



High-value Agriculture for Accelerated and Equitable Growth

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Indian agriculture is passing through a crisis phase. The growth in agricultural sector has sharply decelerated from 3.2% per annum during 1980/81 to 1996/97 to a trend average of only 1.5% afterwards. It is a matter of great concern, as nearly 72 percent of the population lives in rural areas, and over 70 percent of the rural population seeks its livelihood in agriculture and allied activities. The poor performance of agriculture is causing distress to the farming community. Not only that, it is feared that declining trend in rural poverty may reverse, if deceleration in growth were to continue for some more time.

The question is 'how to keep agriculture moving' especially when the rice-wheat based Green Revolution has started showing signs of fatigue. Also, the production environment and market opportunities are much different today than were in the past. The size of land holding is continuously falling; between 1971/72 and 2002/03 it declined from 2.2ha to 1.4ha, and the proportion of smallholdings (≤ 2 ha) in the total holdings increased from 68% to 86%. As such, the number of smallholdings more than doubled, from 38 million to 87 million, during this period. Small farms are considered to be more efficient than the large farms, but from the livelihood perspective how far the operators of such tiny holdings can survive by cultivating subsistence crops.

Diversification of agriculture out of staples towards high-value food commodities such as fruits, vegetables, milk, meat, eggs and fish, is considered an important pathway to boost agricultural growth. Rising per capita income, growing urbanization and unfolding globalization are causing a significant shift in the food basket towards high-value food commodities. The approach paper of the XI Five-Year Plan also emphasizes diversification of agriculture towards high-value commodities as an important growth strategy. In this brief note, we have examined two important issues: (i) can high-value agriculture accelerate agricultural growth?, and (ii) can smallholders benefit from the growth in high-value agriculture?

Are There Opportunities in High-value Agriculture?

The food basket of the Indian consumer is gradually diversifying towards high-value food commodities. Between 1983 and 1999/2000 the per capita consumption of cereals declined by 16%, while that of high-value food commodities increased by 24-39% (Mittal, 2006). Such shifts are not confined to only high-income classes, but are also visible in the low-income groups. In fact, the proportionate increase in consumption of high-value food commodities has been higher among the poor than the rich.

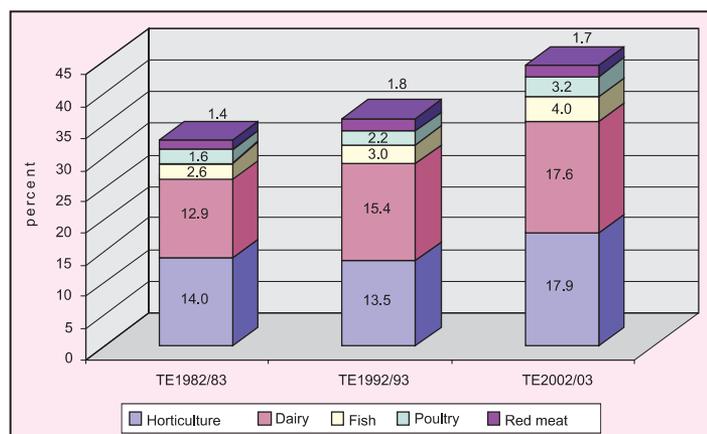
Diversification in the food basket was triggered by the sustained rise in per capita income and rapid growth in urban population. Since 1980/81 the Indian economy has been growing at a rate of over 6% and per capita income at about 4% per annum. During this period, the urban population grew at an annual rate of 2.96% compared to 2.06% growth in the total population. These trends are quite robust and are likely to continue in the near future, implying a substantial increase in the demand for various high-value food commodities. There are predictions of a 61 to 134% increase in the per capita demand for high-value food commodities over the next two decades (Mittal, 2006). Besides expanding domestic market, the global demand for these commodities is also growing rapidly (Aksoy, 2005) indicating a scope for their increased exports. For instance, the share of high-value food commodities in India's agricultural exports increased from 27% in 1981/83 to 37% in 2001/03 (FAOSTAT).

Can High-value Agriculture Sustain Agricultural Growth?

Indian farmers are responsive to the market signals. The share of high-value food commodities in total value of agricultural output increased to 44% in triennium ending (TE) 2002/03 from 33% in TE 1982/83 (Figure 1). At the disaggregated level, fruits and vegetables account for about 18% of the agricultural output, followed closely by dairy products.

Further, the share of most of the high-value commodities has increased over the past two decades, indicating increasing contribution of high-value food commodities to the agricultural growth.

Figure 1: Share of high-value food commodities in agricultural sector output (1993/94 prices)



Source: GOI (various years)

There is considerable regional variation in the magnitude and composition of high-value agriculture (Figure 2). In the eastern region it accounts for 56% of the agricultural output, with horticulture as the most important constituent. Its share is close to 50% in the southern and north-eastern regions, but with significant differences in the composition. While in the north-east, horticulture is the main component of high-value agriculture, it is quite diversified in the south with horticulture and dairy being equally important. Poultry and fish are also important in the south. In the northern and western regions high-value agriculture makes up about 40% of the agricultural output, and is largely based on dairying.

