

Willingness-to-Pay For Branded Fresh Beef Products In Canada

**Dr. Jared G. Carlberg, Principal Investigator
Ms. Evelyn Froehlich, Graduate Research Assistant
Dr. Clement E. Ward, Co-Investigator**

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Executive Summary

This report presents the results of research carried out under contract by researchers at the University of Manitoba for Canfax Research Services, administrators of the Improving Alignment of the Supply Chain funding pathway of the National Beef Industry Development Fund. Primary objectives of this research component were to assess the current state of fresh branded beef offerings in Canada and to determine the willingness-to-pay of Canadian consumers for such products. A second component of the research, “pricing to value in the beef supply chain”, was carried out under sub-contract by researchers at Oklahoma State University. Two reports arising from that research component, led by Dr. Clement E. Ward, are available from Canfax Research Services.

An extensive investigation into the current state of branded beef offerings in Canada was undertaken. Among other methods, representatives from retail grocery chains were contacted and queried about relevant product offerings. It was found that while the availability of such products in Canada still lags behind that of the United States, Canadian grocers are beginning to offer their own branded fresh beef products. By contrast, many of the early branding efforts for beef products in the U.S. were undertaken by producer groups.

In order to measure willingness-to-pay for branded beef products, four hypothetical brands were devised: a guaranteed tender brand (Tender Grill), a premium brand (Prairie Prime), a breed-specific brand (Original Angus) and an organic brand (Nature’s Diamond). Canada AAA beef was also included. Three methods were then used to assess willingness-to-pay: experimental auctions using the Becker-DeGroot-Marshack mechanism, a mail-out survey with a “cheap-talk” component, and a conventional mail-out survey. The item offered for consideration was a twelve-ounce ribeye steak.

It was found that consumers would pay premiums ranging from \$1.12 to \$1.83 per steak, depending upon the brand being considered and the elicitation method used. Consumer bids were clearly noticeably lower when elicited via the BDM auction vs. either of the survey methods. In addition, the cheap-talk survey yielded lower estimates of the premiums than did the conventional survey.

Premiums were modeled as a function of several variables using Tobit models. Preference for a product’s name was discovered to have a pervasively positive and statistically significant effect on willingness-to-pay. Premiums were found to decrease with respondent age. Other factors were found to influence willingness-to-pay only sporadically. Examples of these are number of times beef is eaten per week, respondent confidence in choosing beef products, as well as their gender, age and income.

Dr. J.G. Carlberg, Principal Investigator, University of Manitoba
(204) 474-9827 or jared_carlberg@umanitoba.ca
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Part 1: Introduction

1.1 Overview

This report presents the results of research conducted at the University of Manitoba under contract with Canfax Research Services (CRS), administrators of the Improving Alignment of the Supply Chain (IASC) pathway of the National Beef Industry Development Fund (NBIDF). The NBIDF-funded research had two components: the first was “pricing to value in the beef supply chain.” This research was carried out under subcontract by Oklahoma State University, with Dr. Clement E. Ward as principal investigator. Dr. Ward’s two reports are available from CRS.

The second component of the research, and the one which this report emphasizes, is “improving coordination through branded beef alliances.” This report does not focus on the role of alliances *per se*, but instead upon the two main objectives identified under component #2, which were:

- to investigate the extent to which branded beef programs are currently used in Canada, and to analyze the factors which may have limited the adoption of such programs
- to determine Canadian consumer preferences for branded beef product attributes and calculate the willingness to pay (WTP) for those attributes

1.2 Outline of Report

Following this introduction, three major sections comprise the remainder of the report. The next section, corresponding to the first objective noted above, reveals the current extent of brand marketing for fresh beef products in Canada. After that, the experimental auction and survey methods used to determine willingness-to-pay for fresh branded beef products are outlined. Next, the results of those methods are presented and discussed. The fifth and final section of the report summarizes findings and draws conclusions.

Part 2: Current Availability of Branded Fresh Beef Products in Canada

2.1 Overview

The motive for investigation of the current availability of branded fresh beef products in Canada was the belief, supported by anecdotal evidence, that such products are much more readily available in the United States than in Canada. It was believed that the marketing of fresh beef products (ground beef and muscle cuts) with brandable attributes could provide the impetus for improved alignment of the beef supply chain, through the development of alliances. In order to determine whether this goal could be achieved, it was first necessary to ascertain the extent to which fresh branded beef products already exist in Canada.

2.2 Branded Beef Products in Canada

A review of publications and resources was conducted as well as in depth interviews with all of the major grocery retailers in Canada in the summer of 2005. The purpose of this report is to build a comprehensive portrait of the beef currently available in Canadian supermarkets and to illustrate the beef brands and supply chain alliances that grocery chains utilize. This report is a combination of findings from the review of publications and the in-depth interviews with supermarkets' beef procurement management. A brief overview of each supermarket chain is given including their major banners and the beef brands carried in each store. Further discussed will be the chain's suppliers of beef, how the beef arrives in store (boxed beef, case-ready, etc.) and the transportation and distribution practices that the supermarket chain uses. After each grocery chain is outlined, overall observations will be noted and implications of findings will be discussed.

Co-op Atlantic

Co-op Atlantic is a co-operative that sells grocery, agricultural, general merchandise and petroleum products in different types of retail outlets for each category of product across Atlantic Canada (Co-op Atlantic). For the purposes of this report, only the grocery store locations and beef will be discussed. Co-op Atlantic has two grocery banners with stores in each of the four Atlantic provinces and Quebec. The predominant banner, with over 75 locations, is simply named Co-op. This format of store is entitled by the co-operative as a Conventional Consumer Co-op. Co-op Atlantic's other banner is entitled Co-op Basics with approximately 30 locations. Co-op Basics is a discount grocery store offering nearly all of the items that a conventional grocery store offers, but at lower prices. Co-op Basics is able to sell at lower prices because they keep costs and service to a minimum and negotiate with suppliers.

Decisions about what beef and beef brands will be in each store are made on a chain wide basis and each store within each banner gets the same beef brands. All stores within the Co-op Atlantic chain carry the Atlantic Tender Beef Classic brand as their only branded beef product. The product is marketed by Co-op Atlantic and sold *exclusively* through Co-op and Co-op Basics grocery stores across Atlantic Canada and Quebec. Co-op Atlantic's branded beef program includes cooking directions and a "Tenderness or Double Your Money Back" guarantee. All muscle cuts of beef are branded using the Atlantic Tender Beef Classic brand in every Co-op Atlantic store. All ground beef sold through Co-op Atlantic is sold as generic; no ground beef is branded as Atlantic Tender Beef Classic. Some stew meat is also simply generic; however, boneless stew is branded Atlantic Tender Beef Classic.

Atlantic Tender Beef Classic is brand owned by producer co-operative Atlantic Beef Products Inc. in Albany, PEI. Cattle must be raised in Atlantic Canada and require a diet of vitamin E (Toma and Bouma). However, the amount of beef raised in Atlantic Canada is insufficient to cover Co-op Atlantic's needs for beef. Co-op Atlantic first buys all the beef raised in Atlantic Canada available and then must buy about 30-40% of their beef

from Better Beef in Guelph Ontario (personal interview with Co-op Atlantic). The only beef that is accepted is graded Canada AA or Canada AAA and has a specific aging period and weight requirements so that the size of the cuts meet consumer demand.

The producers in this alliance began using a packer in Atlantic Canada which was subsequently bought by Maple Leaf and transformed into a plant that solely slaughtered hogs. The alliance then began using Better Beef in Guelph as their packer (Toma and Bouma). They shipped live cattle to Better Beef, and Better Beef would send beef back to Atlantic Canada as boxed beef. This cost producers a lot of money in transportation charges and has since motivated the alliance to build their own packing plant in PEI called Atlantic Beef. Having their own plant ensures that producers receive huge savings in the form of less transportation costs to Ontario (Co-op Atlantic). Partners in the plant are the government of Prince Edward Island and Co-op Atlantic (Government of Prince Edward Island).

The recent Canadian BSE crisis often left Canadian consumers wondering why beef was still the same price in-store when producers were getting significantly less money for their cattle. In an interview with the meat department of Co-op Atlantic, a beef buyer noted that despite the Canadian BSE crisis the price of beef did not decline from their packers. On the very seldom occurrence when the price of beef from packers did decline, Co-op Atlantic bought this beef and passed the savings onto consumers. When these savings were offered at Co-op Atlantic stores, the beef buyer indicated that they went through huge amounts of beef very rapidly. The beef buyer finally indicated that if someone was making money off of the BSE crisis it was not Co-op Atlantic.

Suppliers

Ground Beef

Since all of the ground beef sold at Co-op Atlantic stores is generic, ground beef may come from any packer. Co-op Atlantic gets most of their ground beef from Better Beef, Cargill, Lakeside, XL and a very small amount from Atlantic Beef. They order their ground beef from the packer with the lowest price (they also have normal quality and grade requirements).

Muscle Cuts

Co-op Atlantic purchases all of the muscle cuts that Atlantic Beef can supply which works out to approximately 60-70% of all muscle cuts that Co-op Atlantic requires for their grocery locations across Atlantic Canada and Quebec. When Co-op Atlantic needs supplementary beef for the Atlantic Tender Beef Classic brand, they purchase beef from Better Beef in Guelph Ontario. All beef for the Atlantic Tender Beef Classic brand purchased from Better Beef must follow all of the same specific feed regime and protocols (except for origin) as beef raised in Atlantic Canada. Co-op Atlantic usually requires additional beef for muscle cuts that are in the feature business (the weekly flyer) and for ground beef. Co-op Atlantic demands far more ground beef than Atlantic Beef can supply.

Beef Arrivals

Ground beef arrives at Co-op Atlantic stores in fresh tubes or chubs and is packaged and priced in each store. No ground beef in either Co-op Atlantic banner is case-ready.

All of the stores in the Conventional Consumer Co-ops banner and about five Co-op Basics still currently get boxed beef in and have meat cutters in each store.

Currently most of the stores in the Co-op Basics banner (all but five) get in case-ready beef; however, only muscle cuts are case-ready. All of the case-ready beef comes on traditional foam trays and over-wrap packaging. Ground beef is still packaged and priced in-store. At the present time, Co-op Atlantic has two small provincially inspected case-ready cutting facilities located in Moncton, New Brunswick and Cape Breton, Nova Scotia. Since both case-ready cutting facilities are only provincially inspected as opposed to federally inspected, the Atlantic Tender Beef Classic packaged at these plants may only be sold within their respective provincial borders. Co-op Atlantic would like to build either more provincially inspected case-ready plants in the other Atlantic provinces or have their Moncton plant converted into a federally inspected facility. Moncton is the preferred site for a federally inspected case-ready cutting plant because it is the hub of the Maritimes and beef can be most easily and efficiently distributed to Co-op Atlantic stores throughout the Maritimes and Quebec. Also during the forward looking portion of the Co-op Atlantic meat department interview, it was suggested that all of the Co-op Atlantic stores are moving towards case-ready beef and eventually all of the stores would carry Atlantic Tender Beef Classic as case-ready beef.

Transportation and Distribution

An independent trucking company is hired by Co-op Atlantic and although this trucking company is independent, it only works for Co-op Atlantic and has the Co-op logo on its trucks. This trucking company picks up beef from the packers and delivers it to central warehouses in Cape Breton and Moncton in the same locations as the case-ready cutting facilities. At the warehouses, beef is either made into case-ready products in the neighbouring plants or simply stored as boxed beef. From the warehouses beef is trucked by the same trucking company to individual Co-op Atlantic stores across the Maritimes and Quebec.

Federated Co-op

Federated Co-op has retail locations from western Ontario all the way west to British Columbia with approximately 300 retail locations. Included in all of these retail locations are grocery stores that carry beef products (Federated Co-op). Generally each store within Federated Co-op has its own somewhat unique store name, however each of these supermarkets still falls under the same Federated Co-op procurement procedures for beef and beef products.

Decisions about what beef will be carried in Federated Co-op stores are made on a chain wide basis. The closest thing to branding that one could call Federated Co-op's beef is a private label brand. All of Federated Co-op's muscle cuts of beef are "Guaranteed Gold" Western Canadian Beef that has been aged 14 days. The beef is 100% guaranteed by Federated Co-op. Thus, if a consumer is not satisfied completely with their beef, Federated Co-op will take appropriate action to ensure that the unsatisfied customer is made content. While muscle cuts are branded as Guaranteed Gold Western Canadian Beef, ground beef has a generic label. An example of one of the co-ops is Calgary Co-op, a subsidiary of Federated Co-op with 20 locations in Calgary and the surrounding area. Calgary Co-op is unique from all the of Federated Co-ops in the sense that in addition to carrying Federated Co-op's Guaranteed Gold beef brand, they also exclusively carry another private label beef brand entitled "Alberta AAA Tender Beef" aged 21 days (Calgary Co-op).

Suppliers

Ground beef and beef muscle cuts are both mainly supplied to Federated Co-op by XL Foods in Calgary. Approximately 90% of all fresh beef comes from XL Foods Calgary. Federated Co-op also purchases a small amount of fresh beef from provincially inspected plants and Cargill. The Vantage Foods case-ready plant in Winnipeg supplies Federated Co-op with some frozen beef on occasion as well.

Beef Arrivals

Both ground beef and muscle cuts arrive at each Co-op location as boxed beef. Ground beef is all ground in-store and muscle cuts are cut from the boxed beef and wrapped in each store by full service meat cutters.

Transportation and Distribution

Beef is picked up by an independent refrigerated trucking company, VersaCold, at the packer that supplies Federated Co-op (usually XL Foods in Calgary). The reefers distribute beef to Federated Co-op's warehouses in Winnipeg, Edmonton, Calgary and Saskatoon. Beef is not stored at these warehouses for any period of time; it is simply cross-docked. In other words, when beef arrives at these warehouses, it is quickly reconfigured onto other refrigerated trucks with other meat and food products (dairy, eggs, etc.) going to individual Co-op stores across the region. From time to time the reefers going to individual stores have another trailer behind carrying other groceries and dried food goods from the regional warehouses.

Thrifty Foods

Thrifty Foods is a grocery chain in British Columbia with most of its stores located on Vancouver Island and a few stores on British Columbia's mainland (Thrifty Foods). On Vancouver Island, Thrifty Foods has over 40% of grocery market share. All stores within the chain fall under the same Thrifty Foods name. "Thrifty Foods is committed to

providing quality food products at competitive prices with friendly, helpful staff in clean, well-stocked stores (Thrifty Foods).”

All beef procurement decisions are made on a chain wide basis and all Thrifty Foods stores carry the same brands of fresh beef. Thrifty Foods carries two main brands of beef in their stores. Exclusive to Thrifty Foods are “Alex Campbell Signature Series Sterling Silver Beef” and “Alex Campbell Signature Series Traditional Beef.” Alex Campbell Signature Series Sterling Silver Beef is the store’s own private label brand co-branded with Cargill’s Sterling Silver brand. Alex Campbell Signature Series Sterling Silver Beef grades in the top third of the Canada AAA beef and is aged 21 days for maximum tenderness. Muscle cuts and regular trim lean ground beef are available in the Alex Campbell Signature Series Sterling Silver Beef brand.

Alex Campbell Signature Series Traditional Beef is the store’s own private label natural beef product. The cattle that this beef comes from are not given antibiotics, or growth hormones, are fed no animal by-products and have traceability and environmental stewardship. Muscle cuts as well as some types of ground beef are available in the Alex Campbell Signature Series Traditional Beef.

Thrifty Foods carries a small amount of generic ground beef in each of its stores for ground beef with fat percentages where branding is not possible.

Suppliers

Most of the beef sold at Thrifty Foods is Alex Campbell Signature Series Sterling Silver Beef and therefore most beef is supplied by Cargill (~80-90% of beef comes from Cargill). No beef comes from the Lakeside or XL packing plants. Thrifty Foods prefers conducting business with Cargill, citing that Cargill has an excellent food safety record. Before any beef leaves the Cargill plant, core samples are taken from each load of beef to test for e-coli. Beef may only leave Cargill when tests come back negative for e-coli. Even if beef is not branded Alex Campbell Signature Series Sterling Silver Beef, all ground beef (except the natural brand) comes from Cargill.

Beef for the Alex Campbell Signature Series Traditional Beef brand used to come solely from Ranchers Beef in the United States due to the lack of a natural beef supplier in Canada. Now Thrifty Foods is getting some of their beef for their natural beef brand from a packing plant slaughtering cattle in Innisfail, Alberta.

Beef Arrivals

Thrifty Foods does not carry any case-ready beef. Each Thrifty Foods store gets ground beef in chubs or tubes of various weights ranging from 10-20lbs. Muscle cuts of beef arrive in each store as boxed beef where an in-store meat cutter cuts, wraps and labels each piece of beef. All but a couple of the Thrifty Foods stores have service cases where the meat cutter is up front interacting with customers as well as cutting beef. The stores

with meat cutters remaining in the back are slowly being renovated and meat cutters are being moved up front to modern service cases.

Transportation and Distribution

Cargill delivers beef to an outside distribution centre for Thrifty Foods that performs multiple services for them including storing, aging and delivering beef to each Thrifty Foods store location.

Overwaitea Food Group (OFG)

The Overwaitea Food Group is a grocery retailer operating over 100 stores in Alberta and British Columbia. They sell under the banners Overwaitea Foods, Save-On-Foods, Cooper's Foods, Price Smart Foods, Bulkley Valley and Urban Fare.

Decisions about what beef and beef brands will be carried in each store are by and large made on a company wide basis. All OFG stores only carry the chain's own private label "Western Family" beef with the exception of the one Urban Fare store. Urban Fare carries a small amount of Certified Angus Beef; however, they are the only store within the OFG chain to carry another fresh beef brand in addition to the Western Family brand. None of the OFG stores carry any generic beef whatsoever; all beef has the Western Family private label.

Suppliers

The OFG buys its ground beef from the major packers in Canada, most frequently Cargill. The OFG purchases their muscle cuts of beef directly from major packers across Canada based on price and quality specifications. They do not buy from any particular packer. The OFG employs Vantage Foods in Chilliwack to cut, weigh, package and label the majority of beef for OFG into case-ready products. Although Vantage Foods is carrying out all of the case-ready operations, they do none of the beef purchasing. Both beef purchasing and beef procurement is conducted by the OFG.

