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CAIRN Policy Brief

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Returns to Beef Cattle Producer Check-off Dollars Investment in Research and Marketing Activities

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Issue

Since 2002 the Canadian Beef Cattle Research, Market Development and Promotion Agency (NCO agency) has been responsible for Canada's beef cattle check-off program. The NCO agency collects check-off funds from the participating provinces² and distributes these funds to the respective divisions that manage beef cattle marketing and research activities, while the Canadian Cattlemen's Association is contracted for administration. The scale and scope of the marketing and research activities have changes since the check-off's inception, especially in light of the discovery of BSE infected cattle in Canada in 2003. The research discussed in this policy brief is from a project that sought to understand whether: investment of check-off funds generated positive returns to cattle producers in Canada; the allocation of check-off funds could be optimized across marketing and research activities; and the impact on producer benefits from changes in the level of the check-off levy.

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² Where agreements exist between the NCO agency and provincial beef agencies, a mandatory national levy of \$1 per head on domestic cattle sales is collected by the provincial agency and remitted to the NCO agency. As of 2010, participatory agreements for Quebec and PEI were pending, while Newfoundland and Labrador had production levels exempt to participation.

Key Results & Implications

A price-reactive, dynamic econometric simulation model of the Canada-U.S. beef-cattle complex, with beef trade linkages to the rest of the world, was used to establish the baseline market outcome and to then simulate a variety of counterfactual scenarios designed to address the objectives of this research. In the first instance, the model was used to measure the impact of the investment of check-off funds in beef-cattle related marketing and research activities. Because of the circumstances arising from the discovery of BSE infected cattle in Canada in 2003, and subsequent border closures, attention was focused on the period of time after trade of cattle under 30-months of age was allowed (i.e. from Quarter 3 2005 onwards).

Historic investment increased producers' economic benefits

Results of the analysis showed that between 2005 and 2008 the average benefit-cost ratio (ABCR) for Canadian beef cattle producer check-off dollars grew from 7:1 to 11:1, with an average of 9:1 over this time period. This means that on average, over this period, every dollar of beef-cattle producer check-off investment earned producers \$9 in revenue. Moreover, by 2008 the average benefit-cost ratio was slightly higher than the average BCR prior to the BSE-crisis. When separate analysis was undertaken to isolate the impact of investment in marketing activities only, the ABCR averaged 7.6:1 over the period 2005-2008. Likewise, when the impact of investment of check-off funds in beef-cattle production research was isolated, the ABCR averaged 46:1 over the same period.

When marketing activity investment was further decomposed across domestic³ and international marketing activities, positive returns were still measured for each, but with varying returns. From fiscal year 2005/2006 to the end of 2008 every check-off dollar invested in domestic (i.e. Canada and the U.S.) marketing activities increased producer benefits by \$3.40, while every dollar invested in international marketing activities increased producer benefits by \$16.

³ Domestic marketing activities include those in Canada and the U.S., while the international marketing activities include those outside of Canada and the U.S.

Under-investment in marketing and research activities

Results also suggest significant under investment in both marketing and research activities. Simulations assuming investment of one additional dollar in marketing and research activities (i.e. marginal analysis) were used to measure the incremental change in producers' economic benefits. Given biological lags in production and the resulting dynamic nature of the cattle industry, the one time increase in investment was assumed to occur in the first quarter of 2007. The change in producers' economic benefits was calculated and the cumulative present value of the stream of benefits computed assuming a three per cent discount rate.

The marginal BCR associated with incremental investment in marketing and research activities⁴ in quarter one 2007 equalled 16:1. One implication of this analysis is that there has been under-investment (at least in that quarter). To explore whether under-investment has been prevalent in other periods, simulations were undertaken that assumed the incremental investment occurred in either quarter two, three or four of 2007. In all instances, the discounted flow of producers' economic benefits was discounted and the cumulative present value calculated. Across 2007 the marginal BCR ranged from 8.6:1 to 16:1, thus providing further evidence of under-investment.

