

Estimated Costs of Marketing Agricultural and Food Products

The costs of wholesale and retail marketing services are embedded in the purchase prices paid by firms for intermediate inputs, by households for private consumption, by government and investors for purchases of agricultural goods, and for exports. We use multiple sources to develop a dataset of estimated current agricultural and food marketing costs for domestic and export sales on a commodity basis.⁵ For the purpose of general equilibrium economic modeling, it is necessary to have comprehensive, internally consistent data that describe the input and output relationships of firms' technologies and the economywide flows of income and expenditures. In this case, we also require consistent data on the supply and demand for wholesale and retail trade services for major agricultural products. We drew primarily on the internally consistent data on the Indian economy—including total expenditures on wholesale and retail trade services by each category of demand—from the 2001 India database (version 6) of the Global Trade Analysis Project (GTAP).⁶

In the GTAP data, as in the Indian national accounts on which they are based, purchasers' expenditures on each good are reported net of marketing costs and only total trade marketing service expenditures are reported for each category of demand (intermediate, households, government, investment, and exports). These trade service data cover the full range of marketing formats in both urban and rural areas. They include the public sector's role in marketing some food products; the small, private, "organized" sector composed of relatively large-scale retail outlets, such as supermarkets; and the marketing services provided by India's large, private "unorganized" trading sector composed of myriad small shops, stalls, open markets, and bazaars (Government of India, Ministry of Statistics and Programme Implementation, 2000, 2007). Note that, within the dataset, private-own-consumption of agricultural goods—which accounts for the largest share of the goods produced and consumed by Indian farm households—is assumed to have no associated marketing costs. India has many small farmers—about 81 percent of all operational holdings, accounting for about 39 percent all farmland, are 2 hectares or less—and home consumption is estimated to account for significant shares of total use of most crops (Government of India, Ministry of Agriculture, 2008).

To disaggregate total expenditures on marketing services by each purchaser into marketing margins paid for each commodity, we relied on a combination of judgment and findings from recent studies of India's food grain, oilseed, poultry, and horticultural product markets. A major inconsistency had to be reconciled, however, between the data on total expenditures on marketing services reported in the GTAP data (and the Indian national accounts) and the much larger expenditures on marketing margins reported in the commodity market studies. One reason for the inconsistency is that the Indian national accounts data implicitly average in the zero margins for on-farm consumption—goods that do not enter the marketplace. A second reason may be the inaccuracy of the marketing cost data from the various marketing studies that are often based on available data for a few markets or regions that may not represent national average data. A third reason could be a possible tendency

⁵Author calculations to develop estimated marketing margins are described in further detail in Appendix 1.

⁶GTAP database development for each country or region combines current international data on trade flows, applied tariffs, agricultural subsidies, macroeconomic indicators, and energy use with contributed national input-output tables to create a balanced, internally consistent global database for a specified base year. The GTAP v6 database used in this study incorporates India's 1993-94 national input-output table contributed by Chadha and Pratap (2006) in a balanced global database for 2001.

for the Indian national accounts data to undercount the expenditures of trade services provided by small, rural and urban, unorganized sector firms that market most agricultural products in India.

The discrepancy in the size of marketing margins between the available sources is too large to be accommodated in the model database without a significant revision of the Indian input-output tables, which would in turn necessitate introducing numerous new assumptions and sources of error. Therefore, the approach used is to maintain the internal consistency of the model database but, to the extent possible, allocate the expenditures on agricultural marketing services to various commodity sectors in a manner that reflects the relative sizes of margins found in the marketing studies.

The data on marketing margins developed from various market studies, along with the margins used for economywide model analysis, are provided in table 1. Also reported (in the final two columns of table 1) are estimates of

Table 1 Estimates of trade service costs by commodity group for India							
Commodity group	Marketing study-based estimates				Model estimates ⁴		
	Marketed produce				All produce		
	Unprocessed ¹	Processing adjustment ²	Processed	Marketable surplus ³	Average total costs at retail	Average total cost	
	Percent of consumer price			Percent of production	Percent of consumer price		
						At retail	For export
Rice	0.334	1.10	0.368	0.733	0.269	0.083	0.033
Wheat	0.377	1.10	0.415	0.655	0.272	0.092	0.037
Corn	0.356	1.20	0.427	0.747	0.319	0.097	0.000
Other cereals	0.356	1.10	0.391	0.569	0.223	0.089	0.000
Pulses	0.485	1.10	0.534	0.798	0.426	0.114	0.047
Fruit & vegetables	0.700	1.20	0.840	0.859	0.721	0.126	0.052
Oilseeds	0.223	1.00	0.223	0.922	0.206	0.053	0.020
Sugar	0.386	1.40	0.540	0.985	0.532	0.118	0.047
Fibers	0.400	1.30	0.520	0.953	0.495	0.091	0.036
Crops, nec	0.435	1.40	0.608	0.802	0.488	0.113	0.048
Cattle	0.400	1.00	0.400	0.800	0.320	0.092	0.000
Poultry & hogs	0.300	1.00	0.300	0.800	0.240	0.065	0.025
Beef & mutton	0.400	1.20	0.480	0.900	0.432	0.058	0.032
Poultry meat & pork	0.200	1.20	0.240	0.900	0.216	0.014	0.000
Oil meals	0.200	1.00	0.200	0.950	0.190	0.039	0.000
Oils & fats	0.500	1.20	0.600	0.950	0.570	0.110	0.052
Dairy	0.300	1.60	0.480	0.700	0.336	0.108	0.042
Food, nec	0.800	2.00	1.600	0.850	1.360	0.118	0.061

nec = Not elsewhere classified.