Beef Arrivals

Most of the fresh beef comes as case-ready beef to all the OFG stores. OFG stores do however still employ meat cutters for those customers who would like a specific cut or size of cut at most of their stores. Therefore, they must receive some boxed beef or slice ready beef in addition to the case-ready beef they receive from Vantage Foods in Chilliwack.

Transportation and Distribution

Although the OFG would not disclose exactly how their distribution channel works, since nearly all of their beef is case-ready, it cannot be warehoused for any considerable length of time. With this in mind, there are only a few options for distribution. Beef must be

either picked up or delivered to each individual store directly from the Vantage Foods case-ready plant via refrigerated trucks (e.g. VersaCold¹) or quickly cross-docked at warehouses in British Columbia and Alberta and immediately sent to each grocery store.

A&P Canada

The Great Atlantic and Pacific Tea Company (A&P) was one of the two major grocery retailers with a presence in Canada that began in the United States. On July 19, 2005 Metro Inc. announced its acquisition plans for A&P Canada and on August 15, 2005 the deal was subsequently finalized and A&P Canada became a wholly owned subsidiary of Metro Inc. The Competition Bureau of Canada approved the transaction with no conditions, making Metro Inc. the second largest retailer in Canada's two largest markets - Ontario and Quebec - and aided in obtaining a strengthened third grocery retail position for all of Canada. For the remainder of this section, A&P Canada will be written about as though it is still a distinct company from Metro Inc. because all procurement and marketing decisions are still completely distinct.

Despite not having a Canada wide geographical presence, A&P Canada holds 21% of the market share² and the number two position in the grocery marketplace in Ontario and the greater Toronto area, which were both high-growth regions of the country's grocery industry in 2005. A&P Canada conducts business through the banners A&P, Dominion, Food Basics, The Barn and Ultra Food & Drug, with over 236 locations across Ontario combined. The banners fall into two different categories: A&P, Dominion, The Barn and Ultra Food & Drug are the chain's conventional "fresh" stores (A&P). The Food Basics banner is a big box or discount type store.

Decisions about what beef and beef brands A&P Canada banners will have are still made by A&P on a chain wide basis, although the conventional "fresh" stores and discount stores have different decisions made for them regarding the beef that will be carried in those respective stores. A&P Canada and Metro Inc. still currently have distinct beef procurement practices and there are no plans for them to change in the near future. However, management indicates that to exploit the synergies of the two chains' beef procurement strategies, procurement will likely converge to best practices overtime, regardless of whether they are A&P's or Metro's strategy.

The conventional "fresh" stores (A&P, Dominion, The Barn and Ultra Food & Drug) all have the same beef procurement decisions made for them and they all carry nearly the same beef and beef brands. Different decisions are made for A&P Canada's discount stores about what types of beef they are to carry. All of the A&P Canada banners, regardless if they are conventional or discount, carry A&P's private label brand of beef "Beef Beyond Belief". Approximately 30 of the conventional stores with service cases carry the Certified Angus Beef brand.

¹ See this article for information on VersaCold
http://refrigeratedtrans.com/mag/transportation_versacold_offers_transportation/

² Acquisition of A&P Canada by Metro Inc.
http://www.metro.ca/client/fr/corporatif/Investor_Presentation_FINAL.pdf

Beef Arrivals

Beef arrives in each supermarket in different packaging depending on the format of the store.

Conventional “fresh” stores

Ground beef arrives at conventional stores in bulk as a course grind. The course grind is ground again into a fine grind, packaged and labeled in-store. Muscle cuts arrive as primals of beef (not boxed beef) in conventional stores. All conventional stores have an in-store meat cutter to disassemble the primal, package and label muscle cuts as Beef Beyond Belief. As previously mentioned, Certified Angus Beef is only sold in about 30 stores which have service cases with a butcher up front. Certified Angus Beef also arrives as a full primal or subprimal and must be cut and packaged like the private label Beef Beyond Belief by the meat cutter.

Discount Food Basics stores

Both ground beef and muscle cuts of beef arrive at Food Basics as case-ready and no meat cutters are available in-store if customers have special requests for a certain cut of beef.

Suppliers

Food Basics gets all of their beef, ground and muscle, from Better Beef’s case-ready plant Watson Foods in Guelph Ontario. The conventional banners also primarily get their beef from Better Beef, however, they also get some from St. Helen’s Meat Packers in Toronto. Better Beef, Cargill and Lakeside have licenses to process Certified Angus Beef, however A&P gets most of their Certified Angus Beef from Better Beef.

A&P Canada reportedly has a very good relationship with Better Beef and although they are their primary supplier of beef they do not have a formal contract with them for muscle cuts, ground beef or even case-ready beef. The absence of a contract between a case-ready plant and a retailer is quite uncommon in the Canadian case-ready market place. Usually case-ready plants require that they have a committed retailer to purchase their case-ready products because of the huge amount of fixed costs associated with operating a case-ready plant. With no formal contract specifying the amount of beef that must be purchased from the plant each year, many problems could arise. For example, the retailer may relatively easily quit using the plant, leaving the processor with high fixed costs and no volume of business, thus making operating a case-ready plant very risky.

Transportation and Distribution

Beef is delivered by the packer to one of A&P’s five strategically placed cold storage distribution centres in Ontario, where beef may be stored for a couple of days. Deliveries

to each store from distribution centres are made every day, and beef may be shipped along with the rest of the refrigerated groceries when it is needed.

Metro Inc.

Metro Inc. is the second largest grocery retailer in Quebec behind only Loblaw Companies Inc. and its banners. Metro Inc. also recently became the second largest grocery retailer in Ontario when it acquired A&P Canada. Not only does Metro now operate under all of its traditional Metro, Metro Plus, Loeb, Loeb Plus, and Super C banner stores, A&P Canada is now a wholly owned subsidiary of Metro Inc. and they operate under all of their banners as well. Since the A&P Canada subsidiary banner has already been discussed, this section will focus on the Metro, Metro Plus, Loeb, Loeb Plus, and Super C banner stores and their beef brands and procurement strategies. The Metro Inc. banners fall into similar categories as the A&P Canada banners. That is, Metro, Metro Plus, Loeb, Loeb Plus with 281 locations combined are all conventional “fresh” grocery stores, whereas Super C is a big box or discount grocery banner with about 62 stores (Metro Inc.).

Decisions about what beef brands are available in Metro Inc banners are a marketing and development decision. In other words, if the marketing department decides to implement a new brand, they simply do it. All Loeb and Metro banners sell the same beef brands whereas Super C sells slightly different meat products.

Metro and Loeb banners carry Metro Inc.’s own private label beef brand “Red Grill”. Both ground beef and muscle cuts of beef are available in the private label brand Red Grill in Metro and Loeb stores. Red Grill is made from Canada AAA grade beef. Metro and Loeb stores also carry generic ground beef and muscle cuts and Super C only carries generic ground beef and muscle cuts. Red Grill is not available in any of the discount Super C stores. The generic beef that all Metro Inc. supermarkets carry is graded Canada AA and has ¼ inch trim specifications for muscle cuts.

Beef Arrivals

Although Red Grill comes in both ground beef and muscle cuts, only the Red Grill ground beef is case-ready. Metro outsources the processing of its private label case-ready meats to Jean Guy Soucy Inc., a case-ready plant near St. Jean-Sur-Richelieu, Quebec (Pelton). Red Grill muscle cuts arrive in each Metro and Loeb store as boxed beef and are disassembled, packaged and labeled by the meat department. Generic muscle cuts also arrive as boxed beef which must be cut, placed on trays, wrapped and priced. Generic ground beef arrives differently at the supermarket than its Red Grill counterpart. Boxed and bagged frozen trims of generic beef arrive at each store and must be ground, packaged and priced in-store. Normally each store within the Metro Inc. chain has its own meat cutter to process beef as only a small amount is case-ready.

Suppliers

Unlike its new subsidiary, Metro Inc. is not loyal to any particular packer and purchases its beef on certain price and quality specifications. Some of the major packers Metro Inc. purchases beef from include Cargill, XL, Lakeside and Swift & Co. in the United States.

Transportation and Distribution

From the packers, beef is typically distributed to a Merit Beef distribution centre. An example of the distribution process is as follows: when beef comes through Cargill it is sometimes delivered by train to a train station in Quebec. A van picks this beef up from the train station and delivers it to one of the Merit Beef distribution centres. There are two of these meat and frozen foods distribution centres located in Montreal and Quebec City. From these distribution centres beef is delivered by Metro's own refrigerated trucks to each store. This Merit Beef distribution division also possesses a meat processing facility producing cold-cuts and smoked-pork products (Pelton). It is stated on Metro Inc.'s website that this makes Metro the only food distributor that processes some of their own meat at their own facility (Metro Inc.).

Sobeys

The Sobeys chain is reporting over 12 billion dollars in sales for 2005 making them the second largest food retailer in Canada, with locations spanning from coast to coast and over 1300 grocery stores (Sobeys). The Sobeys chain started in Nova Scotia in 1907 and still has its corporate head offices located in Stellarton, Nova Scotia. Sobeys has numerous banners and a few of the major ones are Sobeys, Garden Market IGA, IGA, Food Town, Thrifty Foods, Price Chopper, Needs, Sobeys Express, Foodland, Lawtons, IGA extra, Bonichoix, Les Marchés Tradition and Commisso's.

Due to the enormity of the chain, beef procurement decisions (as well as other decisions) are made on a regional basis. The Sobeys chain is divided into four regions; namely, Western Canada, Ontario, Quebec and Atlantic regions. For the remainder of this section of the paper, Sobeys' operations will be discussed on a regional basis, as beef brands and procurement decisions are different depending on which region of Canada a store is located.

Sobeys Atlantic

The main Sobeys banners in the Atlantic Canada region are Sobeys, Needs, Price Chopper, Foodland, Lawtons and Cash & Carry (Sobeys). All the Sobeys stores and banners in Atlantic Canada carry the same beef and beef brands. In their Atlantic stores, Sobeys carries their own retailer branded beef called "Canadian Select Beef" as well as packer Cargill's premium beef brand Sterling Silver.

Beef Arrivals

Ground beef arrives as tubes of beef in each store where it must be packaged and labeled in-store. All muscle cuts of beef arrive in-store as boxed beef that must be cut, placed on a foam tray, over wrapped, priced and labelled accordingly. Each store in Atlantic Canada within the Sobeys chain has their own meat cutter to process tubes of ground beef and boxed beef.

Suppliers

Most of the Atlantic region's ground beef and boxed beef comes from Cargill. They also get a very small amount from the other major packers namely Lakeside, XL and Better Beef.

Transportation and Distribution

Beef is normally delivered by their beef supplier (usually Cargill) to Sobeys' distribution centres. Since none of the beef is case-ready there is no need for cross-docking; that is, beef may be stored in distribution centres for longer periods of time (within reason) until the beef is needed at retail locations.

Sobeys West

The major Sobeys banners located in the West region include Sobeys, Western Cellars and IGA. The western Sobeys' banners all carry generic Canada AA and Canada AAA grade beef. In late summer of 2005, Cargill's premium beef brand, Sterling Silver beef was introduced to all the western Canadian Sobeys stores in addition to the generic beef selection. Both ground beef and muscle cuts are available in the Sterling Silver brand.

Beef Arrivals

Ground beef arrives as tubes from the major packers. Generally muscle cuts arrive at each western store as boxed beef and meat cutters must prepare the beef for the meat cases. Normally each western store has its own meat cutter but there has been a shortage of cutters in the last few years. Currently there are about five or six Sobeys stores in the west that receive case-ready beef from Vantage Foods in Winnipeg because they could not find meat cutters for their store.

Suppliers

Both ground beef and boxed beef come from Lakeside, Cargill and XL the major packers in western Canada. Case-ready ground beef and muscle cuts are supplied to five or six Sobeys stores that do not have a meat cutter from Vantage Foods in Winnipeg.

Transportation and Distribution

Beef is transported from the packers to warehouses for cross-docking by an independent trucking company.

Sobeys Quebec

There are currently four Sobeys' banners represented in Quebec although none of them are the actual "Sobeys" banner. The banners are IGA, IGA extra, Marché Bonichoix and Les Marchés Traditions. Decisions are made in the same fashion for each of the four Quebec banners about what beef and beef brands to carry in every store. Sobeys Quebec stores used to only carry Canada A and Canada AA commodity or generic beef. They have since introduced their own private label Canada AAA beef program. The brand is called "Boeuf Gourmet" which translates into "Gourmet Beef."

Beef Arrivals

All beef for the Boeuf Gourmet brand is from Cargill and arrives in-store as Cargill's Northridge Farms brand in the form of primals for muscle cuts and tubes of ground beef. Beef is subsequently re-branded in-store to Boeuf Gourmet when beef is cut or reground, weighed, packaged and labelled for the meat case. Beef is branded as Boeuf Gourmet as opposed to Northridge Farms because the Northridge Farms brand name means nothing to Quebec people, especially since it is in English.

Although nearly all of the Northridge Farm beef arrives as primals or in tubes of ground beef, a small amount of case-ready beef is shipped to the stores as well. Sobeys Quebec buys tubes of Northridge Farms beef and employs a third party processor named Distributions Marc Boivin to process case ready AAA beef patties and AAA lean ground beef.

The rest of the beef that the Quebec banners carry is all commodity or generic beef and is graded Canada A and Canada AA. This beef also arrives as primals and tubes of beef for the in-store meat cutters to further disassemble, weigh, package and label.

Suppliers

As previously mentioned, all of the beef for Boeuf Gourmet comes from Cargill as Sobeys Quebec and Cargill have a contract for this beef.

About thirty percent of the beef cuts sold in the Quebec banners are referred to as French cuts (these are still graded Canada A and Canada AA) and are not typically available in the rest of Canada. Examples of the more common French cuts are tournedos, rôti de palette and chateaubriand. These cuts come from both western Canada and the United States. The rest of their generic beef also comes from similar sources as the rest of their beef.

Transportation and Distribution

Beef is delivered by the packer and goes through a distribution centre where all medium cuts are aged for a minimum of fourteen days. End cuts of beef are not aged for any length of time; they are typically first in first out.

Sobeys Ontario

It comes as no surprise that the Sobeys Ontario region has the most complex inner workings of beef distribution, beef branding strategies and alliances of all the Sobeys regions. Sobeys has several banners in Ontario including IGA, Foodland, Sobeys, Commisso's and Price Chopper. Each of the banners falls into one of three distinct strategies for beef procurement and branding. Each of the beef procurement strategies are in line with the overall strategy for all other categories of food within the banner.

The Price Chopper banner is an urban discount type of grocery supermarket that offers the most popular brands and the store's own private label brands at low prices. All of Price Chopper's beef including muscle cuts and grinds are sold as generic. Since it is a discount chain, management does not feel as though it would be effective to brand their beef at these stores, because they do not feel as though the price conscious customers of these stores are willing to pay more for a branded product. Virtually all muscle cuts of beef and ground beef sold at Price Chopper arrives in-store as case-ready beef from Better Beef's Watson Foods in Guelph Ontario.

IGA and Foodland fall into the same second main beef procurement strategy. Both of these stores carry only the "Ontario Tender" brand of beef. All beef is from Ontario and grades as the higher end of Canada AA or the lower end of Canada AAA beef.

Sobeys and Commisso's fall under a duplex beef program nearly identical to the program in the Atlantic Sobeys region. They carry their own private label retail brand, "Canadian Select Beef", as their everyday brand. They also carry Cargill's Sterling Silver brand as their premium brand.

Beef Arrivals

As previously mentioned, most fresh beef that arrives at Price Chopper is case-ready. All of the other Sobeys banners in Ontario (IGA, Foodland, Sobeys, Commisso's) normally get in block ready boxed beef and tubes of ground beef where an in-store meat cutter cuts/ regrinds, weighs, packages and labels beef for the meat case.

Suppliers

Price Chopper has a contract with Better Beef's Watson Foods to produce all of their case-ready beef. Occasionally if there is high demand for certain beef products, such as

when beef is advertised in the feature flyer, Price Chopper gets some boxed beef or tubes of ground beef from Lakeside and cuts/ regrinds, weighs and packages beef in store.

Ontario Tender beef mainly comes from either Better Beef or St. Helen's Meat Packers and is distributed through Lumsden, a wholesaler subsidiary of Sobeys with retail distribution centres in Whitby, Milton and Brantford Ontario.

Since Sterling Silver is Cargill's brand, all of the Sobeys and Commisso's stores must get their beef for the Sterling Silver brand from Cargill as per their contract.

Transportation and Distribution

Fresh case-ready beef is delivered by Watson Foods directly to each Price Chopper location.

All of the boxed beef and tubes of beef are delivered by the packers to a distribution centre where it may be warehoused for a period of time. Sobeys then uses its own trucks to deliver boxed beef and tubed ground beef to its individual stores and banners.

Safeway

Safeway is a U.S. based chain with a subsidiary in Canada appropriately named Canada Safeway. Canada Safeway has approximately 219 stores in Canada. Stores are located in British Columbia, Alberta, Saskatchewan, Manitoba and a few in Ontario no further east than Thunder Bay.

Operations within Canada Safeway are divided into three regions. British Columbia is a distinct region, Alberta is another region, and Saskatchewan, Manitoba and Northern Ontario together form the last region. Beef procurement and branding decisions are made on a region by region basis although there are some threads of commonality amongst all the regions.

Currently all of the stores carry mainly generic beef with the exception of a few stores that carry some of Safeway's own premium private label beef, Rancher's Reserve. At time of writing, Rancher's Reserve was slated to be launched at all Canada Safeway stores. When this launch is complete all Canada Safeway stores will carry both generic beef and the premium Rancher's Reserve beef brand.

Beef Arrivals

Depending on the region and type of fresh beef, the manner in which fresh beef arrives in-store varies. In all three Canadian regions, ground beef arrives in-store in the case-ready format. Only muscle cuts will be branded as the Rancher's Reserve brand; all ground beef will remain generic.