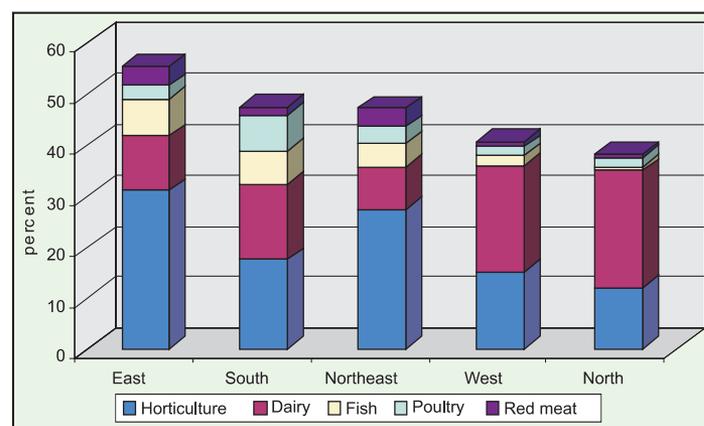
Growth in high-value agriculture has been more prominent during 1990s. Between 1992/93 and 2002/03 the fruit and vegetable segment grew at an annual rate of about 6%, much faster than during the 1980s (Figure 3). The poultry segment experienced a consistent growth of over 6% per annum throughout the past two decades. The dairy production too grew consistently at about 4% per annum despite a marginal deceleration in recent years. Growth in fish production accelerated from 3.7% during 1980s to 5% in the subsequent period. These trends are quite robust compared to those in rest of the agriculture. On the whole, growth in high-value segment accelerated from 4.1% in 1980s to 5% during 1992/93 to 2002/03. This provided a cushion to the agricultural growth which otherwise would have decelerated at a higher rate.

Beside demand-side factors, the policies were also supportive to the growth of high-value agriculture. For example, rapid growth in milk production during the last three decades is a result of vertical coordination between producers and consumers through the network of dairy cooperatives under the umbrella of National Dairy Development Board. Similarly, the establishment of the National Horticulture Board in 1984 gave a boost to production of fruits and vegetables, and the emphasis has continued with the launching of the National Horticulture Mission in 2005. The policies have also started laying greater emphasis on processing of high-value agricultural produce through increased participation of the private sector. Phasing-out of the Milk and Milk Products Order (MMPO), allowing financial institutions to fund contract farming schemes, reduction in the excise duties on processed food products and corporate taxes, and partial amendment of the Agricultural Produce Market Committee (APMC) Act were some of the positive interventions for growth of high-value commodities.

Will the Growth in High-value Agriculture Benefit Smallholders?

Agricultural growth in India has been observed to be more pro-poor, compared to the growth in other economic sectors (Ravallion and Datt, 1996). Within the agricultural sector, high-value segment is expected to contribute more to the wellbeing of the smallholders, as most high-value commodities require more labour and generate higher returns than cereals (Sharma, 2005; Joshi et al., 2006). Smallholders' strength is

Figure 2: Share of high-value food commodities in the agricultural output in different regions (TE 2002/03)

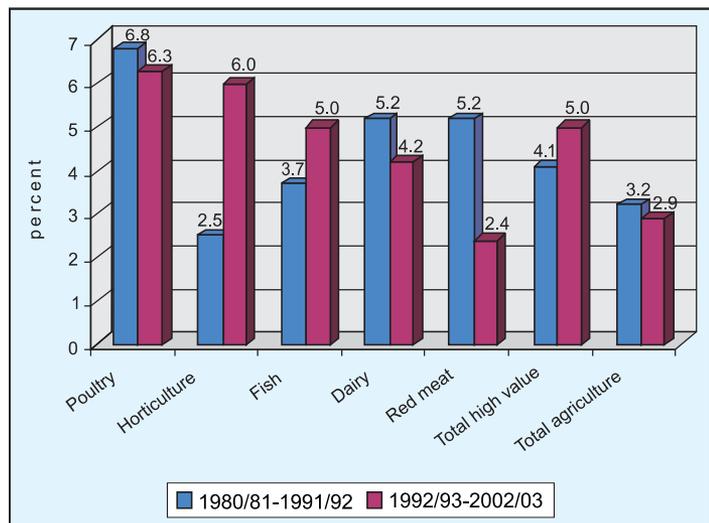


Source: GOI (various years)

their larger endowment of family labour. Production of high-value food commodities is thus a perfect opportunity for them to augment their income and utilize their family labour more effectively.

