

CURRENT ISSUES IN CANADIAN AGRI-FOOD POLICY

Eighth Annual Canadian Agri-Food Policy Conference

JANUARY 24-26, 2018 • CHÂTEAU LAURIER • OTTAWA

POSTER I

Business Risk Management Programs and On-Farm Capital Investment of Canadian Farms

Presenter: Alistair Campbell, MSc Candidate
Supervisor: Peter Slade
Agricultural and Resource Economics
University of Saskatchewan

The objective of most farm-support programs is to manage risk that is prevalent in agricultural production. These business risk management (BRM) programs in agriculture are commonly in the form of insurance (yield insurance, net margin insurance, etc.). These programs can help reduce risk associated with income variability and uncertainty. There is a vast literature on investment decision under risk and uncertainty, but there exists a gap in the empirical analysis of the risk-reducing effect BRM programs on investment. This project examines the relationship between Canadian BRM programs, specifically AgriStability/CAIS and crop insurance, and on-farm capital investment through theory and empirical analysis under a risk-balancing framework put forward by Gabriel and Baker (1980). Previous papers have researched BRM programs using the risk-balancing approach, but do not separate investment and refinancing as components of financial risk (Uzea et al. 2014; de Mey et al. 2014). This distinction is important to make to parse out the effects that BRM programs have on capital investment and risk management decisions at the farm level. Analysis on repeated cross-sectional data from the Farm Financial Survey is conducted. Preliminary results show that there exists a significant and positive correlation between Canadian BRM programs and the decision to invest. Results also show that BRM program participation is positively correlated with higher levels of financial risk, consistent with theory and as well as findings by Uzea et al. (2014). Understanding the effects of BRM programs on investment is important for designing and directing Canadian agricultural policy, with implications for technology adoption and long-term farm productivity.

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POSTER 2

Reverse Auctions for Restored Wetlands: Low Participation on the Prairies

Presenter: Anna Kauffman, MSc Candidate
Supervisor: Peter Boxall
Resource Economics and Environmental Sociology
University of Alberta

Research on participation in conservation auctions is reviewed and interpreted through a cross-disciplinary lens. Data gathered from three reverse auctions in rural communities show low levels of participation. Failure to incent landowners by way of reverse auctions is concerning, as lack of participation prevents appropriate pricing for wetland restoration contracts. Participation in conservation auctions depends on a variety of landowner characteristics including personal, economic, social, and environmental values. Interpretation of transcripts along with a well-developed contextual foundation shows that landowners are incentivized to participate in conservation auctions on the basis of a perceived contribution to environmental conservation. Disincentives for participation include economic and control factors; these factors will be described in detail and used to hypothesize questions for future research. Results show that wetlands prove to be a difficult good for auctioning. This paper serves as valuable feedback for the agents of wetland restoration and helps clarify the issues of social desirability of wetland on the landscape.

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POSTER 3

Bargaining Power Between Producers, Classifiers and Retailers under Market Uncertainty in Canada Egg Industry: The Case of the Specialty Eggs Value Chain

Presenter: Baoubadi Atozou, PhD Candidate

Co-Authors: Lota Dabio Tamini and Maurice Doyon

Centre for Research on Economics of Environment, Agri-food, Transports and Energy (CREATE)

Agri-food and Consumers Science, Laval University

Specialty eggs production involves additional investments in capital, labor, hen housing and their diets. However, the question of how this added value generated by the production of specialty eggs is shared between the various links in the value chain remains asked. This paper assesses the bargaining power of producers, classifiers and retailers in pricing mechanisms in the specialty egg value chain and identifies the link that benefits most from eggs diversification in five provinces of Canada namely Quebec, Ontario, Alberta, Saskatchewan and British Columbia. A theoretical model of a bilateral monopoly price adjustment is developed and estimated to compare the bargaining power of the different links in the value chain. The autoregressive distributed lags (ARDL) model cointegration test and the non-stationary heterogeneous panel ARDL models are applied to the monthly data from January 2009 to June 2017 to estimate the bargaining power of producers and retailers in negotiating the producer prices of free-range eggs and omega-3 eggs in each of the five provinces. The results generally show that the bargaining power of retailers is greater than the power of producers in each province and for each market. Producers benefit less from specialty egg production than retailers. To increase their profits, specialty eggs producers must adopt strategic behaviors to counterbalance the bargaining power of actors down the value chain.