In the Saskatchewan, Manitoba and Northern Ontario region generic muscle cuts arrive in each store as case-ready beef. In the few stores with service cases that currently sell Rancher's Reserve beef, beef arrives slice-ready from Vantage Foods in Winnipeg. When Rancher's Reserve is introduced in every Canada Safeway store it will all arrive in-store in the case-ready format in every region.

In the Alberta and British Columbia regions, muscle cuts arrive as boxed beef that must be cut and prepared for the meat case in-store and thus the stores all generally have meat cutters. When Rancher's Reserve is introduced in Alberta and B.C. it will all also be case-ready. Cargill in High River, Alberta, slaughters the beef and sends sides of beef to Lucerne who will then process case-ready Rancher's Reserve beef for the Alberta and B.C. regions. Vantage Foods will be producing the case-ready Rancher's Reserve brand for the Manitoba, Saskatchewan and Ontario regions.

Suppliers

All fresh beef for the Saskatchewan, Manitoba and Northern Ontario regions comes from Lucerne, Cargill or XL and all goes through and is processed at Vantage Foods by a third party case-ready processor in Winnipeg. All fresh beef for the Alberta and B.C. regions is currently direct from Lucerne. Lucerne primarily gets all of their beef from XL as sides of beef. When the Rancher's Reserve brand is introduced, all beef for the Rancher's Reserve brand must be purchased from Cargill. Although Safeway owns the rights to the brand, Cargill is also tied to the brand and Safeway has a volume contract with Cargill to produce Rancher's Reserve beef.

Transportation and Distribution

Beef from Vantage Foods is distributed directly to Winnipeg stores. Beef from Vantage Foods destined for country Safeway stores, Ontario or Saskatchewan stores is cross-docked at a warehouse and bundled with other refrigerated goods. Beef prepared at Lucerne Foods destined for the Alberta and B.C. regions is cross-docked at warehouses before they are delivered to each store. Beef deliveries are made to stores daily. Safeway uses both their own trailers and third party trucks dedicated only to Safeway.

The North West Company

The North West Company has roots that date back to 1668 and today provides northern and rural communities with grocery services and other retail merchandise. The North West Company has a few banners in Canada that sell some form of beef whether it is fresh, frozen, processed or some combination of the three. The banners in Canada selling beef are Northern, Northmart and Giant Tiger (The North West Company). Northern and Northmart have some stores within their respective banners that sell fresh, frozen and processed beef and other stores that just sell frozen and processed beef. All of the Giant Tiger locations only sell frozen and processed beef. The North West Company also has a banner in Alaska called Alaska Value Centre, but as these are American stores, they will not be discussed in this paper.

Decisions about what beef, whether it be fresh or frozen, branded or unbranded are made on a chain wide basis. The North West Company has developed their own private label brands and beef sells using the names of two of these private labels. Best Northern Value is an everyday value, discount private label brand. Exclusive Selections is also the company's own private label brand, however it is a premium quality brand compared to Best Northern Value.

Beef Arrival

Between the banners Northern and Northmart, there are fifty-five locations that sell fresh beef and have full fresh meat departments and meat cutters. The stores that sell fresh beef get in boxed beef for muscle cuts and tubes of ground beef for regrinding. Beef is further processed, packaged, priced and branded in-store.

Ninety stores, including stores in the banners Northern, Northmart and Giant Tiger only sell frozen and processed beef. The stores that only sell frozen and processed beef get their beef in ready for the meat case. In other words, their beef is frozen case-ready beef. This frozen case-ready beef includes everything from steaks to burgers.

Suppliers

Beef is purchased from the major Canadian packers, case-ready plants and brokers based on cost and quality specifications. The major Canadian packers they buy beef from are Cargill, Lakeside, XL and Better Beef. They also get some frozen case-ready beef from Vantage Foods and buy a significant amount of beef from brokers such as Preferred Meats. All of the beef they get from XL and Better Beef is frozen and case-ready.

Transportation and Distribution

All beef and pork is bought and distributed by Crescent Multi Foods, a wholesaler and distributor subsidiary of The North West Company. Fresh beef is shipped to a warehouse in Winnipeg called the Winnipeg Logistic Service Centre. Dry goods are normally stored here for a period of time, however, fresh beef is simply cross-docked and shipped to each individual store. Frozen and processed beef may be warehoused for a period of time at a third party warehouse called Westco. Both fresh and frozen beef is transported from its warehouse/ distribution centre by either a third party refrigerated trucking company or by one of North West's own trucks.

Costco

Costco is a U.S. based membership wholesale store chain with approximately 63 warehouses across Canada. All customers of Costco, whether businesses or personal, must purchase a membership to shop at Costco. Costco sells national brand and private label products generally in larger portions at low prices. Costco has an extensive private

label program named Kirkland Signature. Many products sold in Costco stores are branded with the Kirkland Signature brand (Costco).

Costco was the only major retailer in Canada that would not comment on their beef procurement practices or brands. Thus, in order to obtain the information required for this component of research, Costco's meat cases were personally surveyed. It was found that all ground beef and muscle cuts that Costco sold had the Kirkland Signature name atop the price, grade and weight information sticker. Whether one can call this a true private label or not is up to the reader's discretion.

As Costco is a wholesale store, they generally sold meat in larger quantities than the traditional Canadian grocery store. Most beef was sold using conventional packaging (beef placed on a foam tray and overwrapped with PVC wrap). All of this beef is cut and packaged in-store; it is not case-ready. Costco did test market case-ready beef in their Montreal stores according to "The Market for Case Ready Beef", however, they have since reverted to cutting and packaging their own beef in-store because beef sales declined after the introduction of case-ready beef (Saskatchewan Agriculture). Costco also sells large vacuum sealed subprimal cuts of beef. Consumers buy these large subprimals and must cut them into steaks and roasts themselves. These large, vacuumed sealed subprimals also only had the one sticker with price, grade, weight information and the Kirkland name printed directly on the label.

It is very difficult to determine exactly how beef procurement and distribution takes place within the Costco chain without actually talking to beef procurers. However, after studying distribution channels of all the other chains, it has become clear that Costco's beef procurement could not be dramatically different. Beef would come from the major Canadian packers, possibly some from the northern U.S. packers and either be shipped directly to each wholesale outlet or stored for a short period of time at a central distribution centre before finally making its way to each outlet.

Loblaw Companies Limited

Loblaws is the largest grocery retailer in Canada with nearly 1600 corporate, franchised and associated stores from coast to coast. In addition to the corporate, franchised and associated stores, Loblaws supplies 6,669 independent accounts with food and merchandise. Loblaws will take in just under 27 billion dollars in sales in 2005, making it more than twice as big as the second largest competitor Sobeys (Loblaw Companies Ltd.). Loblaws has the largest private label program in Canada with the brands Presidents Choice and No Name.

Loblaw Companies' major banners include Atlantic SaveEasy, Atlantic Superstore, Extra Foods, Fortinos, Loblaws, Lucky Dollar Foods, Maxi, No Frills, Provigo, The Real Canadian Superstore, The Real Canadian Wholesale Club, Shop Easy Foods, SuperValu, Valu-mart, Your Independent Grocer and Zehrs Markets. Generally, individual banners within Loblaw Companies are contained within a concentrated geographical area of Canada. For example, the Loblaws and No Frills banners are only located in Ontario,

Provigo is only in Quebec and The Real Canadian Superstore was only located in western Canada until recently when it made its debut in Ontario.

Decisions about what beef and beef brands will be carried in each Loblaw store are first made on a national basis. Additional decisions then trickle down and are made on a banner by banner basis. Further micro decisions about what kind of beef to carry in each store are also made on a store by store basis depending on what kind of consumer market they are located in.

Loblaw company stores and banners carry a few different beef brands depending on the banner, location, and store's market. Beef brands that may be found in some of the stores are Certified Angus Beef, President's Choice Angus Beef, President's Choice Organics and President's Choice.

Every store across Canada gets a base, non-branded commodity beef product that is graded Canada AA or higher everywhere except the Atlantic provinces, where their non-branded base is graded Canada AAA. Some stores also carry President's Choice branded ground chuck and ground round. It should be made clear that many stores currently only carry the non-branded commodity beef product.

Certified Angus Beef is sold at some stores that have service cases as their premium beef product. Other stores sell a Canada AAA non-branded product as their premium beef.

New to the market is President's Choice Angus Beef. It is planned that President's Choice Angus Beef will soon be available at each retail outlet.

The President's Choice Organics beef brand is only available at certain stores within certain banners depending on the surrounding consumer market.

Beef Arrivals

Ontario and Quebec

Cargill has two case-ready plants located in Toronto, Ontario and Chambly, Quebec. All of the Loblaw Companies' stores in Ontario and Quebec are supplied with case-ready ground beef and case-ready muscle cuts from these processing plants. Nearly all of the fresh beef for Ontario and Quebec stores, branded or otherwise, is from these two case ready plants. Most of these Ontario and Quebec stores, not including No Frills and Maxi (because they are discount banners), employ at least one meat cutter so long as they have a service case. The meat cutter cuts and packages a small amount of boxed beef that arrives in store for special customer orders.

Atlantic and Western Canada

Although Atlantic Canada and Western Canada are at opposite ends of the country, beef for the Loblaw banner stores in these two regions all arrives similarly. All beef in the Atlantic and Western regions arrives as boxed beef and/or as large tubes of ground beef. The beef must be ground and/or re-ground, packaged and labelled in-store. All muscle

cuts arrive as boxed beef in the Atlantic and Western regions. The subprimals must be disassembled and packaged in-store. All of these stores have their own meat cutters to fill the store's meat cases. This is distinct from the Quebec and Ontario regions where most of the beef arrives as case-ready.

Correspondence with Loblaw's meat procurement management indicated that President's Choice beef must be produced centrally at Cargill's case-ready facilities. From this it is unclear whether President's Choice beef is available outside of Ontario and Quebec.

Suppliers

As mentioned above, Cargill's two case-ready plants in Toronto and Chambly supply most of the fresh beef for all of the Ontario and Quebec stores. Some beef for the case-ready plants is slaughtered by St. Helen's Meat Packers. The No Frills banner in Ontario receives case-ready beef from an Eastern Canadian packer. Loblaw's gets tubes of ground beef for some of its stores from Better Beef and Cargill. For Atlantic and Western stores, boxed beef comes from the major packers, however management revealed no specific packers. Certified Angus Beef is purchased from a packer located in the U.S.

Transportation and Distribution

The physical transportation and distribution of beef takes place in a variety of ways. Loblaw's has their own fleet of reefers and generally likes to pick up most of the product themselves when they are able to. When it is not possible for Loblaw's to pick up some of the fresh beef, it is delivered by the processor/packer. Some fresh beef goes directly from the case-ready facilities in Ontario and Quebec to store. Other beef will go from the processor/ packer through distributions centres before finally making its way to each individual store.

2.3 Observations from the Supermarkets in Canada

Certified Angus Beef was the first major beef brand developed in the United States in 1978. Its success spurred the major branded beef revolution in the United States over the past decade. Over 40 brands are now recognized by the USDA and there are many other private brands as well (MMT). From this report, it can be seen that the Canadian beef industry is at the initial stages of a brand revolution of its own. The Canadian beef industry today appears to mirror the beef industry of the United States ten years ago. The supermarkets in Canada that currently carry branded beef products have only very recently been introduced. Over the next decade branded beef will likely become more common as in American supermarkets.

There is one major difference between the emergence of brands in Canada and brands in the United States a decade ago. In the early days of branded beef in the United States some of the major beef brands were spearheaded by producer groups (e.g. American Angus Association developed Certified Angus Beef). The early emergence of nationally branded beef products in the United States has cued retailers and packers operating in

Canada to develop their own brands and become established before other groups (producer groups, other packers, other retailers) establish their brands. By establishing their brands first these packers and retailers will have first mover advantage.

Case-ready beef is usually used for the lower end beef products of a store and for discount grocery banners. There are a few exceptions to this, namely Metro that uses case-ready beef only for their premium beef offering and banners that have nearly all converted to case-ready beef (Loblaw banners in Ontario and Quebec, and Safeway in the Ontario, Manitoba and Saskatchewan regions).

Most grocery chains are coming out with very soon or have already come out with their own private-label beef brands.

There are very few producer organized beef brands in Canada compared to the United States. This may be due to the fact that producer groups developed beef brands before the major packers and retailers in the United States. In Canada, it was the packers and retailers that have begun to introduce branded beef, not producers.

Retailers have an incentive to develop their own brand because then they do not have to purchase all of their beef from a single packer. Packers also have strong incentives to develop their own beef brands. If a packer develops a brand and a retailer adopts it, the retailers must then buy all of their beef from that packer. Producers have an incentive to develop their own brand as well. However, since they have less market power, their incentive to develop a brand is different, because they cannot garner all value added profits for themselves without building capital intensive packing plants and retail outlets as packers and retailers can when they develop their own brands. If producers develop their own brands they will be able to control a larger share of the profits from the value adding process by using licensing agreements and alliances with other supply chain members for the use of their brand.

Higher populated areas in Canada have more beef brands to choose from.

Implications

With packers and retailers in Canada introducing new beef brands at a steady pace, if it is found that Canadian consumers are willing to pay for branded beef products, producers should quickly get involved with branded alliances and programs. Using the United States as evidence, it is clear that there is a first mover advantage in being one of the first beef brands available.

After reading this report the reader may feel as though producers should be told to immediately develop or become involved with a beef brand to capitalize on the first mover advantage. However, the wagon should not be put before the horse. It needs to be determined whether Canadian consumers are actually willing to pay for branded beef. It needs to be ensured that major packers and retailers are not simply introducing these

brands into the Canadian market place because it has been shown that American consumers are willing to pay for branded beef.

Conclusion

When a Canadian consumer heads down to their local supermarket to pick up some beef, for the longest time they have only had three aspects to think about: quantity, cut and grade. Recently a few beef brands have been introduced into select supermarkets in regions of Canada. More brands will likely be introduced if the beef supply chain members that are not presently involved with branded beef see that the branded beef initiative is successful in Canada.

This report has assessed the status of beef brands in supermarkets across Canada. It adds to the information that is needed to aid in aligning producers with the rest of the Canadian beef supply chain. Producer groups who want to become involved with branded beef alliances need to fully understand how beef branding alliances currently work past the producer stage before they can develop their own brand or participate in an existing brand. We now have a detailed outline of the beef brands carried in Canadian supermarkets.

The alliances between grocery chains and packers were studied and are now clear. A concise summary about each major supermarket chain was given, detailing their major banners, beef brands carried, suppliers of beef, how beef arrives and transportation and distribution practices. This report finished with observations and implications. Major observations were: the differences in the emergence of branded beef in Canada compared to the United States, case-ready beef trends, private label retail beef brands emerging in Canada and the few producer brands in Canada. Implications suggested that more research needs to be conducted to determine if Canadian consumers are willing to pay for branded beef. If they are, producers need to act swiftly to capitalize on first mover advantage.

Part 3: Experimental Auction and Survey Methods

3.1 Overview

As noted above, one of the main purposes of this project was to determine the extent to which Canadian consumers are willing-to-pay for branded beef products. If willingness-to-pay (WTP) for such goods is non-existent or marginal, the prospects for brand-based alliances are dim.

Two methods were used to assess WTP for branded beef products. The first was a series of experimental auctions held in and around Winnipeg, Manitoba. The second was a mailed-out national survey whereby half of recipients were sent a conventional survey and half were sent a “cheap-talk” version. The experiments and surveys are described in more detail below.

3.2 Experimental Auction Procedure

An Experimental Auction is a tool that can be used to elicit a participant's private willingness to pay values in a truthful manner. Willingness to pay is determined by having participants bid for a product or certain attributes, using real money at the time of the auction as opposed to a hypothetical situation that is simply presented in a survey (Lusk et al. 2001). Experimental auctions have particularly fallen into favour with agricultural economists because they provide incentives for participants to accurately reveal their true WTP (Lusk et al. 2001; Umberger and Feuz).

Experimental auctions were conducted in June and July 2006 in Winnipeg and a town just outside of Winnipeg, Manitoba. Winnipeg and the surrounding area is thought to be an area suitably representative of the Canadian population. The Becker-DeGroot-Marshack (BDM) Experimental Auction mechanism was used, similar as to that used in Lusk et al.; Feldkamp et al.; Lusk and Fox. The BDM auction mechanism was chosen because the auction was conducted in a retail setting as opposed to many types of auctions which are conducted in a laboratory setting.

There are several advantages of the BDM auction. First, it is easy to explain to participants how the auction works and it is easy for them to understand compared to other auction designs (Lusk et al. 2001). The BDM auction does not require repeated practice rounds for participants to learn how the auction works. Secondly, BDM auctions tend to have less non-response and thus less non-response bias than other auction mechanisms and certainly less than conjoint analysis (Lusk et al. 2001). The BDM design has less non-response because participants do not have to go out of their way on another day and drive to a location where another type of experimental auction would be conducted in a group setting (Feldkamp et al.). In other words, there is less opportunity cost for the participants to partake in the study than in other experimental auction procedures.

The BDM auction mechanism usually does not have to remunerate its participants as much as other auctions for participating because participants do not have to go out of their way to participate (Lusk et al. 2001; Feldkamp et al.). If remuneration is too large it may have some affect on how participants behave.

BDM auctions are usually conducted in the field. One could argue that this translates into higher external validity (McDaniel and Gates). In other words, results from the auction would be more applicable to the real world because participants actually act like real Canadian consumers. Since BDM auctions may be conducted in the field, it is possible to target the population of interest (Lusk et al. 2001).

The BDM auction is not a typical (English) auction where participants bid against one another; rather, subjects participate in the auction individually. In a BDM auction, participants are presented with the product(s) in question and are queried as to their maximum WTP for a particular good with certain attributes. If their bid is higher than a randomly generated price, they 'win' the auction and must pay for the product. The

participant does not pay the most they were willing-to-pay; instead they pay the randomly drawn price.³ This procedure ensures that the auction is incentive compatible. In other words, the participant has the incentive to reveal their true willingness-to-pay. If the participant bids more than her true willingness-to-pay she may have to purchase the good at a price higher than she were actually willing-to-pay. If the participant bids less than her true willingness-to-pay, she may miss out on purchasing the product that is of good value to her.

