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# Consumer Preferences for Country of Origin Labelling on Dairy Products

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## **Abstract:**

*CETA means that the Canadian marketplace for dairy products will begin to see an increased presence of dairy products imported from the EU. Activity related to TPP and NAFTA also means there is potential for increased imports of dairy products from the TPP member states and NAFTA partners. In light of this, it is important to understand how Canadian consumers will respond to the increased presence of dairy products. We develop a discrete choice experiment to explore what trade-offs Canadian consumers make across different dairy product attributes. These attributes include price, country-of-origin (COO), the method of production (i.e., conventional versus organic), nature of the brand (national, regional, or store), and traceability. We apply the analysis to two types of cheese (Gouda and cheddar), ice cream, and yogurt. Results indicate there are statistically significant premiums and discounts associated with COO, and which vary with the dairy product. What is more, we find large premiums for the presence of traceability programs for all four of the respective dairy products, suggesting that the absence of assurances related to traceability may mute actual market penetration arising from increased access to the Canadian dairy market.*

*Acknowledgment:*

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## **Consumer Preferences for Country of Origin Labelling on Dairy Products**

### **ABSTRACT**

CETA means that the Canadian marketplace for dairy products will begin to see an increased presence of dairy products imported from the EU. Activity related to TPP and NAFTA also means there is potential for increased imports of dairy products from the TPP member states and NAFTA partners. In light of this, it is important to understand how Canadian consumers will respond to the increased presence of dairy products. We develop a discrete choice experiment to explore what trade-offs Canadian consumers make across different dairy product attributes. These attributes include price, country-of-origin (COO), the method of production (i.e., conventional versus organic), nature of the brand (national, regional, or store), and traceability. We apply the analysis to two types of cheese (Gouda and cheddar), ice cream, and yogurt. Results indicate there are statistically significant premiums and discounts associated with COO, and which vary with the dairy product. What is more, we find large premiums for the presence of traceability programs for all four of the respective dairy products, suggesting that the absence of assurances related to traceability may mute actual market penetration arising from increased access to the Canadian dairy market.

## **INTRODUCTION**

Recently, free trade agreements, such as the Trans-Pacific Partnership (TPP) and Comprehensive Economic Trade Agreement (CETA), have put pressure on the historically protected dairy sector in Canada. This pressure is taking the form of increased access to the Canadian dairy market.

Increased market access, in turn, means there is potential for new or expanded presence of milk or dairy products on Canadian grocery store shelves, something Canadian consumers may not be familiar with. Consumers could, in some situations, have a choice between domestic and imported dairy products. In such a circumstance, some consumers may pay more attention to and have a need for a greater understanding of country-of-origin (COO) labeling.

The literature on consumer responses to geographical labeling for food products is quite extensive, crossing borders and a variety of food products. Still, a gap exists in understanding the importance of COO labeling on purchase decisions for dairy products. Previous research has shown that consumer's utility is based, not only on the product but on the combination of attributes associated with that product (Lancaster, 1966). By investigating the attributes of dairy products, a contribution can be made to the literature to show how the product attributes of price, country of origin, traceability, brand and method of production play a role in consumer's perceptions and purchase decisions of various dairy products. This information is important to dairy producers, processors, as well as retailers, as marketing strategies can therefore target the growing concern by consumers about their food.

The gap in the research is largely evident in North America and more specifically Canada due to the unique nature of the dairy sector. One study by Forbes-Brown et al. (2016) has recently been done in Canada focusing on the 100% Canadian Milk Label, but prior to this the research on consumer preferences for dairy products was largely concentrated in the European

Union (EU). We build on Forbes-Brown et al. (2016) in part by attempting to replicate some of their finds, but also by expanding the scope of products considered, being much more explicit in the country-of-origin, and allowing for traceability. The research in the EU tended to be for government and industry members in response to changing consumer demands for information about their food products. As well, the mandatory country of origin legislation surrounding fresh meat products came into effect recently in the EU and sparked interest of expanding mandatory COO labeling for other agricultural products. Although it was found that little research has been done on consumer preference for dairy products, country of origin labelling for meat products has been studied extensively both in the EU and the United States. Important parallels can be drawn between the two sectors to understand how current and future research can fill the gap relating to dairy products both in Canada and globally.

## **LITERATURE REVIEW**

The literature suggests that country of origin labels do not act alone and encompass many other intrinsic attributes that consumers value in a product. Consumers' perceptions about quality and safety have been related to the country of origin in various articles showing the importance to consumers, but also notes a comprehensive understanding of what the label represents may be unknown or misunderstood in many situations (Balcombe et al., 2016; Bolliger & Révillon, 2008; Lim, Hu, Maynard, & Goddard, 2014; Makanyze & du Toit, 2016; Pouta, Heikkilä, Forsman-Hugg, Isoniemi, & Makela, 2010; Relaini et al., 2013; Schnettler et al., 2014; Tonsor, Schroder & Lusk, 2013; Weissnar & du Rand, 2012).

