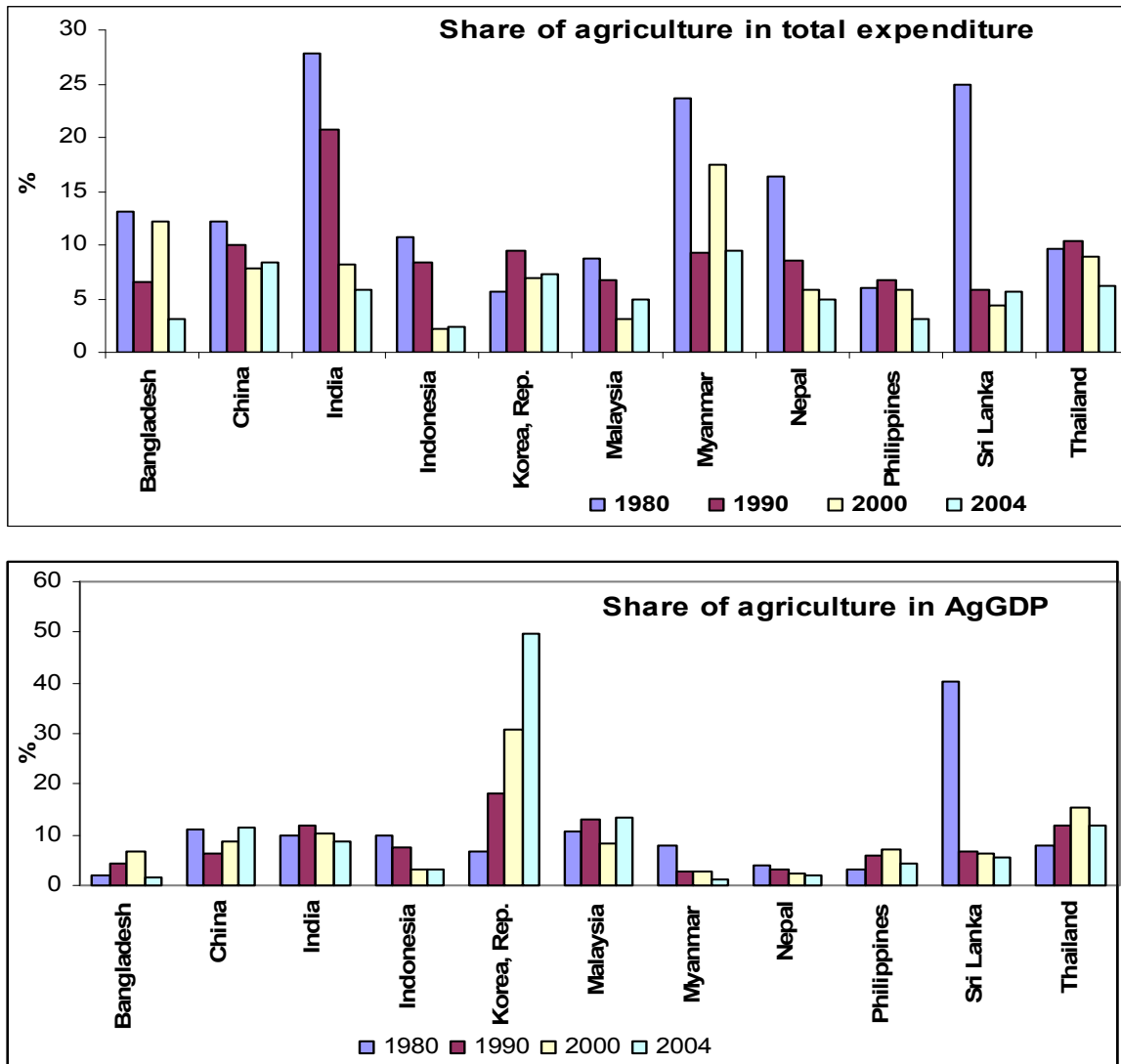
Source: Fan, Huong and Nong, 2004.

Table 5. Public Investment and Poverty Reduction

	China	India	Thailand	Vietnam
<i>Ranking of Returns in Agricultural Production</i>				
Agricultural R&D	1	1	1	1
Irrigation	5	4	5	4
Education	2	3	3	3
Roads	3	2	4	2
Telecommunications	4			
Electricity	6	8	2	
Health		7		
Soil and Water Conservation		6		
Anti-Poverty Programs		5		
<i>Ranking of Returns in Poverty Reduction</i>				
Agricultural R&D	2	2	2	1
Irrigation	6	7	5	4
Education	1	3	4	3
Roads	3	1	3	2
Telecommunications	5			
Electricity	4	8	1	
Health		6		
Soil and Water Conservation		5		
Anti-Poverty Programs	7	4		

Sources: Fan, Zhang, and Zhang (2004), Fan, Hazell and Thorat (2000), Fan, Jitsuchon, and Methakunnavut (2004), and Fan, Huong and Nong (2004).

Figure 1. Trends in Total Government Expenditures (Percent)



Sources: Calculated using data from International Monetary Fund's Government Finance Statistics (various issues).