A total of 274 people participated in the auctions at seven stores from two major grocery chains. Approximately thirty-nine people participated at each store. Auctions were conducted on weekdays and weekends during various times of the day from store opening to meat department closing.

Auctions were conducted near the beef counter in each grocery store. Each customer who approached the meat department was asked to participate in our auction. For participating, each customer was endowed with a twelve-ounce (340 gram) generic ribeye steak. Participants then bid to exchange their generic steak for each of the steaks bearing brand names created for the purpose of this research (Prairie Prime, Tender Grill, Nature's Diamond, and Original Angus), as well as for a Canada AAA steak. Endowing each participant with a generic steak allows the value of the brand to be isolated.

Participants were told that a zero bid indicated to the researcher that they forfeit the chance of "winning" a value added product but any positive bid had a chance of winning. Participants were also informed that they would only have to pay the randomly drawn price which would be less than their bid price if they "won" the auction. It was then explained to participants that it was their best interests to not over-or-underbid to exchange for the steaks.

Prior to bidding for each of the value added steaks, participants were asked to read a two-page fact sheet of promotional material containing information about each of the brand name steaks. Participants were then asked to submit sealed bids of their highest willingness-to-pay for each of the steaks. Participants were told that they would randomly draw one of the steak names and a random price between \$0 and \$10 out of a hat after they submitted their sealed bids. The values between \$0 and \$10 were chosen because it is desirable to greatly exceed the realistic market price during such an auction (Feldkamp et al.). One random steak was chosen as binding to prevent wealth effects. If a person's bid for the randomly drawn steak exceeded the value of the randomly drawn price for that steak, they would exchange their generic steak for that randomly drawn steak and pay the randomly drawn price at the checkout counter.

When the participants completed the auction they were asked to complete a short questionnaire outlining their beef preferences and demographic characteristics. This information is analyzed using econometric methods (below) to help understand the factors that affect a consumer's WTP for branded beef.

³ The randomly drawn price represents the market price for the good.

3.3 Survey Procedure

A total of 5100 surveys (the survey was designed to be as similar to the BDM auction as possible) were mailed out in October, 2006 to a random sample of Canadian consumers excluding Quebec (purchased from a reputable mailing list company) and the three Canadian territories to determine WTP for several (hypothetical) brand name steaks. Quebec was excluded for several reasons. Firstly, mailing the English survey to Quebec residents may introduce bias. Those who cannot speak English may not fill out the survey (or may fill it out incorrectly due to comprehension issues). Mailing an English survey to the English parts of Quebec would not represent the entire province and thus it may not be clear who the sampling frame was. Second, translating our survey into French would add costs from both a time and money perspective and could still introduce bias because a direct translation of the English survey to French would not be equivalent. In other words, entirely new French brands would have had to be created.

The three territories were also excluded because most grocery stores in northern communities only carry frozen beef. Half of the surveys were mailed to residents of Manitoba (to provide similar numbers of respondents to each type of survey that were procured via the experimental auctions) and the other half to the remaining included provinces.

Five hundred surveys were returned undeliverable and 1,240 surveys were returned completed. This yielded a response rate of 26.96%, an excellent number for a survey using a cold mailing list. Numerous techniques were used to aid in obtaining this high response rate. Firstly, the University of Manitoba logo was clearly visible throughout the survey package. Specifically, the logo was included on the mail-out envelope, business return envelope, cover letter, information sheet, and survey instrument. It is believed that respondents are more likely to volunteer for research involving a public institution. Real stamps mail were also used as opposed to bulk on the outgoing envelopes to discourage survey recipients from tossing the survey in the garbage before opening the package. Sometimes recipients of a mail survey believe they are getting a mass mailing if postage is printed on the envelope or metered, resulting in a portion of recipients throwing out the envelope before it is opened.

As previously mentioned, business reply envelopes were included in each recipient's survey package so that the respondent would not need to use their own stamp and envelope. Each recipients' name was printed on their cover letter to aid in personalizing the survey package. Perhaps most importantly, payment for survey completion (actually, for only receiving the survey) was made. A Canadian one-dollar coin was taped to the cover letter of each survey, thanking participants for completing and returning the questionnaire. As well, since a large amount of material was mailed out in each package, the actual survey instrument of the package was printed on green paper to distinguish it from all the other material. Finally, a reminder postcard was mailed to recipients three weeks following the original survey mailing.

In the cover letter that accompanied the survey, recipients were asked to take a minute to examine the “Steak Fact Sheet” which described the hypothetical brand name beef steaks. They were also asked to fill out the two page questionnaire and mail it back in the prepaid postage envelope provided.

Two separate treatments of the survey were used. The first survey treatment was given in addition to their survey package (cover letter, business reply envelope, steak fact sheet and survey instrument), an information sheet discussing how people tend to overstate their willingness-to-pay for products and services in a hypothetical setting. This information sheet will hereinafter be referred to as a “cheap talk script”. This cheap talk script was identical to the one used in Lusk 2003, and was nearly identical to the original cheap talk script used by Cummings and Taylor (1999). Cheap talk is based on game theory principles and means non-binding communication by two or more players (Cummings and Taylor). The original script had only been modified slightly by Lusk to account for a retail environment. Recipients of the cheap talk treatment were asked to read the information sheet (cheap talk script) prior to completing the survey. The cheap talk script simply tells the survey recipient in plain English about the problem of hypothetical bias, discusses why it may occur and requests that the respondent avoid hypothetical bias when completing the survey. The other survey treatment simply received no cheap talk script.

As noted by Cummings, Harrison, and Rutstrom; Neill et al. and others, hypothetical bias is an issue in nearly all surveys that ask participants their willingness-to-pay for a product or service. Hypothetical bias occurs when participants in a study respond in a manner that is inconsistent with how they would respond if they actually had to back up their choices or were held responsible with real money (Hudson; Umberger and Feuz). The cheap talk script was included in one treatment of the survey package to try and provide a correction for the problem of hypothetical bias *ex ante* by educating people about the problem and thus encouraging people to reveal their true willingness-to-pay.

Cheap talk has been shown to be effective in eliminating hypothetical bias in several situations using different kinds of experimental auctions and contingent valuation. Cummings and Taylor found cheap talk to be successful in removing hypothetical bias from a contingent valuation study involving public goods. List found that cheap talk was successful in eliminating hypothetical bias from the valuation of private goods in several field experiments except with experienced market participants. Shorter cheap talk scripts have generally been found to be unsuccessful (Aadland and Caplan). To date the use of cheap talk in mass mail-out surveys has been very limited. Lusk found that cheap talk likely effectively removed hypothetical bias in a mass mail-out survey; however he could not be conclusive because no non-hypothetical treatment was conducted. Results from that study suggested that cheap talk significantly reduced willingness-to-pay for inexperienced consumers and did not for those more experienced consumers.

Since a limited number of studies using cheap talk have been employed to date, a control treatment survey was required to determine if there was a significant difference between the survey treatment with cheap talk, the survey treatment without cheap talk and the

experimental auction. If no significant difference is found between any of the treatments, all results may be pooled to determine willingness-to-pay for the various beef brands. If there is a significant difference between one or more of the treatments, results from one or both of the survey treatments must be calibrated to co-ordinate with our auction results.

If it is found that the cheap talk treatment yields the same results as our experimental auction, in the future it may suffice to conduct the more cost effective, representative survey as opposed to an expensive experimental auction. The survey also allows researchers to access a more broad range of consumers geographically than the auction otherwise would.

The willingness-to-pay questions used in this survey were also very similar to those used in Lusk 2003; however, they were modified to be an open-ended question to correspond with our BDM auction. An example of the opened ended question in both treatments of the survey was asked as follows:

Imagine you are purchasing a ribeye steak in your local grocery store. You can choose between *two* different ribeye steak products. One is a generic ribeye steak with no brand name. The other ribeye steak option is a **Prairie Prime** ribeye steak, with the attributes as described in the above fact sheet.

What is *the most money* you would be willing-to-pay for a **Prairie Prime** ribeye steak *over and above* the price of a generic ribeye steak? \$_____

An open-ended willingness-to-pay question was chosen as opposed to some of the other types of contingent valuation questions because it more closely corresponds with the BDM auction than dichotomous choice questions, rating and ranking questions, or choice experiment type questions.

In addition to the willingness-to-pay questions at the beginning of the survey, recipients were asked the same host of beef preference and demographic characteristic questions as in the experimental auction.

3.4 Hypothetical Brands

In order to assess WTP for branded fresh beef in Canada, it was necessary to hypothesize brands representing product attributes similar to those being marketed in the U.S. and elsewhere, and between which consumers might reasonably be expected to distinguish. Willingness to pay for the non-hypothetical Canada AAA grade of beef was also measured, in order to provide a benchmark for comparison to the hypothetical brands. The following descriptions are identical to the ones provided to experimental auction participants and survey recipients. Logos for the hypothetical brands were created by a professional graphic artist.

3.4.1 Canada AAA

Canada's second highest beef grade. Only 2% of beef production in Canada is higher than AAA.

3.4.2 Prairie Prime



Prairie Prime is Canada's premium beef offering.

"For a taste that is truly Canadian choose Prairie Prime every time".

Cattle were born and raised in the Canadian prairies to certify you get consistent premium beef every time.

All beef branded as Prairie Prime is graded at least Canada AAA or higher to ensure you enjoy some of the most flavourful, tender and juicy beef in the world.

Cattle are grain fed and aged 14 days so you get that premium prairie taste every time.

"For Beef as Beautiful as a Prairie Sunset Choose Prairie Prime".

3.4.3 Tender Grill



Tender Grill beef is guaranteed tender every single time because tenderness is what consumers like you are demanding.

Tender Grill beef is the only beef in Canada tested using Warner-Bratzler shear force values so you get guaranteed perfectly tender beef every time.

Tender Grill is grain fed and aged 21 days to ensure the utmost in tenderness, juiciness and flavour.

“Every Tender Grill beef product comes with a double your money back guarantee so if you are not happy with the tenderness of Tender Grill we’ll double your money back”.

3.4.4 Original Angus



Original Angus beef is Canada’s premiere Angus product. Only Canada Prime and the top 33% of Canada AAA black and red Angus cattle qualify to be branded as Original Angus.

Original Angus beef is always flavourful, juicy and tender because of its high standards. Angus cattle are always evaluated by independent government agents, not by in-house graders or plant employees, to ensure that only the best red and black Angus cattle become Original Angus beef.

Because the integrity of Original Angus beef is so important, Original Angus beef is monitored all the way from producers, to packers and distributors, to supermarkets by the non-profit Canadian Angus Association.

Original Angus is grain fed, aged 14 days and Angus in origin so you can always expect consistent quality when you choose Original Angus beef.

3.4.5 Nature's Diamond



- No added hormones
- No antibiotics
- Cattle are fed an ALL VEGETARIAN diet
 - No animal by-products
 - All feed tested to be free of chemical residues
- Pasture fed from birth to 15 months
- Grain fed 120 days to ensure tender beef
- Animal welfare practices are followed to ensure
 - Low stress
 - Friendly animal surroundings
 - Clean water
 - Natural feed
- Environmental practices are followed to respect land

Part 4: Experimental Auction and Survey Results

4.1 Overview

As noted above, experimental auction and survey methods were used to ascertain the extent to which Canadian consumers are willing to pay for fresh branded beef products. The results of these methods are discussed in detail in the two sections that follow. First, the WTP results themselves will be analyzed. After that, results of econometric models used to attempt to determine the factors affecting WTP are introduced.

4.2 Willingness-to-Pay for Branded Beef Products

The following section provides a graphical representation of results as well as discussion regarding WTP for brand name beef products. Mean WTP is depicted in this section with respect to the three treatment methods used (experimental auction, cheap talk survey and conventional survey) and other various demographic variables.

4.2.1 Comparing Mean Willingness-to-Pay for Branded Beef Products by Treatment

Figures 1 through 5 show mean WTP premiums for each of the brand names and Canada AAA steaks for the experimental auction, cheap talk survey and conventional survey respectively. From these figures it is clear the experimental auction consistently had the lowest mean WTP for each of the brand name steaks as well as the Canada AAA steak, with the cheap talk survey and conventional survey yielding the second-lowest and highest WTP, respectively. These results were not unexpected; however, it was thought that the cheap talk survey mean WTP might be closer to that of the experimental auction.

Figures 6, 7 and 8 show mean WTP values for each of the brand name and Canada AAA steaks in the experimental auction, cheap talk survey and conventional survey respectively. It is interesting to note that in the experimental auction, Tender Grill had the highest mean WTP (although only by one cent over Nature's Diamond and Original Angus). In both surveys, Original Angus had the highest mean WTP followed by Nature's Diamond. One possible explanation for the discrepancies is that in the experimental auction, participants were able to ask the researcher questions regarding each of the brands. The researcher responded to the participants' questions with standardized answers ensuring each participant got the same information. It is possible participants whom asked for additional information for one or more of the brands modified their opinion in favour of Tender Grill in the experimental auction.

Another interesting note about Figures six through eight is that in the experimental auction the Canada AAA steak had the lowest mean WTP of all the steaks tested. Although this is not surprising, the same was not the case in either of the survey treatments. In both survey treatments, the Canada AAA steak had a mean WTP nearly equal to or slightly higher than Prairie Prime and Tender Grill suggesting that creating brands such as those may not be warranted given additional production and processing costs associated with those brands. However, as previously mentioned, it is clear from the figures that respondents in each of the three treatments are willing-to-pay more on average for Original Angus and Nature's Diamond.

4.2.2 Willingness-to-Pay Premium Distributions

Figures 9 through 12 illustrate the distribution of premiums consumers were willing-to-pay for each of the brands over Canada AAA for the experimental auction. From these it is visible that there are a portion of consumers whom are willing-to-pay more for each of the brand name steaks over the Canada AAA steak. However, the most common valuation by far from participants was an equal WTP between the Canada AAA and brand name steaks. From these figures it is also clear that a portion of respondents valued the branded steaks less than the Canada AAA steak. This is somewhat counterintuitive for some of the brands. For example, the Prairie Prime brand offers the consumer the same attributes as the Canada AAA in addition to several more attributes and yet is valued less by some. This may be explained by one of three things: first, it is possible the respondent did not read (or fully read) the fact sheet explaining each of the brands and their attributes; certainly this is expected to occur for some consumer purchasing

decisions. In actual buying situations, consumers are exposed to product advertising which they are able to disregard if they so choose. The fact sheet employed in this research was used as a proxy for informative advertising and it is possible that some of the experimental auction participants chose to pay no attention to the fact sheet. A second possibility is that the respondent actually believes that the brand is a negative attribute i.e. making the Prairie Prime steak the less desirable product. A third and final possibility is that perhaps the consumer merely evaluated the steak on a visual basis and discounted all other information. Because beef is a biological product, no two steaks will look identical. A consumer may simply like or dislike the look of a steak and choose one steak over another for that reason without taking the attributes of a particular brand into consideration.

Figures 9 through 12 further demonstrate that:

- nearly 28% of participants were willing-to-pay \$0.51 or more for the Prairie Prime steak over the Canada AAA steak
- nearly 37.2% of participants were willing-to-pay \$0.51 or more for the Tender Grill steak over the Canada AAA steak
- nearly 32.6% of participants were willing-to-pay \$0.51 or more for the Original Angus steak over the Canada AAA steak
- nearly 35.2% of participants were willing-to-pay \$0.51 or more for the Nature's Diamond steak over the Canada AAA steak

These results suggest there may be some kind of niche market possible for products similar to the brands in this study.

Similar premium distributions were obtained for the cheap talk and conventional surveys, however for the interest of space only the experimental auction premium distribution graphs have been included. However, one difference of note between the premium distributions of the other treatments is the number of zero bids. Figure 13 shows the percentage of zero bids in the experimental auction, cheap talk survey and conventional survey. The experimental auction, cheap talk survey and conventional survey had 20%, 32% and 23% zero bids in each of their respective treatments. It was expected that the experimental auction and cheap talk survey would have similar percentages of respondents bidding zero and a smaller percentage of respondents from the conventional survey bidding zero. Thus, it was slightly unexpected to find that the cheap talk survey had a higher percentage of respondents bidding zero than the experimental auction.

4.2.3 Mean Willingness-to-Pay Premiums by Demographic Variable

Figure 14 depicts mean WTP premiums for each of the brands broken down by gender for the cheap talk survey (other treatments excluded for brevity). One note of particular interest is the fact that for females, the brand with the highest mean willingness-to-pay is

Nature's Diamond and for males it is Original Angus. Another observation worth noting is that in general, males have higher mean WTP values for each brand name and Canada AAA steaks with the exception of Nature's Diamond.

Figure 15 depicts mean WTP premiums for each of the steaks broken down by province for the cheap talk survey. Prior to putting much weight on this figure, it should be noted that there is a considerable amount of variation in the number of observations for each province. Manitoba accounts for about half of the number of total observations and Saskatchewan, New Brunswick and Newfoundland have only a handful of observations each.

Manitoban, British Columbian and Ontarian respondents had highest mean WTP premiums for the Original Angus and Nature's Diamond brands. Interestingly, Prairie Prime and Tender Grill were valued most by those from Alberta leaving Original Angus lagging far behind. Saskatchewan, New Brunswick and Newfoundland have too few observations to make any concrete observations.

Figure 16 shows mean WTP premiums for each of the steaks with respect to the various levels of education in the cheap talk survey. A few things are worth noting. First, those with some college or university but no degree have the highest mean WTP for each brand of steaks as well as the Canada AAA steak. Another interesting observation from the figure is those people with a Master's degree or PhD have the lowest mean WTP for each of the steaks with the exception of Nature's Diamond. This could suggest marketing should not be directed towards the most educated people unless it is for Nature's Diamond.

Figure 17 depicts mean WTP premiums for each of the brands with respect to age categories for the cheap talk survey. It is of considerable interest that mean WTP values decline as the age categories progress resulting in the 18-24, and 75+ categories having the highest and lowest mean WTP premiums for each of the brands and Canada AAA respectively. This leaves each of the remaining categories somewhere in the middle. This may indicate marketing efforts for brand name beef should be generally focused on younger consumers.