It should also be noted that the extent of under-investment varied across marketing and research activities. In particular, the extent of under-investment was measured to be larger for research activities than for marketing activities. A simulation where it was assumed that all of the incremental investment was allocated to marketing activities leads to measurement of marginal BCRs ranging from 5:1 to 15.7:1 depending on the quarter in which the incremental investment occurred. In contrast, when it was assumed that all of the incremental investment was allocated to beef-cattle research-activities, marginal BCRs ranging from 32:1 to 59:1 were calculated (again, depending on the time period in which the incremental investment occurs). Given that the marginal BCR for research activities is larger than that for marketing activities, it is concluded that the extent of under-investment is worse for research than marketing.

⁴The incremental investment in marketing and research was allocated proportionally to the historic pattern of check-off fund investment in these activities.

Given the extent of historical under-investment, scope exists to explore how producers might benefit from an increase in the beef-cattle check-off level. To this end, increases in the check-off levy from the \$1 per head marketed amount to \$2, \$3 and \$5 per head were simulated. Recognize that in the Canadian cattle industry, there is extensive leveraging of check-off funds. As such, this simulation also assumed that additional check-off funds are leveraged at their historical level, and that the result incremental funds were allocated to marketing and research proportionately to their historic levels. Analysis of the simulation results shows that additional investment in marketing and research activities increased Canadian cattle producer benefits. For every incremental dollar invested, the increase in cattle producer benefits ranged from \$7.20 (with a \$5 per head levy) to \$9.30 (with a \$2 per head levy).

Reallocating check-off funds from marketing to research

Given the differences in the marginal BCR for marketing and research activities, one might wonder whether re-allocation of check-off funds away from marketing and towards research might increase producer benefits (without having to increase the levy). Important in this regard is that provinces with remittance agreements with the NCO agency can allocate varying proportions of their national check-off remittance to marketing and research activities.⁵ Historically, these provincial allocations have led to 6.7 per cent of check-off funds being allocated to research and 93.3 per cent to marketing. To explore how re-allocation of check-off funds might affect producer profits, the model was used to simulate the impact of varying these allocation from 90 per cent to marketing and 10 per cent to research, to 50 per cent to marketing and 50 per cent to research, all the while holding constant the total funds available for investment.

⁵ These provincial allocations range from 100 per cent to marketing and no funds to research (e.g., New Brunswick and Nova Scotia), to 90 per cent to marketing and 10 per cent to research (e.g., Saskatchewan), to 86 per cent to marketing and 14 per cent to research (i.e., Manitoba).

Results of this analysis suggest that shifting to a 90:10 split in marketing-to-research investment can generate an additional \$17 million in producer benefits, while a 50:50 split can generate \$76 million in additional producer benefits. While both marketing and research suffer from under-investment, reallocating check-off funds from marketing to research would increase Canadian cattle producer benefits. It is important to note that in the simulations that consider these reallocations, leveraged funds have not been changed. In reality, every dollar of check-off funds allocated to marketing has historically been leveraged, such that \$1.7 was actually invested in marketing. Likewise, every check-off dollar invested in research was leveraged such that \$5.2 was invested in research.

Assuming these leverage ratios do not change, this means that transferring \$1 of check-off investment from marketing to research reduces total investment in marketing by \$1.70, but increases total investment in research by \$5.20. Consequently, the decrease in producer benefits that arise from reduced investment in marketing would also be larger than those embodied in the above scenarios. But at the same time, the increase in producer benefits that arise from increased investment in research would be larger than those embodied in the above scenarios. Given the large differences in the leverage ratios, and under most foreseeable circumstances, the net effect of these changes would be such that the change in producer benefits when account is taken of this leverage effect would be larger than those reported above. As such, the estimated increases in producer benefits are lower bounds and should be viewed as conservative estimates.