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POSTER 4

The Influence of Family Food Skills and Food Purchases on Household Food Waste

Presenter: Brianne Chan, MSc Candidate

Advisor: Mike von Massow

Food, Agricultural and Resource Economics

University of Guelph

Food waste is a growing concern due to its negative social, economic and environmental implications. In particular, the cost of food waste not only includes the methane gas emitted in landfills, but also the water, fuel and energy that went into producing and transporting the food. Fifty percent of all food waste occurs at the household level (Gooch et al., 2010), making consumers the primary target for waste reduction efforts. Many studies suggest that food attitudes, purchasing behaviour and environmental awareness play a role in causing food waste (Mallinson et al., 2016; Parizeau et al., 2015; Porpino et al., 2016). Despite the surge in interest in food waste reduction strategies, only limited studies examine the impact of family food skills and food purchases on household food waste. In addition, few studies focus on households in Canada and most use self-reported numbers rather than waste data collected by a third party. The goal of this study is to determine if there is a relationship between family food skills, family food purchasing routines and food awareness on the amount of avoidable food waste that a household produces. This will be achieved by conducting a correlation and regression analysis using data from 54 households in Guelph, Ontario. The findings will bring insight to the causes of food waste in households and can better inform policies and areas for effective intervention implementations.

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POSTER 5

Dairy Farmer Support for Emissions Pricing Policies

Presenter: David Worden, Research Assistant

Co-Authors: Kate Jones and Getu Hailu
Food, Agricultural and Resource Economics
University of Guelph

In a recent national survey of dairy farms, we assess the extent to which producers support the introduction of a policy to mitigate greenhouse gas emissions. While agriculture is exempt under the current federal and provincial policies, there are concerns that agriculture may fall within the sphere of policies such as carbon pricing schemes in the future. Producers may also experience indirect impacts on their profitability and competitiveness because of increased input costs. Preliminary results suggest that 67% of dairy producers are in favour of policies intended to address climate change. But producers are less certain about the best mechanism to address climate change. Producers are less favourable to pricing carbon emissions or specifically targeting farm emissions. We find that 27% of the producers favour carbon taxation whereas only 20% favour cap and trade. These results provide valuable insight into the current general opinion among dairy farmers and may assist in guiding future policy and communication initiatives that seek to improve the environmental sustainability of the livestock industry.

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POSTER 6

Canadian Dairy Farmer's Willingness to Pay for Feed Efficiency and Reduced Methane Emissions

Presenter: Kate Jones, MSc Candidate
Co-Authors: Getu Hailu and Yu Na Lee
Food, Agricultural and Resource Economics
University of Guelph

Advancements in genomic selection have created the opportunity to select for increased feed efficiency (FE) traits and reduced methane emissions (RME) in dairy cattle. Purchased feed represents the largest (>20%) variable cost for Canadian dairy producers. In addition, there is an increasing pressure on the industry to find innovative mechanisms to abate greenhouse gas emissions. The adoption of genomic selection for FE and RME traits could prove to be a win-win scenario. In this paper, we examine Canadian dairy farmers willingness to pay (*ex-ante*) for genomic technology for feed efficient and reduced methane producing cows. Through a national survey, we elicited the dollar value that farmers would be willing to pay per straw of semen for artificial insemination (AI) and per genotyping test, if selecting and testing for FE and RME traits were available in the market. We examined various scenarios of AI and genotyping test adoption decisions. First, we find that less than 20% of producers currently genotype any of their calves for general traits. Second, over half of the respondents stated that they would not use any genomic information to select and incorporate the traits of FE and RME in their herd. Third, we find a positive average willingness to pay for the trait of FE, but a negative average willingness to pay for the trait of RME. We also find positive willingness to pay for either AI or a genotyping test, both of which included both traits. Fourth, we find a positive willingness to pay for a service that would combine AI and genotyping tests for both traits.

Preliminary results indicate that willingness to pay increases by almost 20% for every 1% reduction in the herd's feed requirement and methane emissions resulting from the use of genotyping. Increasing the effectiveness of genomic selection and the promotion of genotyping would likely aid in the adoption of this financially and environmentally beneficial technology.