Figure 18 shows mean WTP premiums for each brand, broken down across income categories. The figure shows a slight increase in mean WTP premiums in accordance with increasing incomes. However, this is clearly not universally the case for each of the brands or categories. For example, respondents in the \$30,000-\$59,999 income category have a higher mean WTP for Prairie Prime and Nature's Diamond than the \$60,000-\$89,999 income category.

Figure 19 shows mean WTP premiums for each of the steaks with respect to the grades of beef the respondent typically purchases. People who do not know what grade of beef they typically purchase, typically purchase Canada A, or a combination of Canada A & AA are generally not willing-to-pay much more for brand name or Canada AAA steaks. Respondents whom typically purchase Canada AAA or a combination of Canada AAA &

AA are generally more likely to be willing-to-pay more for brand name and Canada AAA steaks.

Figure 20 shows mean WTP premiums for each steak with respect to seven confidence levels. A couple of things stand out in this figure. Firstly, WTP premiums are very low for those with a -3 confidence level with exception of Nature's Diamond. An explanation for this is that perhaps respondents with this -3 confidence level have low confidence because of the use of hormones, antibiotics, non-vegetarian by-products and animal welfare issues sometimes associated with cattle production. Thus, this type of respondent is only willing-to-pay more for brands such as Nature's Diamond that is produced with no hormones, antibiotics, etc. The second notable item about this figure is from respondents with a confidence level of -2. Respondents with a confidence level of -2 had a higher mean WTP for Tender Grill than for all the other steaks. Perhaps this is because respondents with a confidence level of -2 are not confident in beef because they feel that the eating quality of steak is not good enough and steaks from the grocery store are tough. This results in these respondents having higher WTP premiums for brands such as Tender Grill.

4.3 Econometric Model Results

As important as understanding the levels of WTP for branded fresh beef is understanding of the factors that affect those WTP levels. Econometric modeling of WTP results from the experimental auctions and surveys was undertaken for this report.

4.3.1 Overview of Econometric Models

Willingness-to-Pay for fresh branded beef products was hypothesized to be a function of the number of times per week the participant/respondent (hereafter, respondent) eats beef (those who eat more beef are viewed as more likely to pay for fresh branded beef), their preference for the product's name (those who like the name and/or logo of a brand are clearly more likely to pay more for it), their confidence in purchasing beef products (expected sign indeterminate; on one hand those confident when purchasing beef may pay more because they understand the desirability of the characteristic being branded, but on the other hand such individuals may not *need* the brand to convey such information), and a number of demographic characteristics. For this study, these demographic characteristics included a binary variable for gender (male = 1), and categorical variables for age, income, and education, as well as a variable for number of persons in the respondent's household. The confidence and name preference variables were on a seven-point Likert scale. Tobit models were used in all cases for the econometric modeling.

4.3.2 Experimental Auction Results

The results of the econometric model described in the previous section for the experimental auction data are provided in Table 1. The effects of each of the factors described above on WTP for each of the hypothetical brands, along with Canada AAA

beef, are shown. Statistical significance at the 0.05 and 0.10 test sizes is denoted by double and single asterisks, respectively.

The name preference variable (Like Name) was positive and statistically significant at the 5% level for each of the brands. This means that the more a respondent likes a branded beef product's name & logo, the more they are willing to pay for that product. For example, in Table 1, the 0.2076 coefficient on "Like Name" for Tender Grill means that for each one-unit increase in a respondent's Likert scale response regarding preference for a name, that respondent is willing-to-pay about 21 cents more for a 12-oz. steak bearing the Tender Grill brand compared to a generic ribeye steak. The greatest effect of name on WTP was for the Nature's Diamond brand, where the analogous amount was 37 cents.

The signs on the coefficients for the "confidence" variable were all negative, though only for Prairie Prime was the coefficient statistically different from zero. For that brand, for each one-unit increase in a respondent's Likert scale response regarding their confidence in purchasing beef, there was an 18 cent decrease in their WTP for Prairie Prime. Coupled with the negative (though statistically insignificant) parameters for the other brands (and Canada AAA beef), this results supports the hypothesis that those considering themselves experienced beef shoppers will not pay more for branding that helps them understand particular fresh beef attributes.

Each of the demographic variables had a statistically significant effect upon WTP for at least one brand. The binary variable for gender was positive for all brands and statistically significant for Prairie Prime and Original Angus brands. For the latter, males indicated a WTP of over sixty-six cents for a steak bearing that brand vs. generic. The general finding of a positive effect for "gender" indicates that the brands are more effective in swaying male beef purchasers than females, and thus brand advertising should be targeted to that demographic where possible.

The effect of age upon WTP for premium fresh beef products was generally negative and statistically significant in most cases. The two exceptions were Prairie Prime, which had a very small negative but statistically insignificant coefficient, and Nature's Diamond, which had a positive and statistically significant coefficient. This means that in general, as people grow older their WTP for branded beef products dwindles, except for Nature's Diamond and its associated implied health benefits. The strongest negative effect of age on WTP for a brand was upon Original Angus, where a one-unit increase in age category reduced WTP by nearly 24 cents per steak.

It was thought that income would exert a positive influence upon WTP for fresh branded beef. It seems logical that since branded beef would in general be viewed as a premium food product, those with greater incomes would be willing to pay more for such products, all other things being equal. However, this was not found to be the case with the experimental auction data. The effect of income upon WTP was in general very small, and only for AAA beef (fifteen cent increase in WTP for a one-category increase in income) was it statistically significant. There are two potential reasons for this: first, it

may be that even though the branded products are “premium” compared to the generic steak being provided, the cut of steak itself (ribeye) is a premium cut. Also, beef is itself not necessarily regarded as a premium food product, especially by those approaching the meat counter in a typical Winnipeg grocery store. As such, WTP for branded beef may not depend very heavily on prospective buyers’ level of income.

Education was not found to affect WTP for fresh branded beef products for the most part. Coefficients on that variable were of mixed sign for the various brands and generally statistically insignificant. The notable exception was for Nature’s Diamond, for which a one-category increase in education increased WTP by around 10.65 cents per steak. According to the experimental auction results, more educated people will thus pay a premium for Nature’s Diamond beef.

Results for “family size” (number of persons in the respondent’s household) were similarly mixed, with three negative coefficients and two positive ones. However, none of the coefficients was statistically different from zero. As such, it is clear that the number of people in a household cannot be said to influence a buyer’s WTP for branded beef in any important way.

Taken as a whole, the result of econometric modeling of the experimental auction data can be said to indicate that preference for name/logo and gender (being male) exert positive influences upon WTP for branded beef products. Conversely, confidence in beef purchasing and increasing age exert negative influences. Number of times per week beef is eaten, income and education all have smaller and indeterminate effects, and there is no evidence that household size affects WTP for fresh branded beef at all.

4.3.3 Cheap Talk Survey Results

Including a cheap-talk script in a mail-administered survey is considered by many to be an effective method of reducing hypothetical bias. Results of the cheap-talk survey should be carefully considered and measured against those from experimental auctions; these two methods are regarded as the two most effective ways to elicit true consumer WTP for products.

As Table 2 shows, number of times per week beef is eaten by respondents was not found to exert a statistically significant effect upon WTP for fresh branded beef products for any of the brands. In general the magnitude of the coefficients was small, and the sign of the coefficient was not consistent over brands.

Respondents’ preference for name was found to be positive and statistically significant for each of the brands, as it was for the experimental auction data. However, the magnitude of the coefficients was much larger for the cheap-talk survey data than for the experimental auctions. The largest effect of name preference upon WTP was for Original Angus, for which respondents indicated an increase of 61 cents per steak in WTP for every one-unit increase in Likert scale response for name preference. By comparison, the

experimental auction data yielded an analogous coefficient of only 29 cents. The data generated from the experimental auction is considered by most researchers to be superior.

Respondents' rating of their confidence in purchasing beef was again found to have a negative or very small effect upon WTP for the brands. However, WTP for AAA beef was found to be positively affected by confidence in the cheap-talk survey data. By comparison, the WTP for AAA beef was statistically insignificant and of opposite sign in the experimental auction data.

As did the experimental auctions, the cheap-talk survey showed that the effect of gender upon WTP is generally positive and statistically significant. The notable exception is for Nature's Diamond, where being a male had a statistically significant and *negative* effect on WTP.

The effect of age upon WTP for fresh branded beef was again found to be negative and statistically significant, but for the cheap-talk data this effect was uniform across *all* brands, including Nature's Diamond. One possibility for this effect is that as respondents' age increases, so does the likelihood that they bear responsibility for multiple dependents, and so are less likely to purchase premium beef products. However, given the lack of a statistically significant effect of family size upon WTP, this is not likely to be the case. It is more probable that as respondents' age increases, they simply are not as interested in trying premium products in a food category that may be regarded as a staple of their diet.

In contrast to the experimental auction data, the cheap-talk survey data demonstrated a strong positive relationship between income and WTP. In general, every one-category increase in respondents' income was found to result in a 20 to 25 cent increase in WTP, with slight variations among the brands. The effect was strongest for Prairie Prime and weakest for Original Angus, though there was not much difference between the two.

Education was once again to exert a generally small or negative effect upon WTP. The coefficients were of uniform negative sign for each of the brands using the cheap-talk data, and were statistically significant for the Prairie Prime and Tender Grill brands. Viewed in concert with the experimental auction results, this is considerable evidence that as a consumer's level of education increases, his WTP for fresh branded beef products does not. In fact, the opposite effect may be expected.

Altogether, data from the cheap-talk survey yielded econometric model results that were very similar to those from the experimental auction data, though there were notable differences. Perhaps most importantly, coefficients obtained for the cheap-talk data were typically of greater magnitude than those for the experimental auction data, this is due to the higher overall WTP stated by respondents in the survey data, as discussed previously.

4.3.3 Conventional Survey Results

Perhaps the most commonly-used approach to elicit consumer WTP has been the conventional mail-out survey. As noted earlier, this method is believed to suffer from

hypothetical bias and thus result in overstated WTP. Such a survey was nevertheless conducted as a component of this research, in part to illustrate the key differences in results obtained using different methods of eliciting WTP.

The econometric model results using conventional survey data are shown in Table 3. The differences between results from the conventional vs. cheap-talk survey are immediately evident. For example, the number of times beef is eaten per week exerts a pervasively negative (though statistically insignificant, except for Nature's Diamond) effect upon WTP, whereas in the cheap talk survey the analogous effect was positive more often than not, and in the experimental auction, the effect was almost wholly positive.

Important differences between the conventional survey and the other methods with respect to the effect of increased confidence in purchasing beef upon WTP are also clear. For the conventional survey data, that effect is positive for all brands except Nature's Diamond, though it is only statistically significant for AAA beef. By contrast, the effect was *negative* for all of the brands in the experimental auctions. The effect was also negative for a majority of the brands using data from the cheap-talk survey. The coefficients on the name/logo preference variable are all positive and statistically significant for the conventional survey data, just as they were for the experimental auction and cheap talk data. For some of the brands, the coefficients are similar for the three brands; for others they are markedly different. For instance, the name preference coefficient for Original Angus for the conventional survey was 0.5538, but for the experimental auction was roughly half as much, 0.2871.

Gender (male) was once again found to exert a positive effect upon WTP, and for three of the five types of beef it was statistically significant. Age was once again found to cause WTP for fresh branded beef to be lower, with the coefficients being statistically significant for each of the four brands as well as AAA beef. The final three demographic variables had no statistically significant effect on WTP for any of the beef brands. That finding stands in stark contrast to both the experimental auction and cheap-talk survey results, in which income and education were found to be statistically significant for at least one of the brands.

It is therefore clear that important differences exist in the signs, magnitudes and statistical significance of the coefficients depending on the elicitation procedure used to measure consumer WTP for branded beef products. It is generally believed that experimental auction results are the most reliable, and from the results of all three methods, it is clear that very different (i.e. incorrect) results can be obtained if the "wrong" method is chosen. Given that there are considerable differences in the resources needed to conduct experimental auctions vs. mail-out surveys, researchers are thus forced in some ways to make choices with respect to tradeoffs between precision and costs.

Tables 4 through 8 present Tobit model results by treatment for WTP for AAA beef and each of the hypothetical brands.

Part 5: Summary & Conclusions

5.1 Summary

The two main objectives of the research reported here were (1) to investigate the extent to which branded beef programs are currently being used in Canada and to analyze the factors which may have limited the adoption of such programs, and (2) to determine Canadian consumer preferences for branded beef product attributes and calculate the willingness-to-pay for those attributes.

As can be expected with a research project of this duration (more than two years elapsed between the starting and finish of the work), the research objectives and methodology evolved as did the researchers' understanding of the problem being investigated. Nevertheless, the two principal objectives were accomplished, as were others that became germane to the research along the way.

Three major activities were undertaken as part of this research. The first was a thorough investigation of the current availability of branded beef in Canada, associated with objective (1) above. This activity was carried out by a graduate student in the summer of 2005 via an exhaustive review of individual grocery retailers' offerings of fresh beef products, which included in-depth interviews with representatives from Canada's major grocery chains.

The second major activity was the design and implementation of experimental auction and survey methods to assess consumer WTP for fresh branded beef products. Four hypothetical brands were devised by the researchers, each representing particular brandable attributes of beef products. BDM auction procedures along with cheap-talk and conventional surveys were used to measure consumer WTP for each of those brands as well as Canada AAA beef. The results of those methods were then compared, and it was noted that the experimental auctions, cheap-talk surveys and conventional surveys, in that order, provided the lowest, second-lowest and highest WTP estimates. Given that BDM auctions are regarded as incentive-compatible in the experimental economics literature, it was concluded that there is a distinct tradeoff between the cost of the various methods used to elicit WTP and the hypothetical bias associated with the methods.

The final major activity of the project was to construct an econometric model of the factors affecting consumers WTP for branded beef. Using Tobit models, WTP premiums for Canada AAA beef and each of the four hypothetical brands were modeled as a function of the number of times beef was eaten per week by the respondent, the respondent's preference for the hypothetical brand's name, the respondent's self-assessed confidence in choosing beef products, as well as their gender, age, income, education level and family size.

5.2 Conclusions

Four main conclusions are drawn based upon the researchers' findings:

5.2.1 Fresh Branded Beef Offerings in Canada Lag Behind Those in the U.S.

It was found that the availability of fresh branded beef products in Canada in general are not as broad as those in the United States. It was further discovered that individual grocery chains are taking the initiative to develop their own branded products in many cases. In many ways this contrasts with the early days of developing branded beef offerings in the U.S., when producer groups played a significant role in that regard. Nevertheless, there may be possibilities for alliances to seize opportunities to develop brands based upon levels of consumer WTP discovered during this research.

5.2.2 Canadian Consumers Are Willing-to-Pay for Brandable Beef Attributes

It was demonstrated that consumers are WTP for branded beef or, more precisely, beef attributes that would typically be associated with (represented by) brands. Using three methods for eliciting WTP, premiums for branded beef products vs. their generic counterparts were calculated. The experimental auction results are generally regarded as the most accurate, and they indicate that consumers are willing-to-pay anywhere from \$1.12 per steak (AAA) to \$1.32 per steak (Tender Grill) more for a product with brandable attributes.

The potential thus exists to improve co-ordination in the Canadian beef supply chain via alliances dedicated to the provision of beef products with brandable attributes. There will be extra costs associated with branding, so a calculation of those costs should be carried out and weighed against the benefits described in this report. Doing so would provide an indication of whether opportunities for profit based upon branding strategies for beef exist.

5.2.3 Several Factors Affect Consumers' Willingness-to-Pay for Branded Fresh Beef

It was found that there are factors which generally have a statistically significant effect upon WTP for fresh branded beef. For instance, name preference for all products has a positive effect, whereas respondent age has a negative effect upon WTP, almost without exception. Various other factors have a statistically significant effect only for a few of the hypothetical brands. For example, male respondents indicated a positive WTP for Original Angus and Prairie Prime, but not Tender Grill or Nature's Diamond.

5.2.4 Care Must be Taken When Selecting a Method for Eliciting Consumer Willingness-to-Pay

It was found that estimates of WTP can vary significantly depending upon treatment type. For instance, the average premium respondents were WTP for Original Angus was found to be \$1.31 per steak using the experimental auctions, but was estimated to be 40% more

(\$1.83) based upon data from a conventional survey. This is clearly a non-trivial difference.

However, the extra precision associated with more complex methods comes at a price. It was discovered that the experimental auction procedure was nearly four times as expensive per respondent (\$16.39 vs. \$3.72) than the survey methods. The researcher thus has a choice to make with respect to the tradeoff between accuracy and expense. It is thus apparent that great care must be taken in market research when selecting the method used to elicit WTP.

