GROWTH AND EFFICIENCY IN MEAT PROCESSING INDUSTRY IN INDIA

Abstract

Food processing is a sunrise industry of the Indian economy and has been identified as thrust area for development. Food processing sector covers a wide range of items like fruits and vegetables; meat and poultry; milk and milk products, alcoholic beverages, fisheries, plantation, grains, confectionery, chocolates and cocoa products, mineral water, high protein foods etc. Based on the basic raw material usage, the food processing industry can broadly be classified into plant based and animal based. Meat industry is one of the important segments of food processing industry in general and livestock/animal based industry in particular. India has immense potential for production and export of meat due to sufficient resources, available markets and huge livestock population.

This study evaluates the performance of meat processing industry and role of technology in acceleration of growth of this industry. Efficiency improvement of the processing industry is the key for sustainable growth. The trends in production, consumption and export have been measured using exponential growth model. Nominal Protection Coefficient (NPC) has been measured to assess the export competitiveness of meat industry. Malmquist TFP index is used for measuring productivity change in Indian meat processing industry. Malmquist productivity index is defined as the ratio of two output distance functions (Caves et al., 1982). Input oriented variable returns to scale (VRS) DEA model has been used for measuring technical and scale efficiency of Indian meat processing industry. The input-output variables used include capital, labour, raw material consumed, fuel consumed
and gross value of output. Malmquist TFP index and efficiency scores have been obtained by using DEAP software (version 2.1) developed by Coelli (1996).

Over the last two decades the value of meat output has been increasing at a rate of about 6 percent a year. Rising demand for meat has been the driving force behind it. Between 1980 and 2000, while the per capita consumption of foodgrains increased by 4 percent, consumption of milk and meat increased by 50 percent and 25 percent respectively. In quantity terms, per capita milk consumption increased from 40 kg in 1980 to 66 kg in 2000, and meat consumption increased from 4 kg to 5 kg during this period. Most of the meat output (96%) is consumed domestically, yet per capita meat consumption in India is much less as compared to developed (77 kg) and developing (27 kg) countries.

The demand for meat is expected to grow faster with sustained economic growth, rising per capita incomes, strengthening urbanization trends and increasing awareness of the nutritive value of meat and meat products. By 2020 demand for milk is estimated at 143 million tonnes and that of meat and eggs at 8 million tonnes (Kumar, 1998). These opportunities can be capitalised for the benefit of producers as well as consumers and would largely be determined by the pace of development and diffusion of the technologies in processing of livestock based products (Mishra, 1995).

The increase in demand has been accompanied by increase in production. Total meat production increased from 2.7 million tonnes in 1980 to 4.7 million tonnes in 2000 with annual growth of 3.41 percent. The growth in meat production has largely been number driven as yield growth is negligible in case of almost all the species. Cattle, buffalo, goat, sheep, pig and poultry are important meat species. While goat, sheep, pig and poultry are
exclusive meat animals, cattle and buffalo provide meat as an adjunct to milk. Animal slaughtered are of poor quality. The structure of meat production however is undergoing a gradual shift from ruminant to non-ruminant (pig and poultry) meat production. The share of non-ruminant meat production increased from 15 percent in 1980 to 23 percent in 1999.

Meat and meat products constitute more than 90 percent of the livestock export earnings. Buffalo and sheep meats constitute bulk of the meat exports. There is a rising demand for buffalo meat in the East Asian countries. And India has a sufficient potential to produce buffalo meat. Similarly, there is a prospective export market for goat and sheep meat in the Middle East countries. Buffalo meat export is internationally competitive and India has more than half of the world buffalo population. This indicates substantial export potential. Nevertheless, a considerable production potential is wasted due to slaughtering males at a very young age. To harness this potential the industry should strengthen backward linkages with the producers offering them an assured market for male buffaloes.

Although most of the developing countries including India have never been major players in the world meat trade, trade liberalization is opening up opportunities for export of meat and meat products. Since the beginning of the process of trade liberalization in early 1990s, the share of developing countries in global meat exports increased from 14 percent in 1992 to 16 percent in 2000. The growth in meat exports from developing countries was double the rate than from the developed countries. India’s share in world meat export increased from 0.24 percent to 0.54 percent during this period.

The growth of meat industry is constrained by a number of socio-cultural and economic factors at different levels of production, processing, handling and marketing. Exports are constrained by protectionist policies and
sanitary and phyto-sanitary standards. Meat yields of most of the animals are abysmally low. Average meat yield of cattle, buffalo, sheep, goat and pig is around the world average. Traditional slaughter practices are still in vogue. Slaughterhouses are old, unhygienic and lack basic facilities like water, light, ventilation, drainage, waste disposal and effluent treatment. These contribute to poor meat quality and low recovery of various by-products such as hide, blood, bonemeal, internal organs and trimmings.

In order to harness the emerging opportunities in domestic as well as export markets, the Government of India has taken various initiatives to improve the efficiency of meat industry and export competitiveness. Some of these include financial assistance for the modernization of slaughterhouses in meat industry, creation of export processing zones, strengthening of vertical linkages, improvements in sanitary and phyto-sanitary standards etc. As a result, a number of modern export oriented meat processing units are established to augment available domestic and export market potentials.

Although the level of meat processing is extremely low, it has been increasing. The growth in processed meat segment has been drastic during 1990s (12.8%) as compared to 1980s (3.3%). Most of this occurred due to input growth. The contribution of technology was negligible during 1980s as well as 1990s. On an average TFP grew at a rate of 1.01 percent during 1980-81 to 1999-2000. The average technical efficiency score is estimated to be 0.59 under CRS model and 0.93 under VRS model. The efficiency indices value equal to unity which imply that the industry is on frontier while values below unity imply that the industry is below the frontier or technically inefficient.

The efficiency score based on VRS model indicates that performance scores are equal to one during more number of years than the CRS model. Thus, industry was technically efficient under variable returns to scale during
most of the year. On the other hand, average scale efficiency for the entire period is 0.64. There was considerable under utilization of input resources during 1980s. Nevertheless, over time resource utilization has improved perhaps due to rising trends in the exports. This had significant positive impact on labour absorption as well as labour productivity. While the capital investment in industry improved, capital productivity has remained stagnant.

The thesis has been organized in the following order. Chapter one describes the methodological details and data used. A brief overview of the livestock sector in India is presented in chapter two. The structure and performance of meat industry is discussed in chapter three. Chapter four examines the prospects for meat exports. A paper entitled "Export Competitiveness of Indian Meat Industry" from this chapter has been published in Indian Journal of Agricultural Marketing, (2001) Vol. 15 (3): pp 120-126. The contribution of technological change and technical efficiency in the growth of meat industry is examined in the following chapter. Chapter six attempts to identify constraints and policy issues relevant to meat industry. A paper from this chapter entitled “Indian Meat Industry: Potential, Constraints and Policy Interventions” is accepted to be published in forthcoming issue of “Productivity”. The last chapter provides conclusions and recommendations for Indian meat processing industry.