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1. What Is the Issue?

Co-operatives are businesses whose operations follow an internationally recognized set of principles. In Canada, co-operatives are present in virtually all sectors, including agriculture, housing, education, retail, banking, and insurance. As of 2010, there were about 7,865 incorporated non-financial co-operatives in Canada, with 7.4 million members. These co-operatives generated \$33.9 billion in revenue, and 87,900 full or part time jobs (Industry Canada, 2015). In 2010, agriculture and resource co-operatives generated the third highest amount of revenue (\$5.5 billion, or about 16% of total sector revenues), after manufacturing, for which most business was generated by dairy processing co-operatives (18%), and wholesale and retail (59%).

In recent decades, many studies have examined the effect of financing constraints on investment for investor-owned firms. In this paper, I examine the effect of financing constraints on agricultural co-operatives in Canada. I use panel data from the co-operative secretariat to estimate a stochastic frontier investment model and identify the effects financing constraints have on investment for agricultural cooperatives. Specifically, we estimate investment efficiency – i.e., the degree of financial constraints. The preliminary findings of the study suggest that average investment efficiency ranges between 13% (for vegetable co-operatives) and 66% (for petroleum co-operatives), meaning that firms are unable to attain their investment frontier because of severe financial constraints. I expect the results of this paper may provide agribusiness co-operative leaders, policymakers and practitioners with relevant information on co-operative firm financing. Specifically, I expect the paper will contribute to the on-going co-operative financial governance debate. Further, this paper will contribute to the empirical literature in cooperative economics and finance.

Unlike investor-owned firms, co-operatives face financial constraints because of equity starvation and heavy reliance on debt. The 1999 Canada Cooperatives Act recognizes this issues. The Act (1) enables members of co-operatives to decide on whether to issue equity in the marketplace on a competitive basis while retaining a co-operative structure; (2) provides greater flexibility of methods for members to finance their co-operative by giving access to new ways to raise capital if members decide that internal financing is not enough; and (3) gives co-operatives access to an array of modern corporate tools (e.g., amalgamations, arrangements, and reorganization) that competitors use every day to carry on business efficiently and effectively.

2. What Did the Study Find?

Table 1 provides debt to asset ratio by the industry for agribusiness processing and marketing co-operatives in Canada. We observe considerable heterogeneity in the degree of indebtedness across industries – with farm petroleum co-operatives being less indebted and other farm input supply co-operative being highly indebted.

Table 1. The Debt-to Asset Ratio for Canadian Agribusiness Co-operative firms

| Type of Coop | Debt-to Asset Ratio | Observations |
|--------------------|---------------------|--------------|
| Supply | 1.02 | 2615 |
| Feed | 1.42 | 983 |
| Petroleum | 0.19 | 1695 |
| Other supply | 2.72 | 148 |
| Dairy | 1.17 | 578 |
| Fruit | 1.98 | 536 |
| Vegetables | 2.47 | 482 |
| Greenhouse | 2.09 | 132 |
| Grain and Oilseeds | 1.44 | 324 |
| Livestock | 1.36 | 666 |
| Poultry and Eggs | 1.30 | 176 |

Table 2. The Degree of Investment Efficiency

| Coop type (Industry) | Investment Efficiency |
|----------------------|-----------------------|
| Supply | 42% |
| Feed | 48% |
| Petroleum | 66% |
| Dairy | 26% |
| Fruit | 21% |
| Vegetables | 13% |
| Greenhouse | 16% |
| Grain and Oilseeds | 32% |
| Livestock | 29% |
| Poultry and Eggs | 31% |
| Honey and Maple | 17% |

Table 2 provides the degree of investment efficiency for agribusiness processing and marketing co-operatives. We find a significant degree of investment inefficiencies in each industry. Overall, the average investment efficiency is 41%, meaning that the co-op's investment is at 41% of their

desired investment level. Firms are unable to attain their investment frontier. We also find a considerable difference in investment efficiency across industries. For example, co-ops in the petroleum industry are 66% investment efficient, suggesting that investment is at 66% of the desired level. For vegetable co-ops, investment efficiency is 13%. The results show severe financial (credit) constraints in each industry.

3 How was the Study Conducted?

We use data provided by the Canadian Co-operative Secretariat. The data includes financial statements over the period 1984-2008 (CCS). The data includes the following industries: agricultural supply, feed mill, farm petroleum, dairy, marketing & processing, fruit and vegetables, greenhouse vegetables, grains and seeds, and livestock. We use Tobin's Q-theory and stochastic investment function to examine investment efficiency and the degree of financial constraints.

References

Industry Canada. 2015. *Co-operatives in Canada 2010*. Ottawa: Co-operatives Policy Unit, Strategic Policy Branch of Industry Canada.