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Figure 1. Mean Consumer Willingness-to-pay for Canada AAA

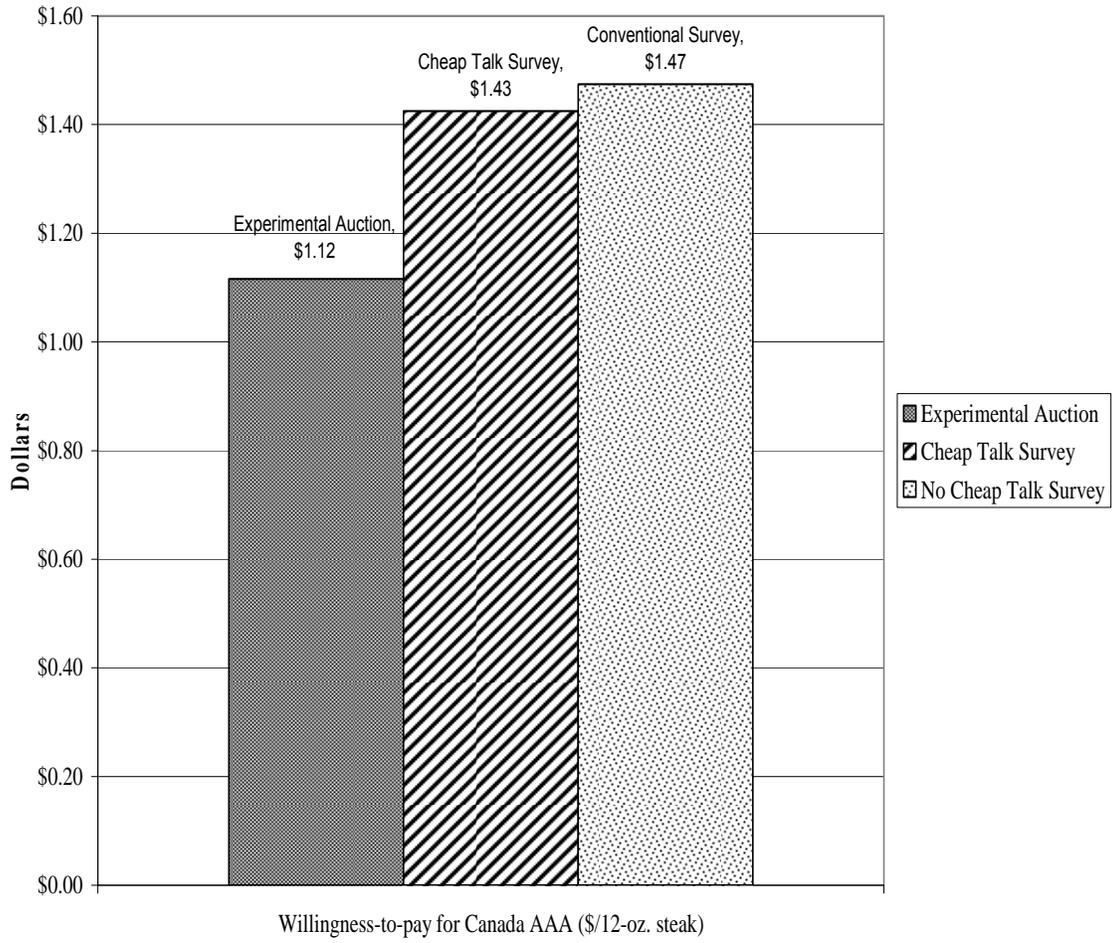


Figure 2. Mean Consumer Willingness-to-pay for Prairie Prime

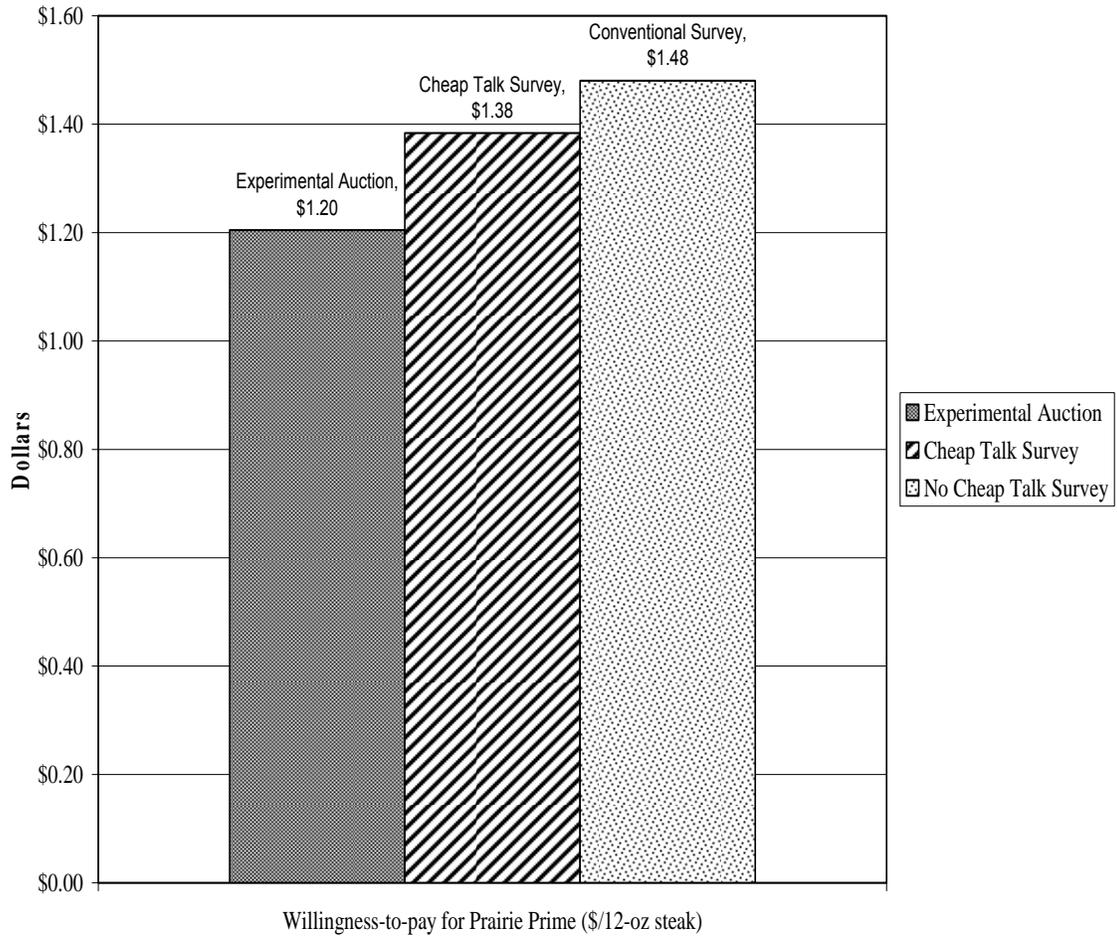


Figure 3. Mean Consumer Willingness-to-pay for Tender Grill

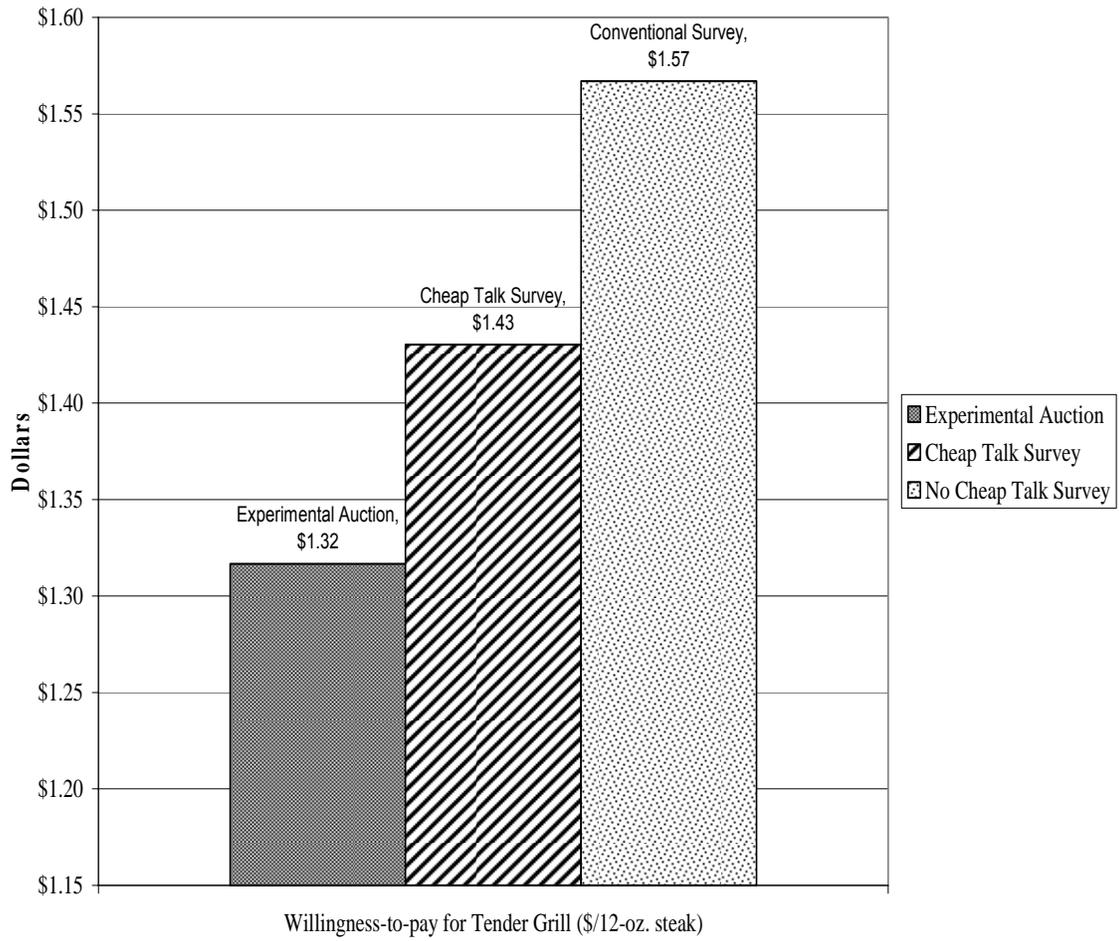


Figure 4. Mean Consumer Willingness-to-pay for Original Angus

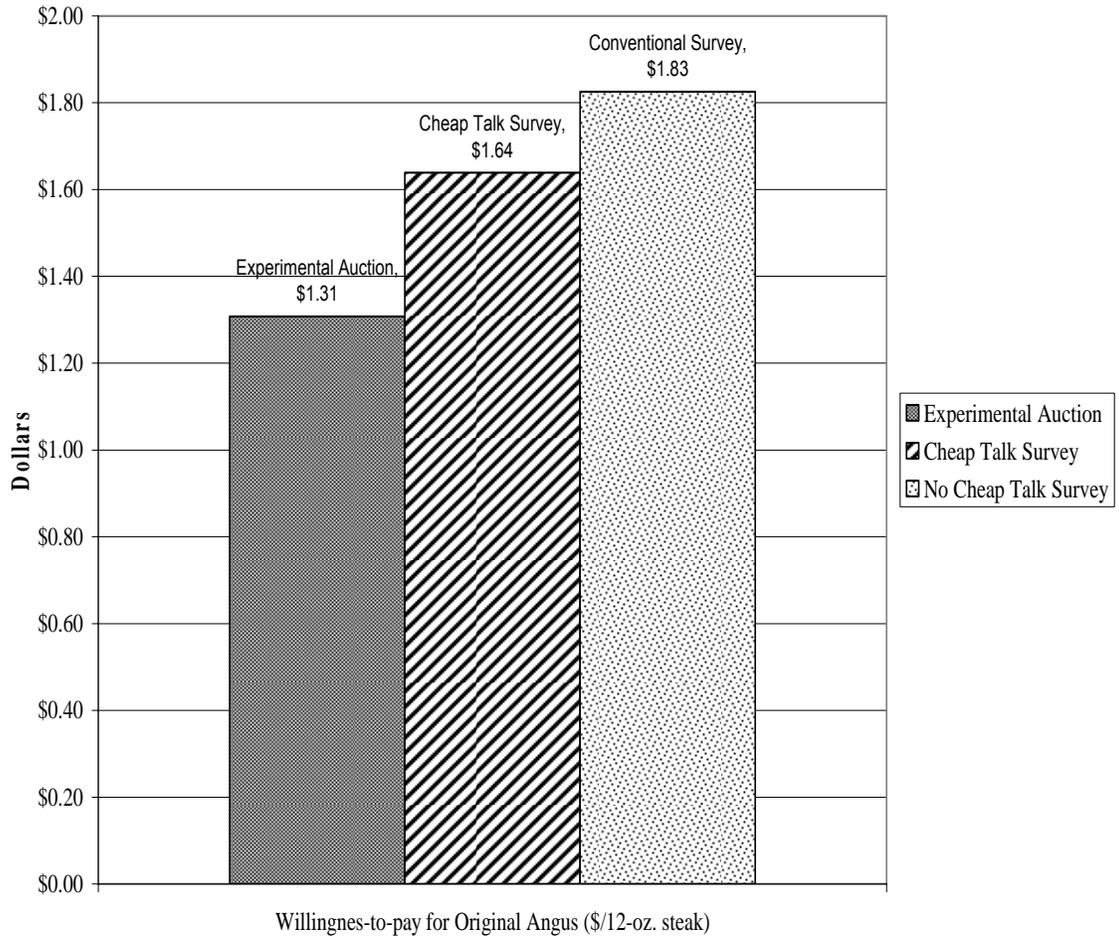


Figure 5. Mean Consumer Willingness-to-pay for Nature's Diamond

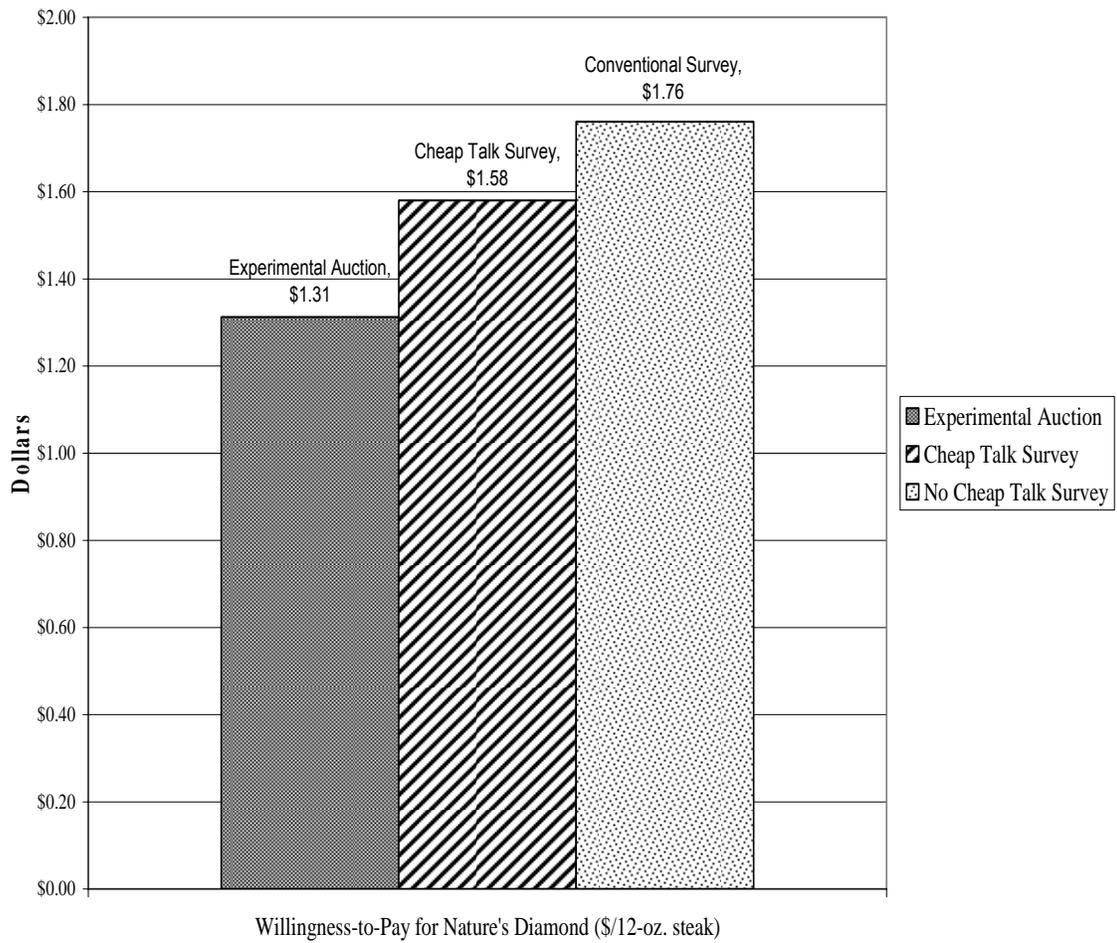


Figure 6. Experimental Auction. Mean consumer willingness-to-pay premiums for Canada AAA, Prairie Prime, Tender Grill, Nature's Diamond and Original Angus steaks relative to generic beef

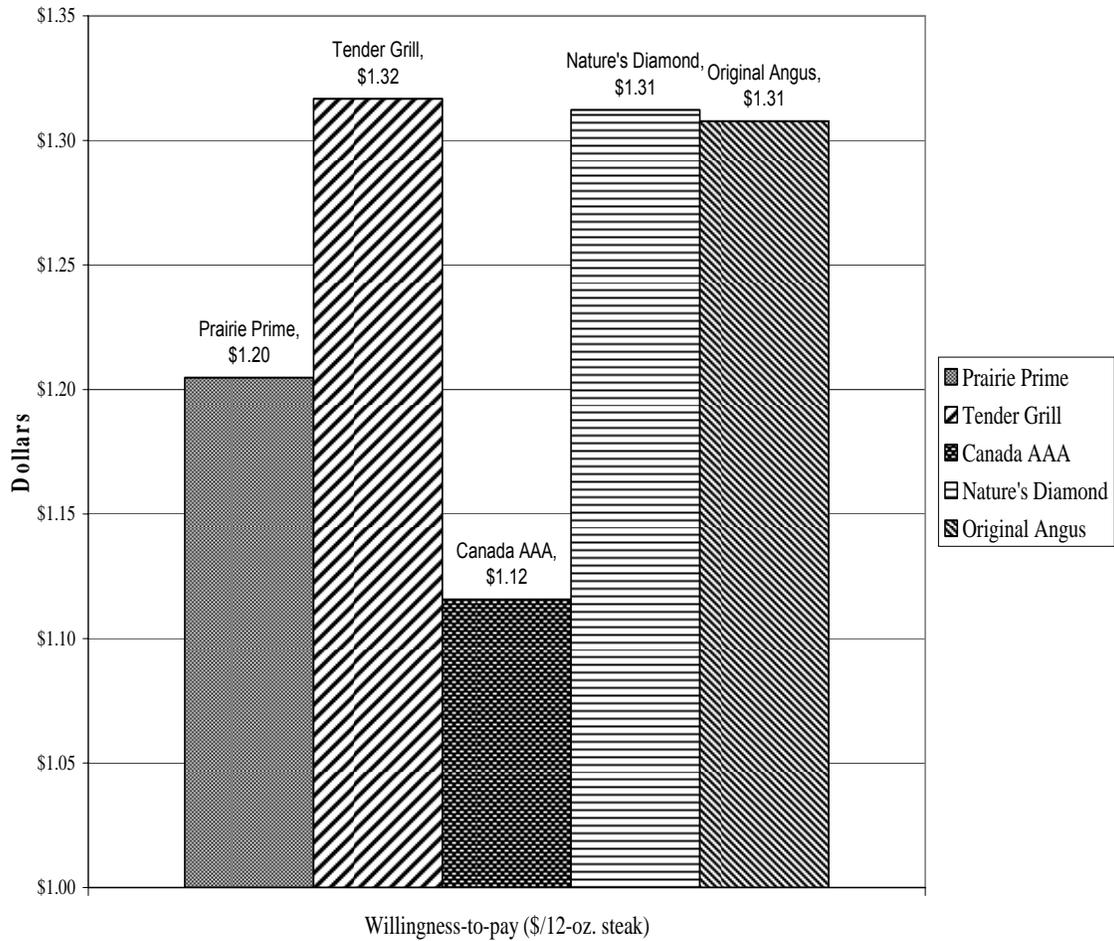


Figure 7. Cheap Talk Survey. Mean consumer willingness-to-pay premiums for Canada AAA, Prairie Prime, Tender Grill, Nature's Diamond and Original Angus steaks relative to generic beef

