

# CAIRN Policy Brief

Canadian Agricultural Innovation Research Network

Number 5, August 2007

## Innovation Rates in Canadian Food Processing: The Role of Human Capital

By Vahid Omidvar and Derek Brewin

### The Issue

In the hopes of supporting rural economies, some planners suggest fostering food processing firms in rural areas. Locating close to necessary agricultural commodities might give processors an advantage under certain conditions. However, emerging patterns of product innovations (which affect demand) and process innovations (which lower costs) are tied to firm level capacities in research and development. Communities can become more efficient at supplying services, including research services, to a particular industry. This in turn lowers the costs of that industry, thereby driving up demand for the services, and so on. The agglomerations of service firms spin off supporting services, which then accommodate yet more firms. Agglomerations, however, are difficult to support in a rural setting. Individual firms have trouble meeting their own labour needs let alone those of their service suppliers.

The two forces of low transportation costs for commodity inputs versus lowered costs from agglomerations can leave unclear the optimal location of a food-processing firm. Urban settings tend to deliver more agglomerations but rural settings might allow for cheaper commodity inputs.

One of the key processes in a firm's success is the rate of innovation, and so this study examined the rate of innovation in food processing firms across western Canada. It tested whether this rate is affected by a firm's location or the human capital capacities of the firm or the surrounding region .

### Policy Implications and Conclusions

Maintaining a competitive edge in the food processing sector requires continued innovation. Omidvar (2006) explored various factors that might determine innovative activity within food processing firms in Canada. He included data from the "Innovation in the Food Processing Industry Survey" by Statistics Canada and a survey of western Canadian food processors supplied through the funds of the Canadian Agricultural Innovation Research Network. The purpose of the thesis was to study the effect of various characteristics (locale and firm) on the probability of innovation in food processing firms in western Canada. Using several alternative estimations, Omidvar found that firm size and market competition scales had a positive effect on both types of innovation. Rural firms and those with lower internal or regional education levels had fewer product innovations, but these firms did not appear to have fewer process innovations.

### Discussion

Human capital, or the education and work experience levels of individual workers, has redefined and reshaped the structure of many industries in advanced countries. Most firms believe that there are two methods that can ensure continuous profit and future survival in the market. These two methods are reducing production costs or improving product quality. By reducing production costs, firms compete on price, which will attract new customers. By maintaining or improving the

# CAIRN

Canadian Agricultural  
Innovation Research  
Network  
51 Campus Drive  
Saskatoon, SK  
S7N 5A8

General Inquiries:  
306.966.4026  
Fax: 306.966.8413  
Email: [cairn@usask.ca](mailto:cairn@usask.ca)

Additional briefs at:  
[www.ag-innovation.usask.ca](http://www.ag-innovation.usask.ca)

quality of a product, firms can keep current customers happy or attract new buyers, which would improve the likelihood of future profitability.

There is a strong link between human capital and productivity in any industry. Through education and experience, employees can increase their stock of knowledge and even generate externalities by interacting among each other. This means that human capital in many industries is seen as part of a continuing cycle of innovation and investment that can generate long-term profitability and growth.

The term innovation has taken on many different meanings over the years. In this setting, it is defined as a new or significantly improved product (goods or services) or process. Innovation can occur at any level of a firm or organization, such as marketing, manufacturing, research, finance, and personal management.

Similar to other industries, innovation in food processing plants plays a key role in a firm's economic prosperity. However, innovations in food processing establishments face formidable challenges in an increasingly knowledge-based economy, and these challenges are caused by many factors. The lack of a well-trained labour pool may be a significant impediment. The evidence from this study supports this conclusion with regards to product innovations that increase demand, but not process innovations that lower costs.

## Reference

Omidvar, Vahid. (2006). *Regional and Firm Level Human Capital Effects on the Rate of Innovation in Food Processing Firms in Canada*. Unpublished master's thesis, University of Manitoba.