

## Conclusions

The results suggest that measures to improve agricultural marketing efficiency in India, perhaps including strengthening public and private marketing institutions and improving the regulatory climate for private agribusiness investment, may substantially and broadly benefit India's economy. Advances in marketing efficiency are shown to have the potential not only to increase income and employment economywide, but to provide positive price impacts for both agricultural producers and consumers and benefits to all households—particularly for rural and low-income households.

In a broader sense, the results also suggest the potential for greater investment and efficiency in India's agricultural markets to be a source of enhanced agricultural growth, trade, and competitiveness over the longer term. Whether new policies lead to rapid investment by modern retailers and others in transforming markets or the process occurs gradually, the results suggest that improvements in domestic marketing efficiency, although boosting food demand, may also strengthen agricultural exports and reduce imports. However, these results neither account for changes in food and feed demand that are likely to occur as higher income growth is sustained over the longer term nor account for constraints on crop and livestock production that may emerge with increased land use intensity, yields, and feed demand.

Finally, this analysis highlights the dilemma of Indian policymakers as they face domestic and international pressures for subsidy and tariff reform. Despite any economywide benefits from subsidy and tariff reform, particularly in a more dynamic and longer term framework, these measures have the potential to create adjustment costs for some commodity sectors and households—at least in the medium term. These potential costs may make implementing subsidy and tariff reform more difficult given the large share of rural and low-income households in India. In contrast, the effects on the economy and on households of increased efficiency in agricultural marketing suggest that this approach may be a valuable complement to subsidy and tariff reforms because of the potential to help mitigate the adjustment costs associated with those measures.

The modeling framework used here does not permit full analysis of the adjustment costs that might be incurred if India's traditional marketing system were transformed into a more efficient sector. This transformation likely would lead to losses in employment and income in some traditional firms. But, there would be more, larger scale, vertically integrated, and more technologically advanced processing and marketing enterprises that would provide new employment and investment opportunities. Concerns with these adjustment costs are an important part of the current debate over whether to permit foreign direct investment in multibrand retail marketing in India (Mukherjee and Patel, 2005). The results of this study indicate that improvements in agricultural marketing efficiency that explicitly entail reduced labor and capital inputs in providing marketing services still put upward pressure on economywide returns to labor and capital. Although some participants in the traditional marketing system will undoubtedly face adjustment costs, the economywide employment and consumption impacts are shown to be positive.

For the United States, these results suggest that the process of increasing investment and efficiency in India's agricultural markets could moderate growth in India's future agricultural imports, but also act as an important driver of India's economywide income and demand growth. The results of the analysis for various commodity sectors and households indicate why domestic support and market access issues are sensitive for India in bilateral and multilateral negotiations. The results also suggest avenues for addressing these concerns through cooperation and investment, which could contribute to more efficient domestic marketing chains. Further, the gains in output and consumption associated with introducing improvements in marketing efficiency suggest the potential for returns to private investment in India's agricultural markets.

Analytical issues that would be useful to address in future work include improved data on wholesale and retail marketing costs in Indian food and agriculture, not only by commodity, but also by purchaser. Recent sector studies of India's agricultural markets conducted by the World Bank, USDA's Economic Research Service, and others indicate producer-to-retail marketing costs that are substantially higher than those implied by the available input-output data for the Indian economy used for this study. If this is true, then the current study likely underestimates the potential economywide gains from improved agricultural marketing efficiency. In addition, as noted, the use of a dynamic framework would better capture the potentially significant, long-term growth implications of marketing efficiency gains in Indian food and agriculture.