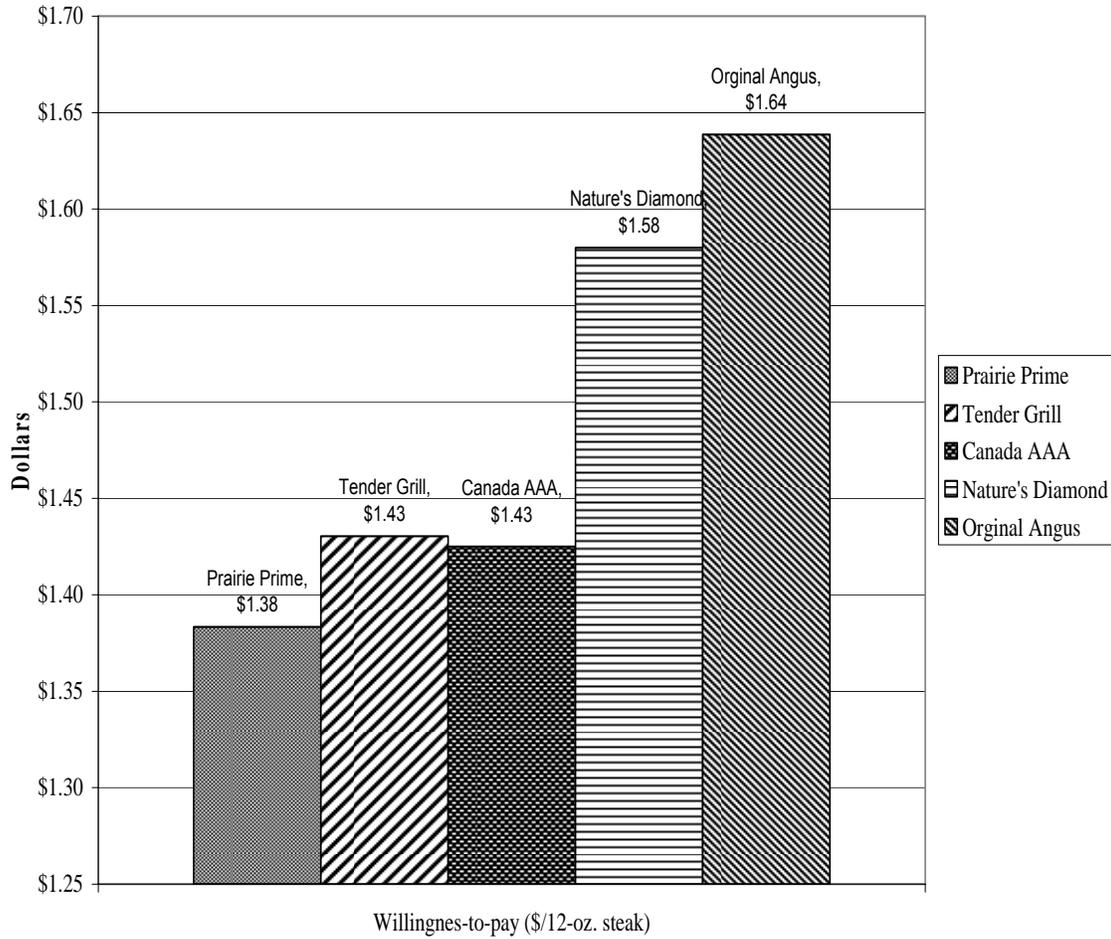


Figure 8. Conventional Survey. Mean consumer willingness-to-pay premiums for Canada AAA, Prairie Prime, Tender Grill, Nature's Diamond and Original Angus steaks relative to generic beef

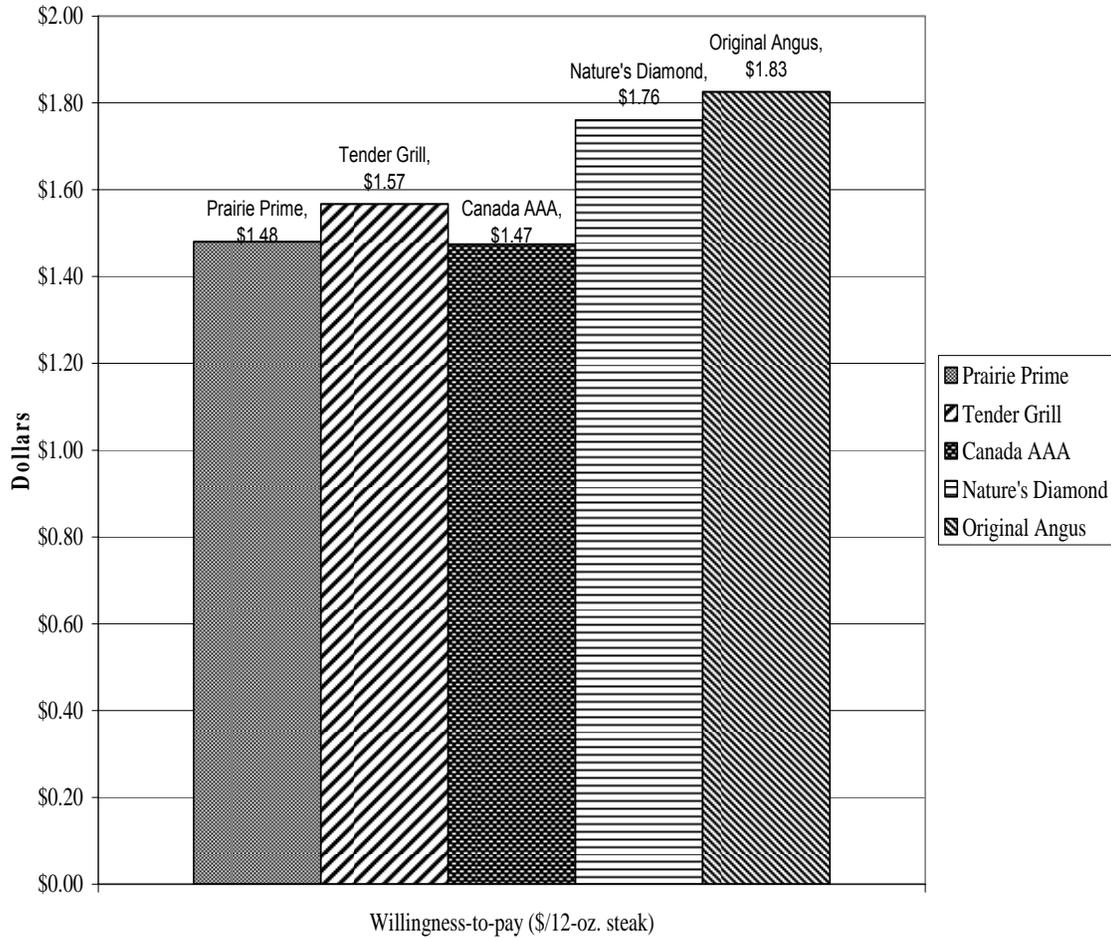


Figure 9. Experimental Auction Premiums Consumers were Willing-to-pay for Prairie Prime over Canada AAA

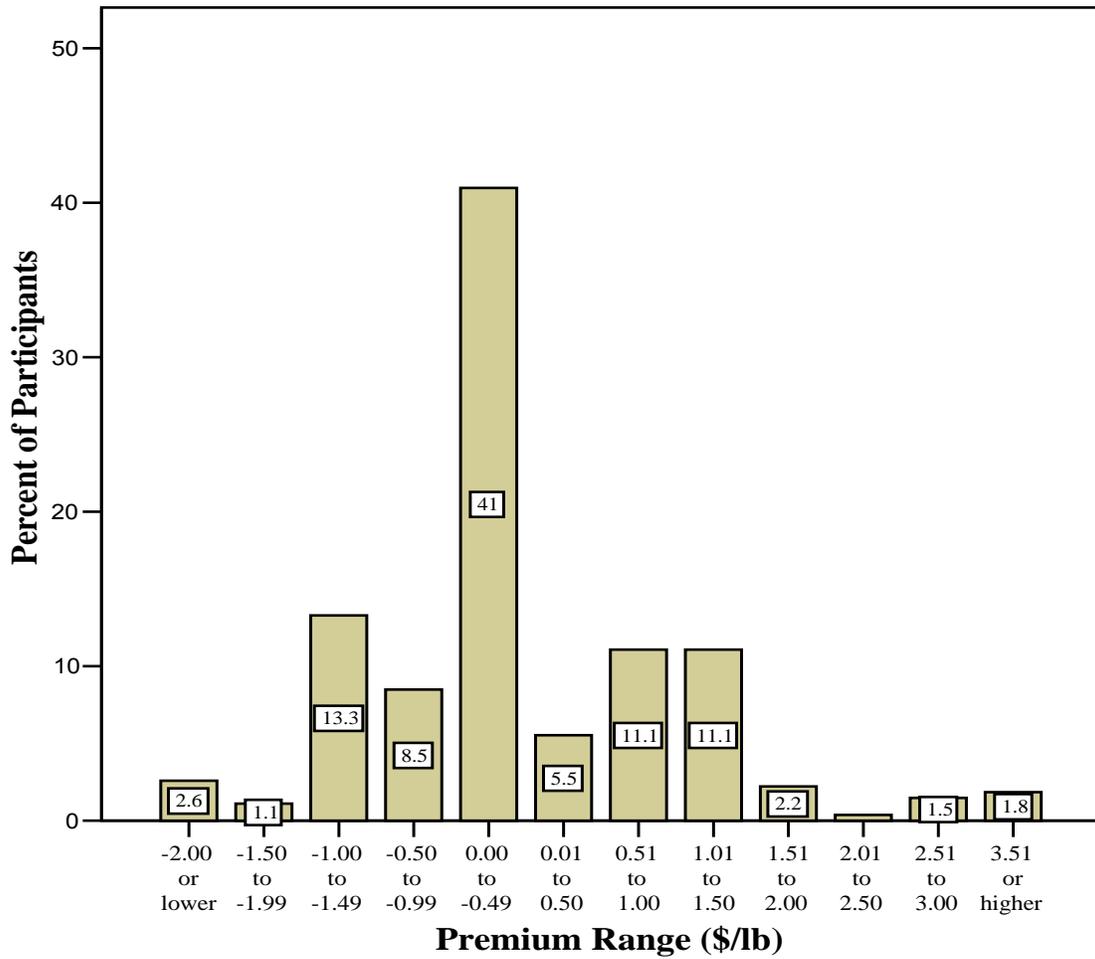


Figure 10. Experimental Auction Premiums Consumers were Willing-to-pay for Tender Grill over Canada AAA

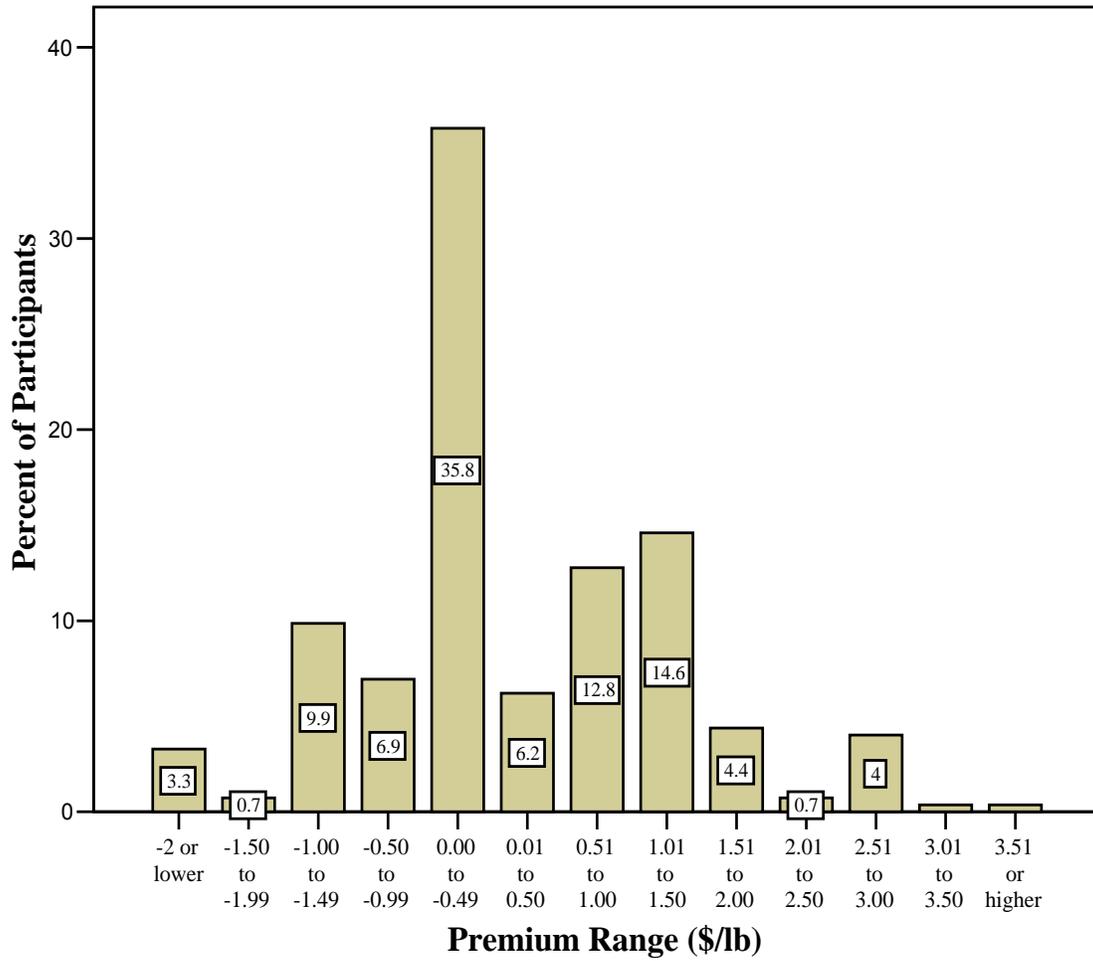


Figure 11. Experimental Auction Premiums Consumers were Willing-to-pay for Original Angus over Canada AAA

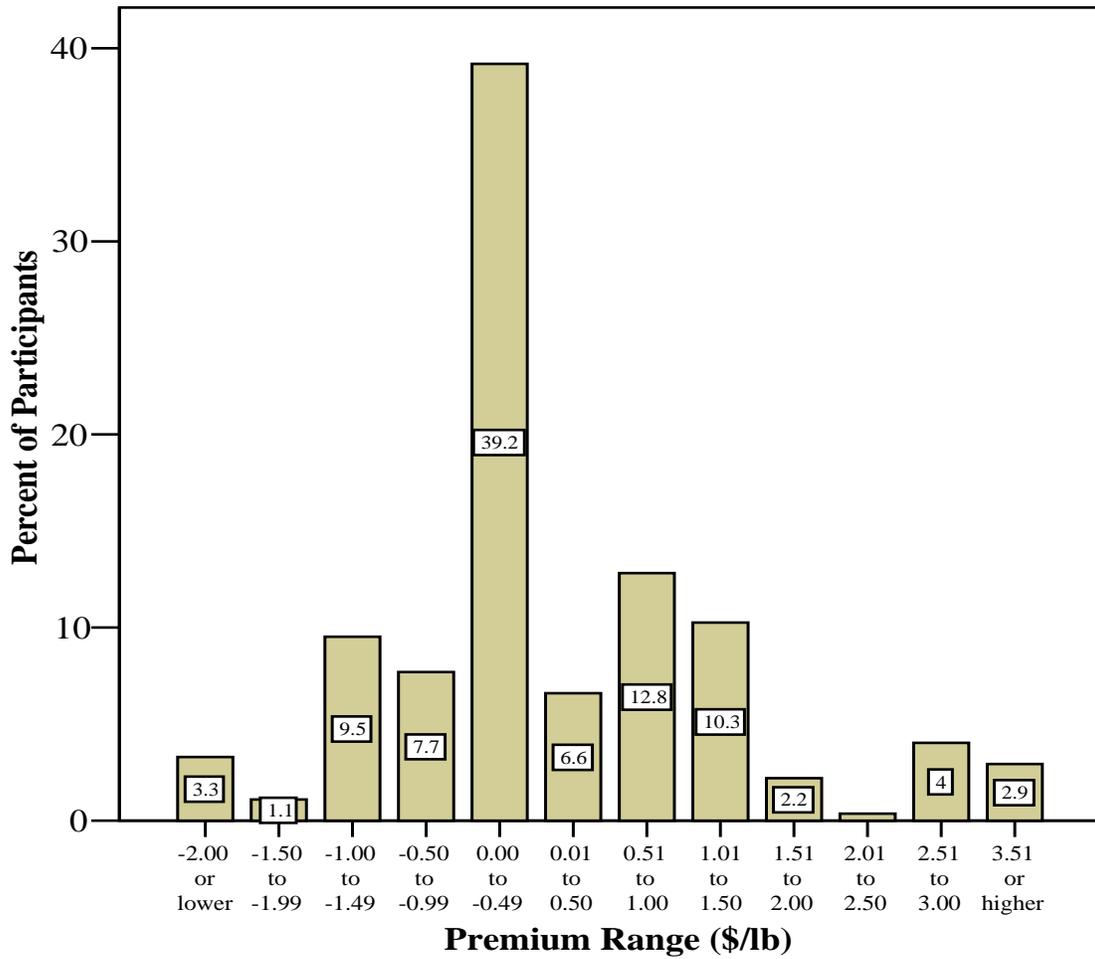


Figure 12. Experimental Auction Premiums Consumers were Willing-to-pay for Nature's Diamond over Canada AAA