### ***Dairy products***

A general trend in the literature suggests that when comparing foreign and domestic products directly, consumers prefer buying domestic food and may be willing to pay a premium for domestically sourced products (Chryssochoidis, Krystallis, & Perreas, 2007; Forbes-Brown et al., 2016; Menapace, Colson, Grebitus, & Facendola, 2011; Salamon, Weible, & Weber, 2016; Tempesta & Vecchiato, 2013). The trend aligns with consumer's desire to exhibit national pride and support the domestic economy while feeling confident about the safety and origins of the product they are consuming (Chryssochoidis et al., 2007; Salamon et al., 2016; Tempesta & Vecchiato, 2013). In contrast, when consumers were asked about motivations behind food product purchases in a real world setting they tended to favour intrinsic values of price, taste, and quality over geographical indicators (GIs), such as country of origin labeling (COOL) (Insch & Jackson, 2014; Profeta, Balling, & Roosen, 2012). The discrepancy has been attributed in some cases to differences between consumers perceived purchase decisions and those that happen in the marketplace when stressors of income, quality, or availability play into the broader topic of hypothetical bias (Profeta et al., 2012; Tempesta & Vecchiato, 2013).

Two methods of determining consumer responses to COO labeling were utilized in collecting the information presented above: stated-preference, either using a discrete choice experiment or self-administered questionnaire (Chryssochoidis et al., 2007; de Graff et al., 2016; Forbes-Brown et al., 2016; Menapace et al., 2011; Tempesta & Vecchiato, 2013; Unahanandh & Assarut, 2013), or market-based, in the form of interactive interviews with shoppers at food retail stores (Insch & Jackson, 2014; Profeta et al., 2012).

## ***Meat***

The studies exploring country-of-origin and meat products have focused mainly on beef (Alfnes, 2004; Chung, Briggeman, & Han, 2012; Lim et al., 2014; Loureiro & Umberger, 2003; Loureiro & Umberger, 2007; Realini et al., 2013; Schnettler et al., 2014; Schnettler, Vidal, Silva, Vallejos, & Sepulveda, 2009; Tedford et al., 2014), but a few have looked at pork (H. Peterson, Bernard, Fox & J. Peterson, 2013), poultry (Makanjeza & du Toit, 2016; Pouta et al., 2010), lamb (Font i Furnols et al., 2011; Weissnar & du Rand, 2012), or a combination of the above (Balcombe et al., 2016; Tonsor et al., 2013). Researchers utilize two main methods of data collection to understand consumers' perceptions of meat product attributes, namely stated preference (Alfnes, 2004; Balcombe et al., 2016; Chung et al., 2012; Font i Furnols et al., 2011; Loureiro & Umberger, 2003; Loureiro & Umberger, 2007; Makanyeza & du Toit, 2016; Pouta et al., 2010; Realini et al., 2013; Schnettler et al., 2009; Schnettler et al., 2014; Tonsor et al., 2013; Weissnar & du Rand, 2012), and sensory analysis (Font i Furnols et al., 2011; Realini et al., 2014; Tedford et al., 2014). Experimental auction was used in one study (H. Peterson et al., 2013) and revealed preference in two (Bolliger & Révion, 2008; Taylor & Tonsor, 2013). The relatively small number of studies using experimental auction and revealed preference may be due to the cost both monetary and time related to conducting these experiments, neither was used in collecting data around the dairy sector.

Similar to the results found in the literature on consumers' perceptions of country-of-origin labeling in the dairy sector, origin of meat products is considered an important attribute in the purchasing decisions of consumers. Consumers tended to prefer domestic meat products to those from other countries because of the familiarity and trust in their own producers to provide them with high quality and safe meat (Alfnes, 2004; Balcombe et al., 2016; Bolliger and

Révion, 2008; Chung et al., 2012; Font i Furnlos et al., 2011; Lim et al., 2014; H. Peterson et al., 2013; Pouta et al., 2010; Realini et al., 2013; Schnettler et al., 2009; Schnettler et al., 2014; Tedford et al., 2014; Weissnar & du Rand, 2012).