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POSTER 7

Identifying Factors Influencing Farmers' Willingness to Share Data: A Study of Saskatchewan Farmers

Presenter: Madeline Turland, MSc Candidate

Supervisor: Peter Slade

Agricultural and Resource Economics

University of Saskatchewan

Advances in food technologies affect what and how people eat by offering foods with diverse benefits. Consumers' attitudes towards novel food technologies, however, are not uniformly positive. For example, the controversy around genetically modified food reveals a striking divergence of opinions between the public and scientists. Previous studies have shown that consumers' attitudes are shaped by various factors, such as knowledge, risk/benefit perception, trust, emotional heuristics, etc.

Nevertheless, there are limited insights as to why public acceptance of new food technologies does not grow with exposure to more scientific information, and why attitudes have rather become more persistent and polarized.

On the basis of consumer data collected from an online discrete choice experiment during the summer of 2016, this paper aims to add insights to previous literature in two ways. First, the analysis examines whether attitudes to a controversial food technology is an expression of an individual's underlying and fundamental values, the effects of which have been omitted or underestimated previously in the economics literature. For example, the role of different human values – cultural worldviews, moral considerations, and intermediary food-related values – in affecting attitudes and valuations of novel food technology are examined. A second objective is to compare the effectiveness of two information communication formats in shaping food technology perceptions and attitudes. Although previous studies have examined the importance of different aspects of information (type, order, source, etc.) on attitudes towards food technology, very few studies have examined the influence of narrative vs. logical-scientific information formats. This study develops specific narratives about food biotechnology and nanotechnology as a means to delve more deeply into the effects of information on the consumer decision-making process.

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POSTER 8

The Effects of Income and Food Values on the Market for Local and Organic Food in Ontario

Presenter: Mark Wickson, BSc Candidate
Supervisor: John Cranfield
Food, Agricultural and Resource Economics
University of Guelph

Recent years have seen food systems becoming more and more globalized. However, at the same time, we have witness the emergence and coexistence of both short and long agri-food supply chains. Whether a commodity is local and/or organic has become an important question consumers ask themselves when considering different food products. Local and organic can be seen as food attributes which certain consumers find beneficial to their use and consumption. The degree to which consumers benefit from these attributes depends greatly on their socioeconomic characteristics and their food values.

Previous research has examined how various socioeconomic characteristics like gender, age, and income affect the willingness-to-pay for local and/or organic attributes (Hasselbach and Roosen 2015, Darby et al. 2008). Furthermore, the effect of food values such as safety, freshness, and food traditions have also been studied (Bazzani and Canavari 2017, Bond et al. 2008). Using stated preference data from Ontario, this research narrows the scope and pays particular attention to the effects that household income has on an individual's willingness-to-pay for varying degrees of 'locality' and 'organicness'. This research also aims to contribute to the literature regarding how important one's food values are when deciding whether or not to purchase local or organic food.

Preliminary results have shown that household income has an impact on an individual's willingness-to-pay for the 'locality' and 'organicness' of food products and that these effects are felt differently across different categories of food products, i.e. unprocessed versus processed. Moreover, individually held food values may be helpful in explaining some of the heterogeneity observed in preferences for local and/or organic across households with differing income levels.

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POSTER 9

Use of Information Sources by the Resource-Poor Farmers in Receiving Information Related to Cultivation of Selected Winter Vegetables

Presenter: Mostafizur Khan

The purpose of the study was to ascertain the extent of use of information sources by the resource-poor farmers in receiving farm information in selected winter vegetables cultivation. Attempt was also made to explore the relationship between the use of information sources by the farmers and their selected characteristics. The characteristics were age, level of education, family size, farm size, winter vegetable cultivation area, annual income, organizational participation, innovativeness, opinion towards improved winter vegetables cultivation, cosmopolitaness and agricultural knowledge of the resource-poor farmers. Banskhali, a coastal and vulnerable upazila under Chittagong district in Bangladesh was selected as a locale of the study. Data were collected from 100 randomly selected resource-poor farmers from a total of 650, those who were related to winter vegetable cultivation. Data collection took 48 days from December 27, 1994 to February 12, 1995. Seventy five percent of the respondents had medium use while the rest (25%) had high use of information sources in receiving information related to winter vegetable cultivation. Usually the resource-poor farmers preferred localize sources of information.

