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Determinants of Technical Efficiency of Dairy Processing Firms in Southern Brazil

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Abstract

Historically the dairy industry in Brazil has been mainly focused on the domestic market and minor efforts were made in order to increase the productivity, technology adoption or professionalisation of producers and processors. In recent years the internal demand for dairy products increased significantly with the purchasing power of Brazilian consumers. Multinational dairy processors installed processing plants in the country, but also the high quantities of imported good quality and cheap dairy products are threaten the national industry. Therefore in the largest dairy production area in southern Brazil, national dairy processing companies are facing challenges to organise the supply chain and to improve their performance in this very competitive sector. In order to design new policy recommendations to improve the performance of the dairy industry in southern Brazil we investigate productivity and the determinants of technical efficiency (TE) of these dairy processing firms. Data on firm structure, management capacity, institutional choice and policy support of 244 dairies are analysed. A parametric production frontier is estimated (using the Bayesian approach) and the determinants of technical efficiency are computed. An overall efficiency of 79 % indicates margin for increasing the outputs by 21 % using the same inputs. Economies of scale were also detected. According to the results less idle processing capacity contributes to improve efficiency as expected. Having more organisational employees (administrative, quality control, R&D, farmer consultancy) makes companies more efficient. Investments in growth and modernisation in the last 5 years decreases the efficiency of the companies. This result could be explained by high learning costs; high interest rates over loans/credits and/or delay in getting positive effects. A larger portfolio of products increases the efficiency. Contradicting the transaction costs theory we found that cooperatives are more efficient. The reason could be that the organisation matters more in Brazil than in other places for the dairy sector, or the social capital of cooperatives play an important role. Through our results it's possible to suggest important management advices to companies but also public policies to the Brazilian government in order to booster the growing dairy sector.

Keywords: Brazilian dairy sector, dairy cooperatives, dairy processing firms