Although, country of origin is an important attribute throughout much of the literature, in some cases it is not the most important. For instance, in a study done by Loureiro & Umberger (2003), food safety inspection and quality assurance carried the greatest importance while shopping, but consumers were still willing to pay a premium for steak with a U.S. certified beef symbol. Similarly, Loureiro & Umberger (2007) found that food safety certification provides the highest utility and a premium of \$8.07, but country of origin was still found to contribute positively to utility with a premium of \$2.57. Food safety assurance, traceability and country of origin are found to be inherently linked as consumers use origin information as a way to formulate a perception of the safety and quality of the product (Bolliger & Révion, 2008; Chung et al., 2012; Lim et al., 2014; Makanyeza & du Toit, 2016; Realini et al., 2013; Tedford et al., 2014; Tonsor et al., 2013). The importance of quality and safety by consumers in the meat sector may be related to increased awareness of food safety issues in animal protein products such as recent BSE crisis.

The rest of the paper will be organized as follows. First, the conceptual framework will be discussed, followed by the methods of data collection and some preliminary sample characteristics will be shown as well as the empirical framework. Next, the results will be presented followed by a discussion and conclusion including future implications of the data.



## CONCEPTUAL FRAMEWORK

This study uses Lancaster's (1966) new approach to consumer theory to explore the intrinsic attributes of country of origin, price, traceability, brand, and production method for selected dairy products in Canada. Lancaster's theory follows a hedonic method in which, demand for an individual good is a result of the combination of demand for the attributes of that good.

Lancastrian theory has been used to value environmental and health services and more recently to understand preferences for food products new to the market or with changing attributes (Rae, 1983; Smith & Desvousges, 1986; Lareau & Rae, 1989). For example, consumer willingness to pay for health attributes in yogurt that were not yet on the market was done using Lancaster's theory to understand the utility gained by the intrinsic attributes of probiotics and catechins (Moro et al., 2015). Forbes-Brown et al, (2016) also looked into the demand for dairy products by using a stated preference survey to understand how the demand for the attributes of geographical labelling, production method, brand, and price affect consumers' utility and ultimately willingness to pay. Finally, cheese in Germany was studied using revealed preference data to understand how the utility associated with the attributes of country of origin, geographical indicators, and organic claims corresponded to overall utility of the product (Schrock, 2013). These articles provide motivation for using Lancasterian theory as a basis to understanding the current question surrounding various attributes affecting purchase intention of the following dairy products; cheddar cheese, Gouda, yogurt, and ice cream.

## **METHODS AND DATA**

### ***Methods***

This study uses a stated preference consumer survey to explore if a trade-off exists between price and various intrinsic attributes when consumers make the decision to purchase dairy products. Stated preference studies have been used to value environmental and health care preferences in the past because they cannot be observed in a market (Holmes & Adamowicz, 2003). More recently, stated preference surveys have been used to understand the potential of food products not yet on the market.

The study has two goals. First, the study aims to fill the identified gap in the research surrounding country of origin labelling on dairy products and second, the study will be used to inform the dairy industry in Canada. To do this, a five-part survey was designed including basic screening questions, consumption behaviour, attitudes and perceptions of the dairy industry, a discrete choice experiment, and finally socio-economic and demographic questions.

Four versions of the discrete choice experiment corresponding to four different dairy products of interest were designed using SAS. Each design has five attributes with the following levels; four prices, two traceability, three countries of origin, three brands, and two methods of production. The levels and descriptions of the attributes included in the survey are presented in Table 1.

In a full factorial design this would result in 144 choice sets. This is the product of one attribute with four levels, two attributes each with two levels, and two attributes with three levels. The full factorial design is too large for participants to respond to and so, a fractional factorial design was used. The fractional factorial design must be constructed with degrees of freedom in mind. There are sixteen degrees of freedom in this design corresponding to the total

number of main effects (total number of levels for all attributes), and an additional degree of freedom. The total number of choice sets decided upon must be greater than or equal to the degrees of freedom (Amaya-Amaya, 2008). For this design, an additional degree of freedom for the ASC intercept is included. A balance between being representative of the full factorial design and being conscious of the possibility of response burden, a  $\frac{1}{4}$  fraction design will be used. This means that instead of one hundred and forty-four choice sets there will be thirty-six.

Although a consensus has not been reached in the literature on how many choice sets are optimal for presenting to each respondent it is evident that between eight and sixteen sets is common (Bech, Kjaer, Lauridsen, 2011). With the length of the remaining parts of the survey in mind, the fractional factorial design will be blocked into four, resulting in each respondent being presented with nine choice sets. An example of a choice set for the cheddar cheese survey is presented in Table 2, showing two product choices as well as a no choice option so that it is representative of a realistic purchase decision.