Majority of the resource-poor farmers, such as 79% and 59% considered the available information sources as medium useful and medium credible respectively in providing farm information at the time of need. As regard relationships, level of education, organizational participation, opinion towards improved winter vegetable cultivation, cosmopolitaness and agricultural knowledge of the farmers had significant relationship with their extent of use of information sources. The farmers also identified some of the problems such as, inadequate farm and home visits by the extension agents, lack of appropriate technologies related to use of fertilizer and insecticides by the resource-poor farmers, high price of inputs and inadequate demonstration activities in the field were major obstacles, and confronted by the farmers in receiving information. Several recommendations along with facilitating successful use of available information sources have been emphasized.

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POSTER 10

Inter-Regional Trade Model of the Canadian Dairy Industry Impacts of the Trans-Pacific Partnership (TPP12)

Presenter: Scott Biden, Research Assistant
Co-Authors: Alan Ker and David Jacques
Food, Agricultural and Resource Economics
University of Guelph

In an increasingly globalized world in which free trade and protectionism are becoming more prevalent and impactful to Canada, this research sets out to model the Canadian dairy industry under supply management to assess the impacts of new Canadian trade agreements and policies. To evaluate these impacts, we have developed a static, constrained optimization, inter-regional trade model. This model is composed of three sectors; three Canadian regions and the international market; three dairy components; and ten processed products. The maximization problem evaluates the objective function solving for 339 variables, subject to 136 constraints. Within this framework we estimate a base line scenario that approximates the 2015/16 dairy year, with which we are then able to ask 'what if' questions and evaluate counterfactual scenarios. This research evaluates the impact of the Trans-Pacific Partnership, in the original 12 country context (TPP12), to see how Canada's regional producers, processors, and consumers would be affected by the agreement through changes in prices and quantities. In a comparison of the TPP12 scenario to the base line, the relative magnitude of impacts offers an insight into the impact this trade agreement would have had on Canada. These results offer a reference point for comparison to the ongoing negotiation of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, often referred to as TPP11, and how those results differ from TPP12.

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POSTER 11

Is There Too Much History in Historical Yield Data

Presenter: Yong Liu, PhD Candidate

Supervisor: Alan Ker

Food, Agricultural and Resource Economics

Institute for the Advanced Study of Food and Agricultural Policy

University of Guelph

County crop yield data from United States Department of Agriculture - National Agricultural Statistics Service (USDA-NASS) has and continues to be extensively used in the literature as well as practice. The most notable example is crop insurance; RMA uses this data to rate and conduct claims for their area yield and revenue programs. Examples from the literature include investigation of rating methodologies, issues related to land use, modeling the climate-yield relationship, and productivity analysis. In many of these applications --- and certainly with respect to RMA and the crop insurance literature --- yield data are detrended and adjusted for possible heteroskedasticity and then assumed to be independent and identically distributed. For most major crop-region combinations, county yield data exist from 1955 onwards and reflect very significant innovations in both seed and farm management technologies. Despite correcting for changes in the first two moments of the yield data generating process (DGP), these innovations raise doubt regarding the identically distributed assumption. This manuscript considers the question of how much historical yield data should be used in empirical analyses. The answer is obviously dependent on the empirical application, crop-region combination, econometric methodology, and chosen loss function. Nonetheless, we attempt to tackle this question in three ways using county-level yield data for corn, soybean, and winter wheat. First we use distributional tests to assess if and when the adjusted yield data may result from different DGPs. Second, we consider the application to crop insurance by using an out-of-sample rating game --- commonly employed in the literature --- to compare rates from the full versus restricted data sets. Third, we estimate flexible time-varying DGPs and then simulate to quantify the additional error when the identically distribution assumption is imposed. Overall, the results indicate that despite accounting for time-varying movements in the first two moments, using yield data more than 30 years old can substantially increase estimation error. Given that discarding data is unappetizing --- particularly so in applications with relatively small T --- we investigate three methodologies that can re-incorporate the discarded data while both explicitly acknowledging the unknown DGPs are different and not requiring knowledge about the extent or form of those differences. Our results suggest gains in efficiency can be realized by using these methodologies. While our results are most applicable to the crop insurance literature, we certainly feel they suggest proceeding with caution when using historical yield data in other applications as well.