Nevertheless, there are apprehensions about the ability of smallholders to participate in high-value agriculture, which is capital- and knowledge-intensive and faces higher production and market risks. Most high-value food commodities are bulky

Figure 3: Annual compound growth rate of high-value food production



Source: GOI (various years)

and perishable. They need immediate transportation to consumption centres or cold storage or processing into less perishable forms. On the other hand, rural markets for these commodities are mostly thin and the marketable surpluses with smallholders are usually too small to be traded economically in the distant urban markets due to high transportation costs. Thus, the lack of access to output markets, agri-inputs, improved technology, market information, credit and risk-mitigating instruments could be important impediments to smallholders' participation in high-value agriculture.

Despite these limitations, smallholders do participate in high-value agriculture. They control 61% of the area under vegetables and 52% under fruits, as compared to their share of 44% in the total operated area (Figure 4). Their share in dairy animals and small ruminants is even much higher. These indicate that smallholders have more opportunities in the high-value segment than in the staple food production. Assuming that productivity is invariant to farm size, their shares in area under horticultural crops and animals could be treated as their contribution to high-value agricultural production. This however could be an underestimation, as there are evidences of small farms being more efficient than large farms (Fan and Chang-Kang, 2005).

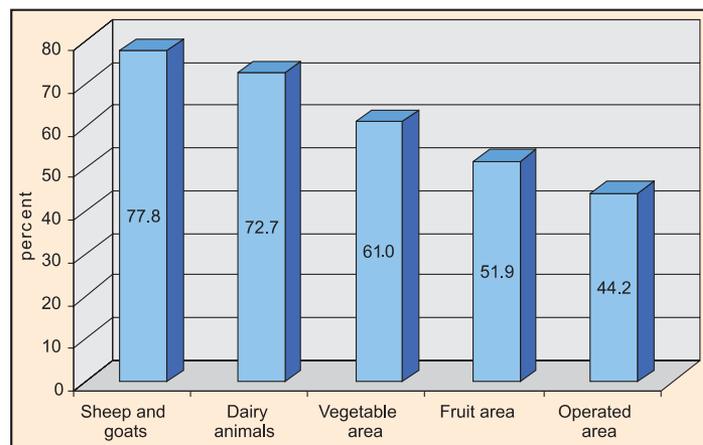
A larger share of smallholders in high-value agricultural production and a faster growth therein suggest that high-value agriculture can make a significant contribution to their wellbeing. It is however argued that high-value agriculture, because of its commercial orientation, may endanger the household food security, especially of the smallholders. Evidence shows that smallholders allocate proportionately as much as area

to foodgrain crops as do the large farmers, who participate comparatively less in production of high-value crops (fruits and vegetables) because of their labour-intensive nature (GOI, 1999). Further, high-value crops generate more income per hectare, which can be utilized by smallholders for buying staples, if needed. It is also argued that many high-value crops require more of chemical fertilizers and pesticides, and therefore may cause degradation to land and water resources. Integrated Crop Management (ICM) and Integrated Pest Management (IPM) approaches need to be promoted for increasing production of high-value crops. Water requirement of most of the high-value crops, on per ha or per unit of output, is less as compared to that of rice, cotton and maize (<http://www.lenntech.com/water-food-agriculture>). The need is to plan agricultural diversification in a way that optimizes farm income without causing damage to the natural resources.

Policy Implications

High-value agriculture requires altogether different kinds of markets, institutions and infrastructure. Most of these are bulky and perishable, and need to be transported to the consumption centers or stored or processed immediately after harvesting. But, the transportation, cold storage and processing infrastructure is generally inadequate. India has nearly 4600 cold storages with a capacity of 18 million tonnes, barely sufficient to handle 10 percent of the output of high-value agriculture (Birthal et al., 2005). The processing infrastructure is also poor. Of their total production 2.2 percent fruits and vegetables, 6 percent poultry meat, 21 percent fish and buffalo meat and 35 percent milk undergo some value-addition (GOI, 2005).

Figure 4: Share of smallholders in horticulture area (1997/98) and in animal population (2002/03)



Source: GOI (1999, 2006)

The robust growth in high-value agriculture experienced in the recent years may come under pressure if not supported by markets and adequate infrastructure. For the growth to be

sustainable and pro-poor there is a need to increase investment in public infrastructure and processing and to promote institutions like cooperatives, contract farming and producers' associations that enable smallholders take advantage of the economies of scale in marketing and protect against production risks.

High-value agriculture is capital-intensive. A lack of adequate finances may act as a deterrent to its growth. So is the lack of formal insurance. The financial and insurance institutions should increasingly focus on high-value agricultural projects. In recent years, financial institutions have developed some innovative models such as self-help groups, Kisan credit cards, and contract farming schemes to improve smallholders' access to credit. There is a need to be replicate such models on a wider scale.

Further, while the structure of India's agricultural exports has been gradually changing in favour of high-value food products (horticultural and animal foods), international food safety and quality standards are becoming stringent. Their compliance will be a key to the growth of exports of high-value food products. Thus, appropriate quality testing and certification procedures will have to be put in place. Also, it is equally important to prepare different stakeholders on the supply chain for quality-driven markets.

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