**Table 1: Attributes and Levels for Discrete Choice Experiment**

Attribute	Description
<b>Prices (vary by product)</b> Cheddar: \$7.71, \$9.64, \$11.57, \$13.50 Gouda: \$1.94, \$2.43, \$2.91, \$3.40 Ice Cream: \$4.20, \$5.25, \$6.30, \$7.35 Yogurt: \$5.14, \$6.42, \$7.70, \$8.98	One price 20% below and two prices 20% above the average of dairy products from five grocery stores in Guelph, Ontario.
<b>Traceability</b> Present Absent	A traceability program allowing a product to be tracked from farm or point of production to the end user.
<b>Country of Origin (vary by product)</b> Cheddar: Canada, United States, United Kingdom Gouda: Canada, United States, Italy Ice Cream: Canada, United States, New Zealand/Australia Yogurt: Canada, United States, New Zealand/Australia	Indicates place of production and is based on trade data from the Government of Canada to represent the countries with the largest shares of imports for each product.
<b>Brand</b>	Regional brands are those sold in a restricted

Regional brand National <b>brand</b> Store brand	geographical area and not widely available across the country. National brands are those that are widely distributed, sold, and known on a national level. Store brands have been manufactured directly for a selected store and they are sold under a store name.
<b>Method of production:</b> Organically Grown Conventionally Grown	Products labelled organically grown indicate that the cows used in production receive 100% organic feed and sufficient access to the outdoors including organic grazing land. Conventionally grown products represent no such claims. Regardless of production process dairy products sold in Canada are free of antibiotics and hormones.

**Table 2: Example of a Cheddar Cheese Choice Set**

	Alternative		
	Product A	Product B	I would not choose either Product A or Product B
Price (\$/450g block)	\$11.57	\$13.50	
Traceability	No Traceability Label	Traceability Label	
Country of Origin	Product of the United States	Product of Canada	
Brand	Regional Brand	Store Brand	
Method of Production	Organically Grown	Conventionally Grown	
I would choose: (Please check one box)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### ***Sample Characteristics***

Summary statistics for the socio-demographic make-up of the sample are presented in Figures 1-4 in the Appendix to understand how representative the survey sample is of the general population of Canada. Figures 5 and 6 help to explain consumption patterns of popular dairy products both inside and outside the home.

It is evident that the survey sample is slightly older than that of the average population in Canada with just more than 50% of the respondents above the age of the 50 in comparison to

35% in the Canadian population. In general, the survey sample follows a similar pattern of age distribution to the Canadian population. Figure 2 shows that the survey sample is representative of the population in terms of gender with slightly more female respondents and slightly less male respondents than the population. The income and educational attainment of the sample was not compared to the Canadian population due to inconsistencies with reporting intervals<sup>2</sup>. The survey respondents tended to be those from the highest income interval with earnings more than \$120,000 and having a college diploma.

To get an idea of how often respondents consume a variety of dairy products the following question was asked: how often do you consume the following dairy products in the home, even as part of a prepared dish. The results are presented in Figure 5 and indicate that cheese and yogurt are consumed more often with ice cream acting as a novelty good and consumed less frequently. A similar question was asked regarding consumption outside of the home and the results differed. Respondents tended to consume dairy products, especially yogurt and cheese, considerably less frequently when compared to in home consumption. These results provide a basis for how marketing strategies may be implemented across various retail locations where consumers purchase dairy products.

## **EMPIRICAL FRAMEWORK**

Discrete choice theory is an econometric model that combines the hedonic analysis presented by Lancaster (1966) with the random utility maximization of Thurstone (1927), resulting in the multinomial (conditional) logit model. Random utility theory assumes that utility is equal to the sum of systematic (predictable) variables and the random components (Champ, Boyle, Brown,

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<sup>2</sup> Information on the income and educational levels of the Canadian population can be found on the Statistics Canada Census webpage.

2003). Let  $u_i$  be utility that is received from choosing product  $i$ ,  $v_i$  represent the systematic variables associated with profile  $i$  and  $\varepsilon_i$  the random components of profile  $i$  so that  $u_i = v_i + \varepsilon_i$ .

When applied to a choice experiment a consumer chooses alternative  $i$  from the choice set  $C$  to achieve  $u_i$ . Only when  $u_i > u_j$  will a consumer prefer alternative  $i$  to  $j$ . The probability that a consumer will choose a specified alternative  $i$  in a choice set  $C$  is represented in equation 1.

$$P(i|C) = P(u_i > u_j) = P(v_i + \varepsilon_i > v_j + \varepsilon_j), \forall j \in C \quad (1)$$

Rearranging (1) we can show in (2) that the probability of choosing alternative  $i$  occurs when the difference between the predictable variables  $v_i$  and  $v_j$  is greater than the difference between the random components  $\varepsilon_j$  and  $\varepsilon_i$ .

$$P(i|C) = P(v_i - v_j > \varepsilon_j - \varepsilon_i), \forall j \in C \quad (2)$$