¹ERS estimates based on commodity market studies and 2002-04 average farmgate-retail price spreads.

²ERS estimates.

³Government of India, Ministry of Agriculture, 2008 Agricultural Statistics at a Glance; ERS estimates.

⁴Model estimates include the portions of the study-based commodity-specific estimates that are consistent with the trade service expenditure data included in India's national input-output accounts and the Global Trade Analysis Project (GTAP) database. In most cases, the expenditures implied by the marketing cost studies exceed the corresponding trade service totals in the GTAP input-output accounts and have to be scaled down to maintain consistency with the input-output accounts.

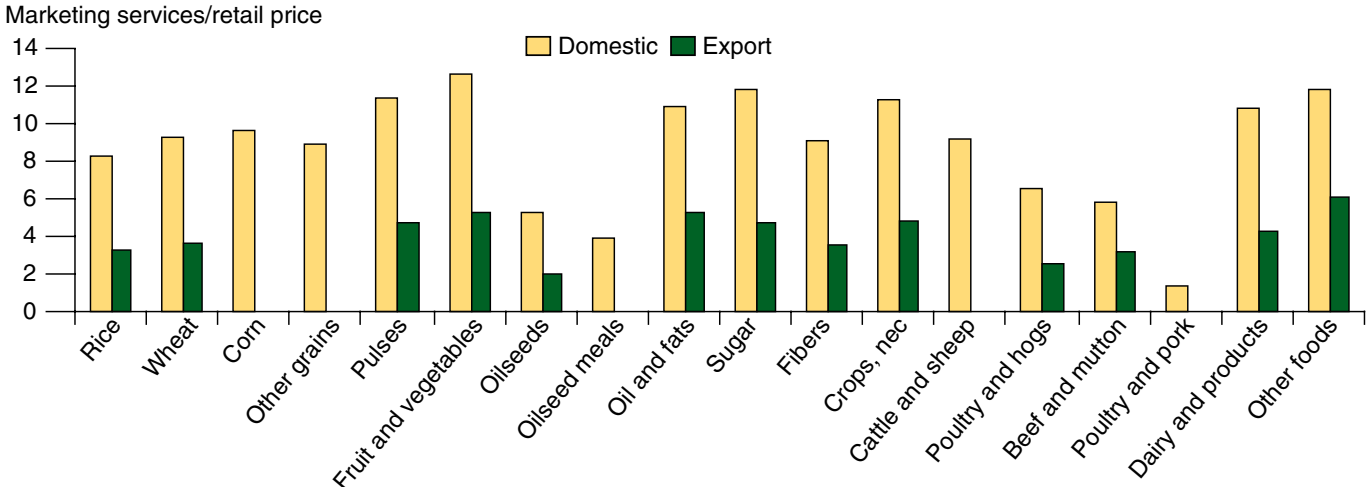
conversion factors and marketable surplus ratios used to adjust the market study data for processing and on-farm consumption. For all commodities, the marketing margins that are consistent with the findings of various market studies were scaled down to meet the constrained totals in the balanced economywide database. Margins are estimated separately for domestic sales and exports. Overall, the estimates for the domestic commodity marketing margins used in this analysis—constrained by the level of total market service expenditures in Indian national accounts—average about 21 percent of those based on the findings of commodity market studies. The estimated marketing margins for export sales, scaled to the control total in the model database, are smaller than those for domestic sales and reflect that marketing margins for export sales do not span the full farm-to-retail supply chain. Because of the downward scaling, the model data may understate the size of India’s actual agricultural marketing margins and the impacts of improved marketing efficiency.

The marketing margin estimates are marketing services costs as a percentage of the retail price. Estimated margins are relatively low for primary agricultural products, such as rice and wheat, which are often consumed on farm and often minimally processed (fig. 2). Estimated marketing margins for domestic sales are highest for dairy, fresh fruits and vegetables, processed foods, and sugar. The export margins are highest for fresh fruits and vegetables, other processed foods, pulses, and crops not elsewhere classified.⁷

Although the available data provide a basis for differentiating marketing margins across the commodity sectors, they do not permit differentiating marketing costs and margins for the various categories of consumers, such as rural or urban location and high- or low-income. We, therefore, assume a uniform marketing margin across domestic demand categories for each commodity. As a result, to the extent that urban and/or higher income consumers tend to purchase relatively more marketing services, the data may understate those expenditures. Similarly, to the extent that low-income and/or rural consumers tend to buy fewer marketing services, the data may overstate their expenditures.

⁷See appendix 1 for more detail on how these marketing costs by commodity were estimated.

Figure 2
Estimated agricultural marketing margins in India



nec = Not elsewhere classified.

Source: Saluja and Yadav, 2006; Global Trade Analysis Project Version 6 database; author calculations.