According to Lancaster's theory, an individual's purchase intention of a dairy product,  $i$ , is a result of the utility derived from a number of attributes. Let variables  $X_1$  through  $X_5$  represent the observable characteristics of price, traceability, country of origin, brand, and method of production which gives utility of  $\beta_1 X_1 \dots \beta_5 X_5$  to the consumer. This utility can be represented by the term  $v_j$  and when combined with the random unobservable components of dairy preferences,  $\varepsilon_j$  the utility of the consumer is represented through  $u_j = v_j + \varepsilon_j$ . Equation 1 and 2 represent the case in which there is a competing dairy product  $j$ . Assuming that the errors ( $\varepsilon_i$  and  $\varepsilon_j$ ) are distributed as a type 1 extreme value, the probability can be calculated using the following equation.

$$P(i|C) = \frac{\exp(\sum_{k=1}^5 \beta_k x_{ik} + \beta_p p_i)}{\sum_{j \in C} \exp(\beta_k x_{jk} + \beta_p p_j)} \quad (3)$$

## RESULTS

The results presented in Tables 3-6 show the results from estimating the conditional logit model and subsequent willingness to pay estimates. The standard errors are presented below the estimate in brackets and significance levels of one percent, five percent, and ten percent are represented through the respective asterisks beside the estimate. Significance of willingness-to-pay estimates is based off Krinsky-Robb confidence intervals.

Each dairy product was estimated to have a negative and significant utility associated with the price variable which is consistent with the law of demand and indicates that an increase (decrease) in price will result in a decrease (increase) in quantity demanded. Price has the lowest utility effect on cheddar cheese and the highest utility effect on ice cream indicating that an increase in the price of ice cream will result in the highest decrease in quantity demanded among the dairy products studied.

The coefficient estimates on traceability have a positive and significant utility for all dairy products studied when compared to the case of no traceability label present. The utility estimates ranged from 0.41 for cheddar cheese to 0.78 for ice cream with yogurt and Gouda lying between these two estimates. A statistically significant willingness to pay premium was calculated for the presence of a traceability label when compared to products without a traceability label for all four products. Gouda provided the highest relative premium to the base price with a 28.80% premium compared to cheddar cheese with the lowest at a 14.21% premium.

Country of origin labelling was analyzed through three levels for each dairy product. Canada was used as a base case with the United States representing the second level and United Kingdom, Italy, and Australia/New Zealand representing the third level for cheddar cheese, Gouda, yogurt and ice cream respectively. A negative and significant estimate for the utility was

seen for each product under each country level indicating that Canada is the preferred country of origin. Foreign products had the greatest effect on utility for ice cream and yogurt with negative utility of 1.22 and 1.41 for ice cream from the United States and Australia and New Zealand and utility of 1.14 and 1.16 for yogurt from the same countries. These results may be due to the relative geographical distance and the unfamiliarity of dairy products from Australia and New Zealand among Canadian consumers. All dairy products from non-domestic sources were discounted and significant at the one percent significance level. The willingness to pay estimates show very little difference between imported products, except for Gouda which has a relative decrease in the discount from 42.62% to 36.07% for cheese from the United States and Italy.

Regional brand and store brand coefficients and willingness to pay estimates were calculated with a national brand as the base case. The results were not consistently significant across the dairy products but all recorded a negative effect on purchase intention as well as a discount on willingness to pay.

Finally, organic production methods in comparison to conventionally raised dairy products had positive and significant effects on utility and willingness to pay. The coefficient estimates ranged from 0.17 for ice cream to 0.35 for cheddar cheese indicating a greater importance is placed on organic cheddar cheese than organic ice cream for respondents. Willingness to pay estimates were relatively highest for cheddar cheese with a 12.13% premium and lowest for ice cream with a 5.33% premium above the average base price for each product.



**Table 3: Cheddar Cheese Regression and Willingness to Pay Results**

Variable	Estimate	WTP
<b>price</b>	-0.30*** (0.013)	
<b>traceb</b>	0.41*** (0.046)	1.37***
<b>us</b>	-1.00*** (0.063)	-3.36***
<b>uk</b>	-0.99*** (0.063)	-3.34***
<b>rbrand</b>	-0.094 (0.061)	-3.16
<b>sbrand</b>	-0.13** (0.06)	-0.45**
<b>organic</b>	0.35*** (0.456)	1.17***
<b>asc</b>	3.69*** (0.155)	12.40***

*Note:* \*\*\*, \*\*, \* represent significance at 1%, 5%, and 10%, respectively.

**Table 4: Gouda Regression and Willingness to Pay Results**

Variable	Estimate	WTP
<b>price</b>	-0.58*** (0.028)	
<b>traceb</b>	0.61*** (0.043)	1.04***
<b>us</b>	-1.03*** (0.06)	-1.76***
<b>italy</b>	-0.87*** (0.06)	-1.49***
<b>rbrand</b>	-0.15*** (0.057)	-0.26***
<b>sbrand</b>	-0.14** (0.06)	-0.24**
<b>organic</b>	0.24*** (0.04)	0.40***
<b>asc</b>	3.86*** (0.14)	6.61***

*Note:* \*\*\*, \*\*, \* represent significance at 1%, 5%, and 10%, respectively.

**Table 5: Ice Cream Regression and Willingness to Pay Results**

Variable	Estimate	WTP
<b>price</b>	-0.62*** (0.025)	
<b>traceb</b>	0.78*** (0.05)	1.25***
<b>us</b>	-1.22*** (0.065)	-1.98***
<b>ausnz</b>	-1.41*** (0.069)	-2.28***
<b>rbrand</b>	-0.03 (0.063)	-0.05
<b>sbrand</b>	-0.05 (0.06)	-0.07
<b>organic</b>	0.17*** (0.05)	0.28***
<b>asc</b>	4.28*** (0.157)	7.12***

*Note:* \*\*\*, \*\*, \* represent significance at 1%, 5%, and 10%, respectively.

**Table 6: Yogurt Regression and Willingness to Pay Results**

Variable	Estimate	WTP
<b>price</b>	-0.44*** (0.019)	
<b>traceb</b>	0.55*** (0.047)	1.26***
<b>us</b>	-1.14*** (0.063)	-2.60***
<b>ausnz</b>	-1.16*** (0.06)	-2.65***
<b>rbrand</b>	-0.086 (0.063)	-0.20
<b>sbrand</b>	-0.12* (0.063)	-0.27**
<b>organic</b>	0.24*** (0.048)	0.56***
<b>asc</b>	3.61*** (0.15)	8.23***

*Note:* \*\*\*, \*\*, \* represent significance at 1%, 5%, and 10%, respectively.

## DISCUSSION

The current survey analyzed consumer preferences for five different attributes on four dairy products using a stated preference survey that included a discrete choice experiment. The results are consistent with previous findings that show consumers may be willing to pay a premium for domestically produced food products (Forbes-Brown et al., 2016; Tempesta & Vecchiato, 2013; Salamon et al., 2016; Menapace et al., 2011; Alfnes, 2004; Balcombe et al., 2016; Bolliger and Réviron, 2008; Chung et al., 2012; Font i Furnlos et al., 2011; Lim et al., 2014; H. Peterson et al., 2013; Pouta et al., 2010; Realini et al., 2013; Schnettler et al., 2009; Schnettler et al., 2014; Tedford et al., 2014; Weissnar & du Rand, 2012). In the current study dairy products from non-domestic sources ranged from a 36.07% discount for Gouda cheese from Italy to a 43.43% discount for ice cream from Australia/New Zealand. The discounts were relative to Canada as the country of origin choice. The low relative discount for Gouda cheese could be a result of the familiarity with European cheeses and the perception of quality from European cheeses. Respondents may be more familiar with cheese products from Europe then compared to ice cream from Australia/New Zealand due to geographical distance and lower overall trade from these countries with Canada in dairy products.

In some previous studies, it was found that country of origin labelling was not the primary attribute that determined purchasing intentions and instead attributes such as price, taste, quality and safety were more important (Loureiro & Umberger, 2003, 2007; Insch & Jackson, 2014; Profeta et al., 2012). This was evident in the current study when the respondents were asked to distribute one hundred points over a list of possible attributes considered when purchasing dairy products. The results indicate that price, taste, safety, and quality assurance represent the top four point allocations, with country of origin coming next. This is not surprising

as previous literature has found that food safety, quality assurance, and traceability are inherently linked to country of origin information (Chung et al., 2012; Lim et al., 2014; Makanyeza & du Toit, 2016; Realini et al., 2013; Tedford et al., 2014., Tonsor et al., 2013). Consumers use origin information presented on food products as a way to perceive the safety and quality of the product.

The intrinsic attributes of traceability/quality assurance and safety can be linked to Canadian production of dairy products through the willingness to pay estimates and the responses from the attitudes/perception questions asked in the survey. It is evident that consumers value traceability with an average positive utility of 0.72 being received from the presence of a traceability label when compared to a product without such label. As well, approximately 62.5 percent of respondents indicate that they would be extremely likely or likely to purchase a dairy product that has a traceability label when compared to one without such as label. Another question asking about the safety of food products in Canada indicated that 61 percent of respondents felt that food produced in Canada was very safe and 76 percent believed food safety in Canada was better than in other parts of the world. Respondents generally believe that Canadian dairy products possess high levels traceability/quality assurance and safety and therefore country of origin labelling on these dairy products can act as a way for consumers to make purchase decisions in a market with relative homogeneity.

## **CONCLUSION**

The results of this study are useful in informing the dairy sector in Canada as they move forward through policy and trade negotiations as well as influencing marketing campaigns. The results indicate that there is the possibility of receiving a premium by enhancing Canadian labels to

differentiate dairy products. This could be useful in the recent increase in allowable European imports of cheese through the CETA agreement. It is also useful in reinforcing the work being done through the proAction initiative with Dairy Farmers of Canada to show transparency to consumers of dairy farmers work across the country. This program has the possibility of being extended to include labels of dairy ingredients as well as primary dairy products. Future studies can analyze the preference and willingness to pay for country of origin labelling on products containing dairy ingredients such as cheese in a frozen lasagna. Second, investigation into preferences for various countries that may differ in terms of development level, recent scandals or exceptional production practices and finally how geographical distance plays a role. Finally, understanding the ethnocentric behaviours of Canadian consumers may be useful in decomposing some of the results presented in the current survey.

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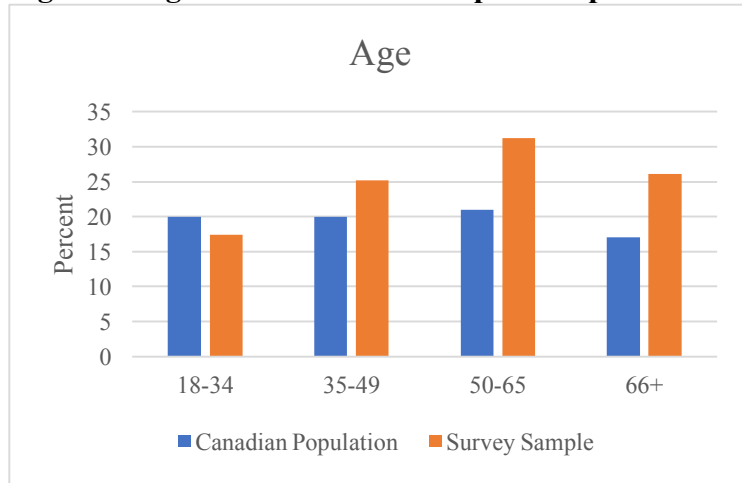
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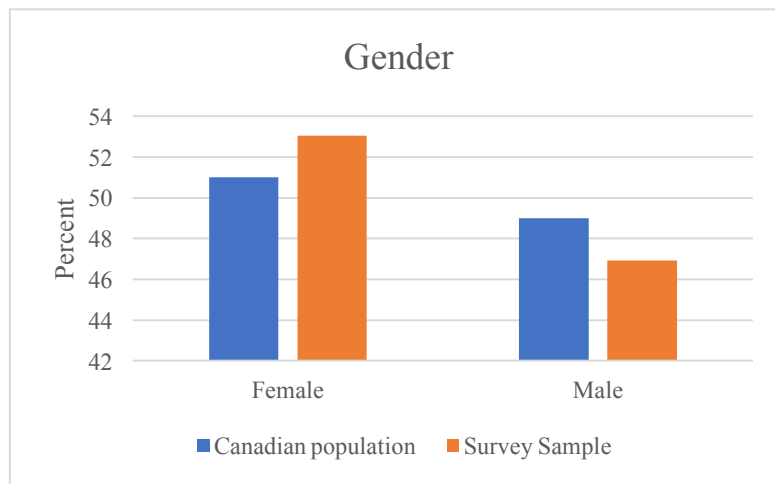
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## APPENDIX

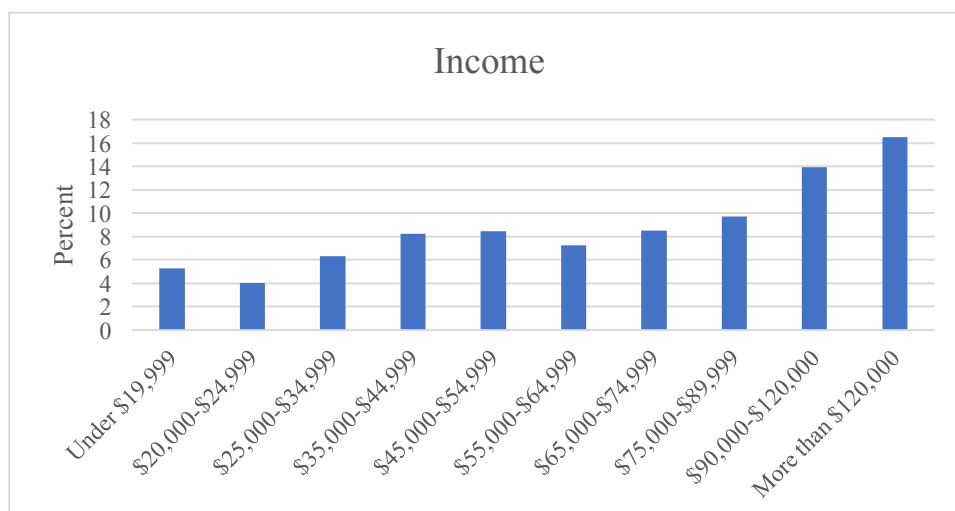
**Figure 1: Age Distribution of Sample Compared with Canadian Population**



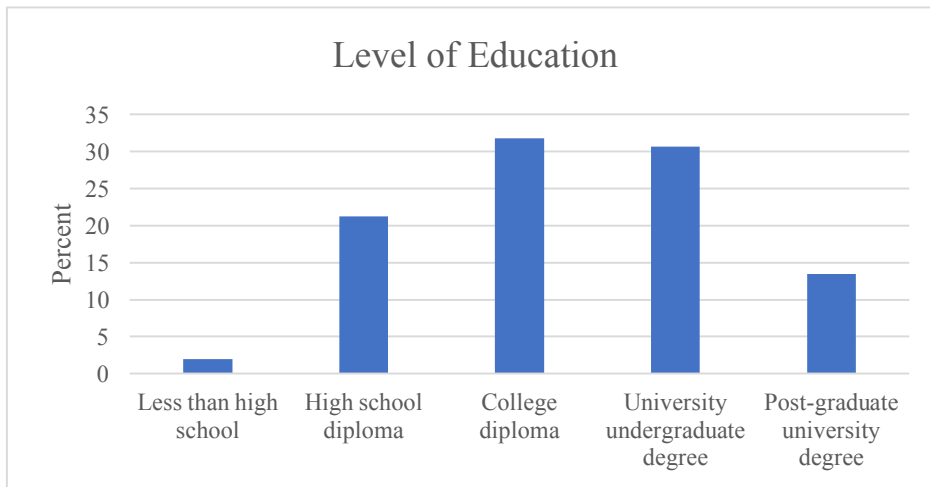
**Figure 2: Gender Distribution of Sample Compared with Canadian Population**



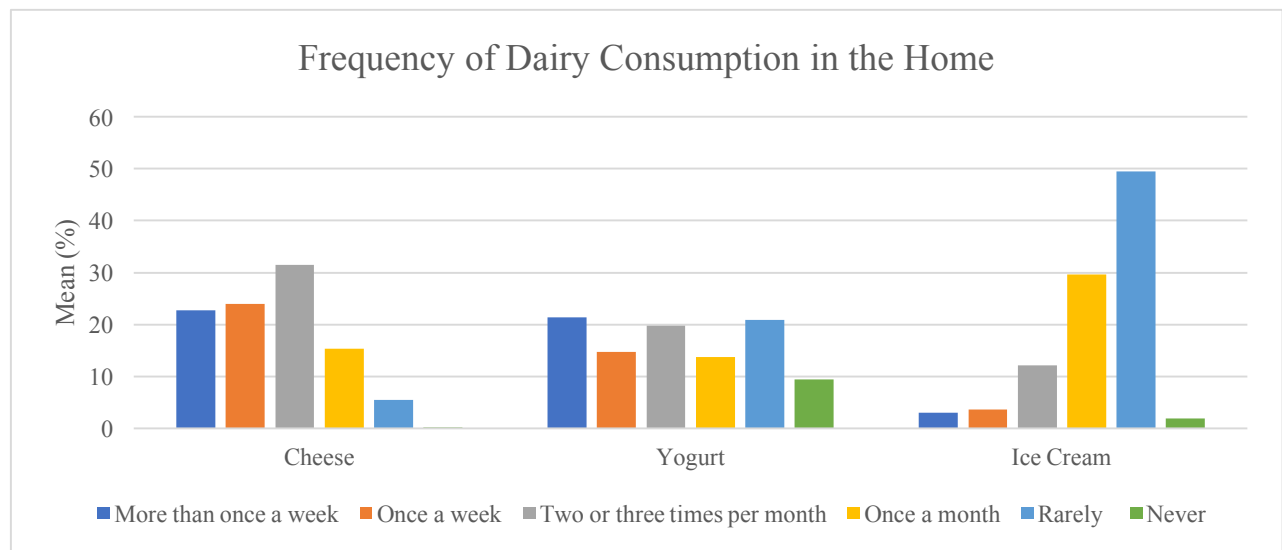
**Figure 3: Income Distribution of Survey Sample**



**Figure 4: Education Attainment Level of Survey Sample**



**Figure 5: Frequency of Cheese, Yogurt, and Ice Cream Consumption in the Home**



**Figure 6: Frequency of Cheese, Yogurt, and Ice Cream Consumption Outside the Home**