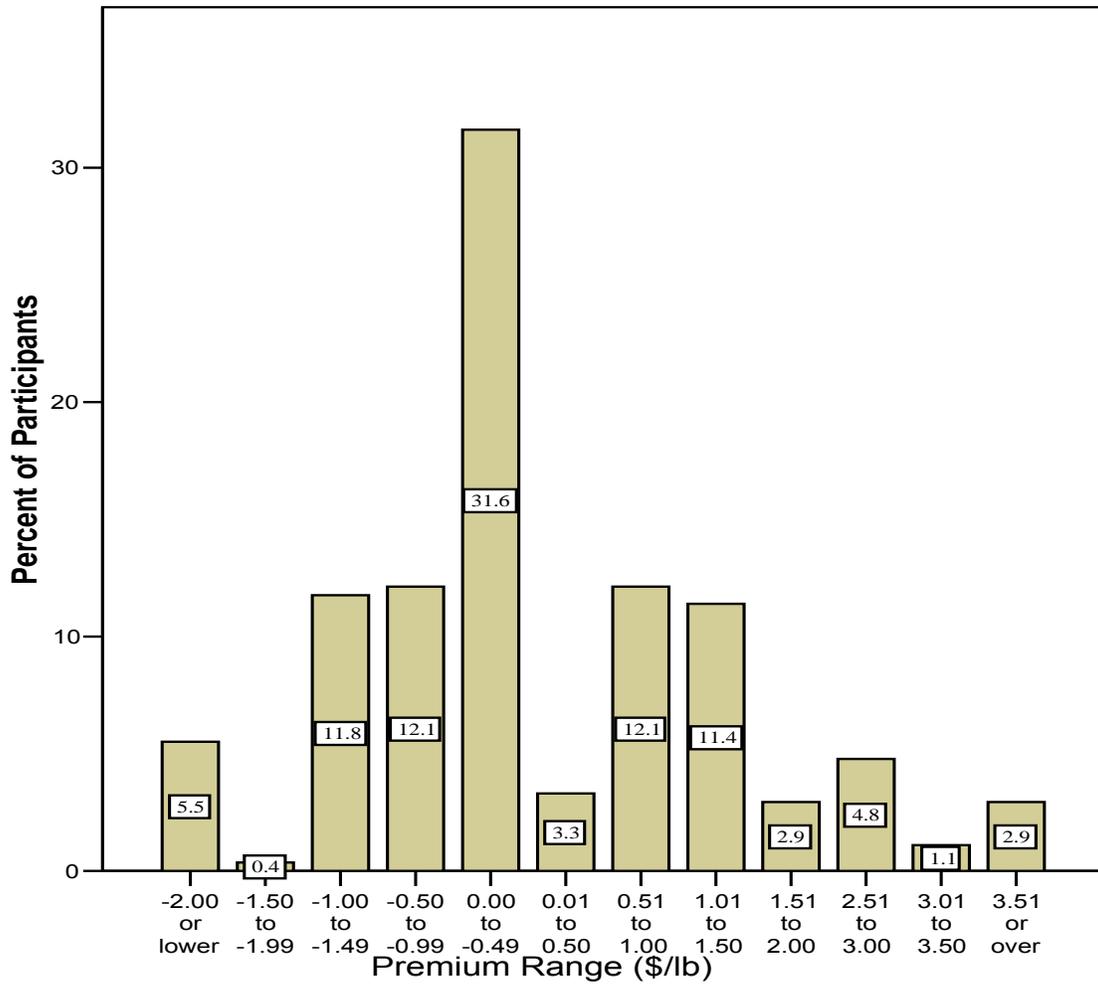


Figure 13. Percentage of zero bids by treatment type.

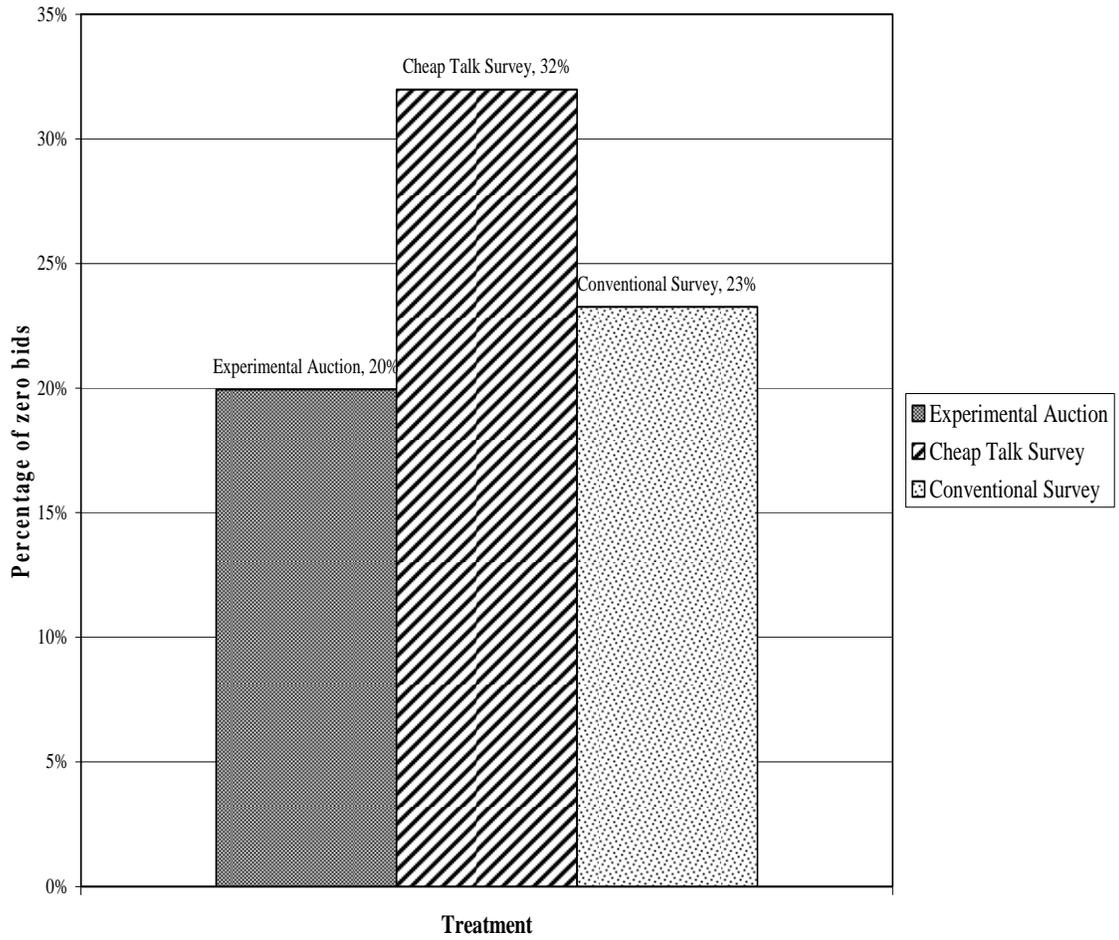


Figure 14. Cheap Talk Survey. Mean willingness-to-pay premiums for females and males.

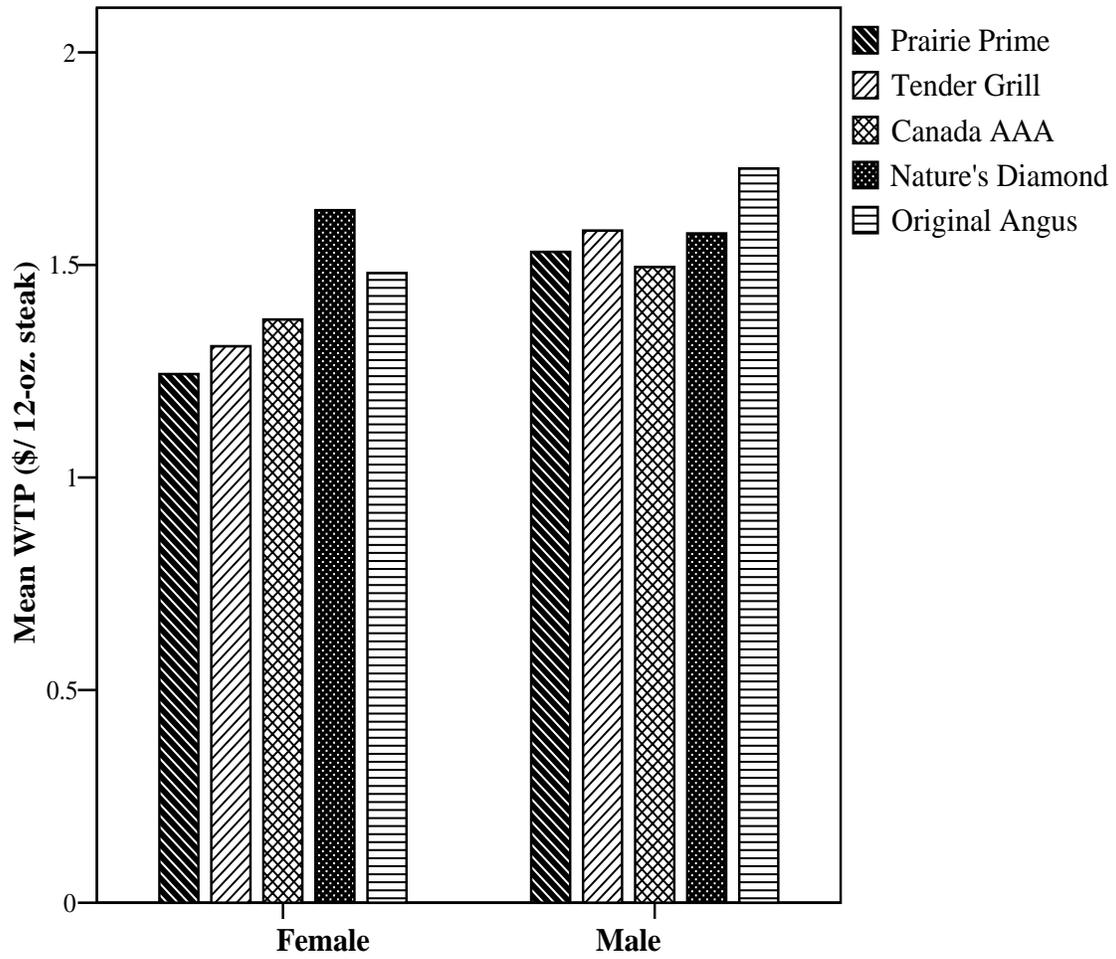


Figure 15. Cheap Talk Survey. Mean willingness-to-pay premiums for Canadian provinces.

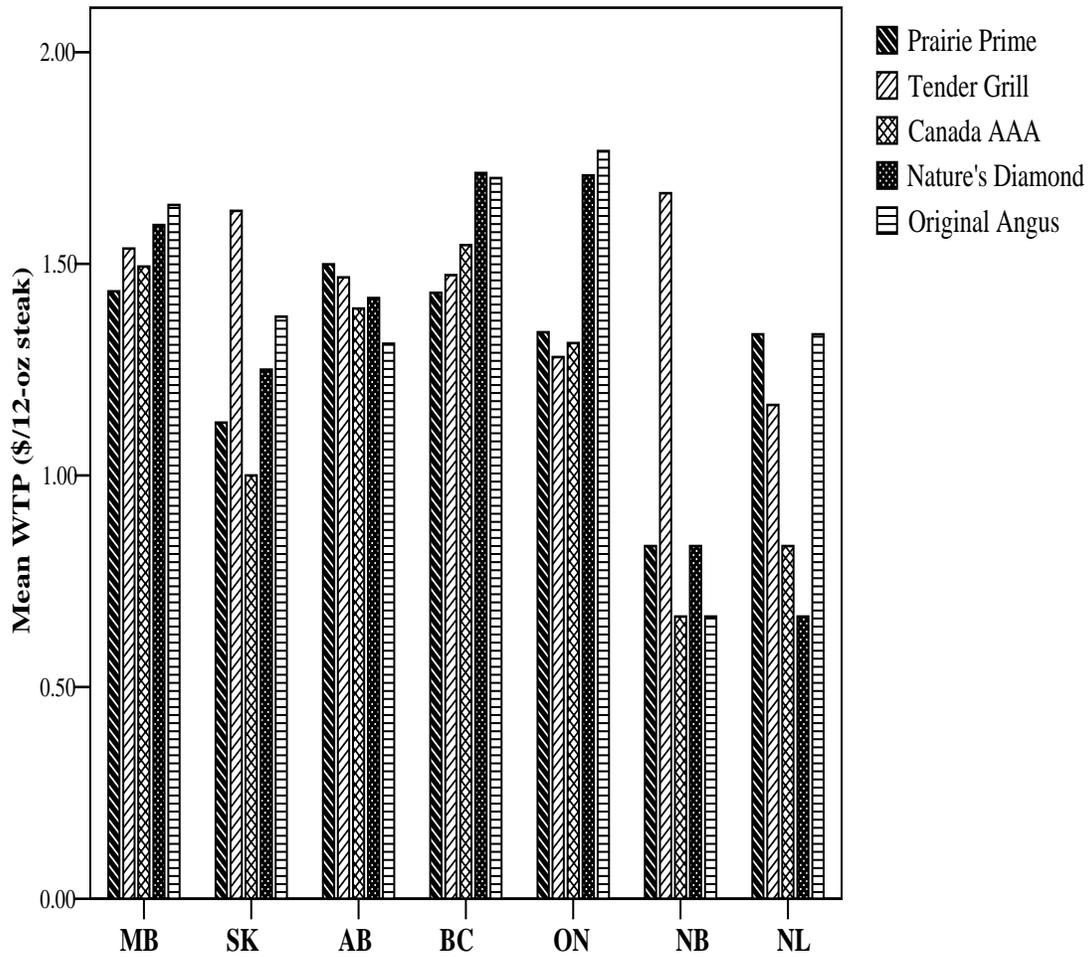


Figure 16. Cheap Talk Survey. Mean willingness-to-pay premiums for Education Categories.

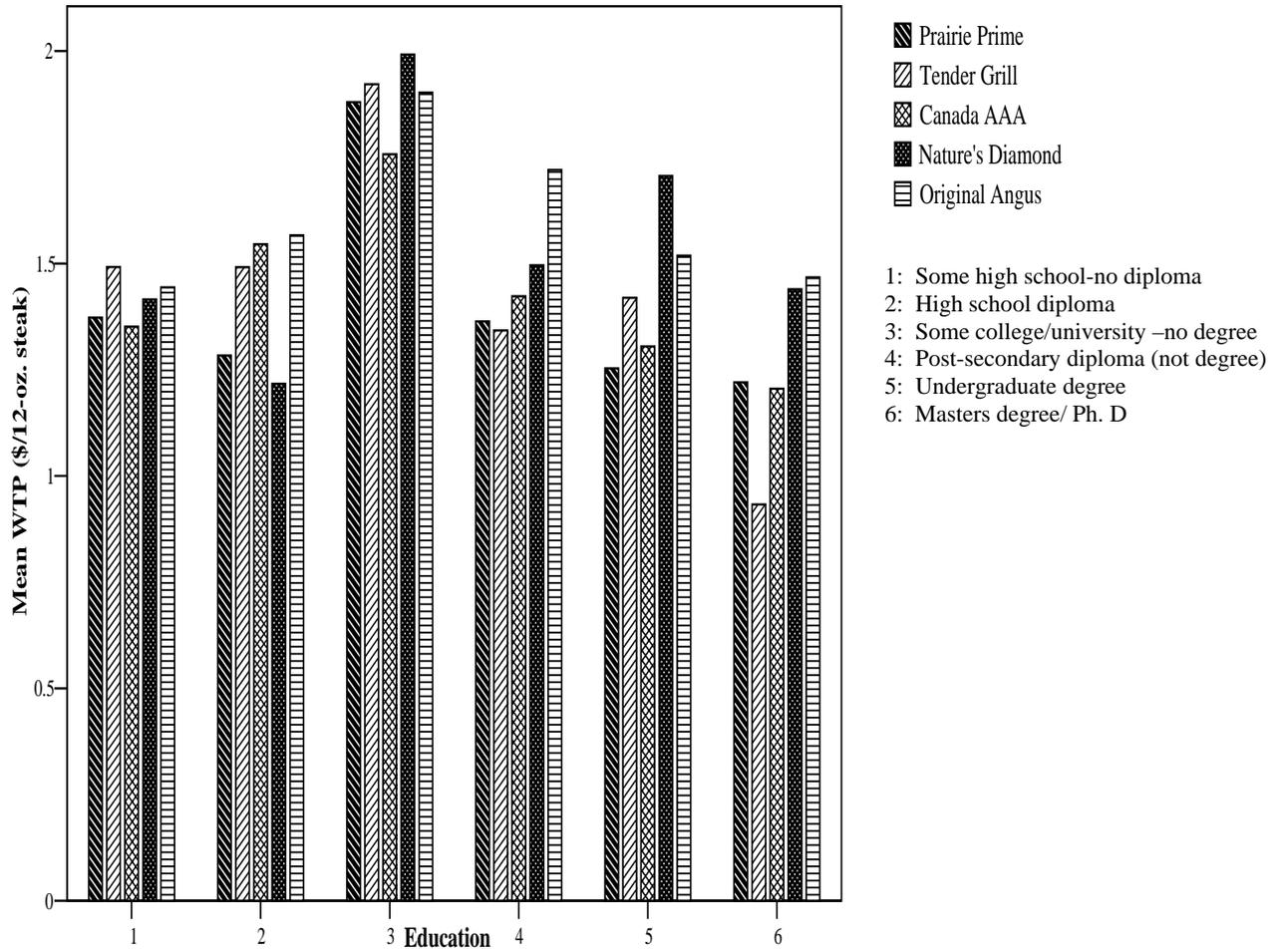


Figure 17. Cheap Talk Survey. Mean willingness-to-pay premiums for Age categories.

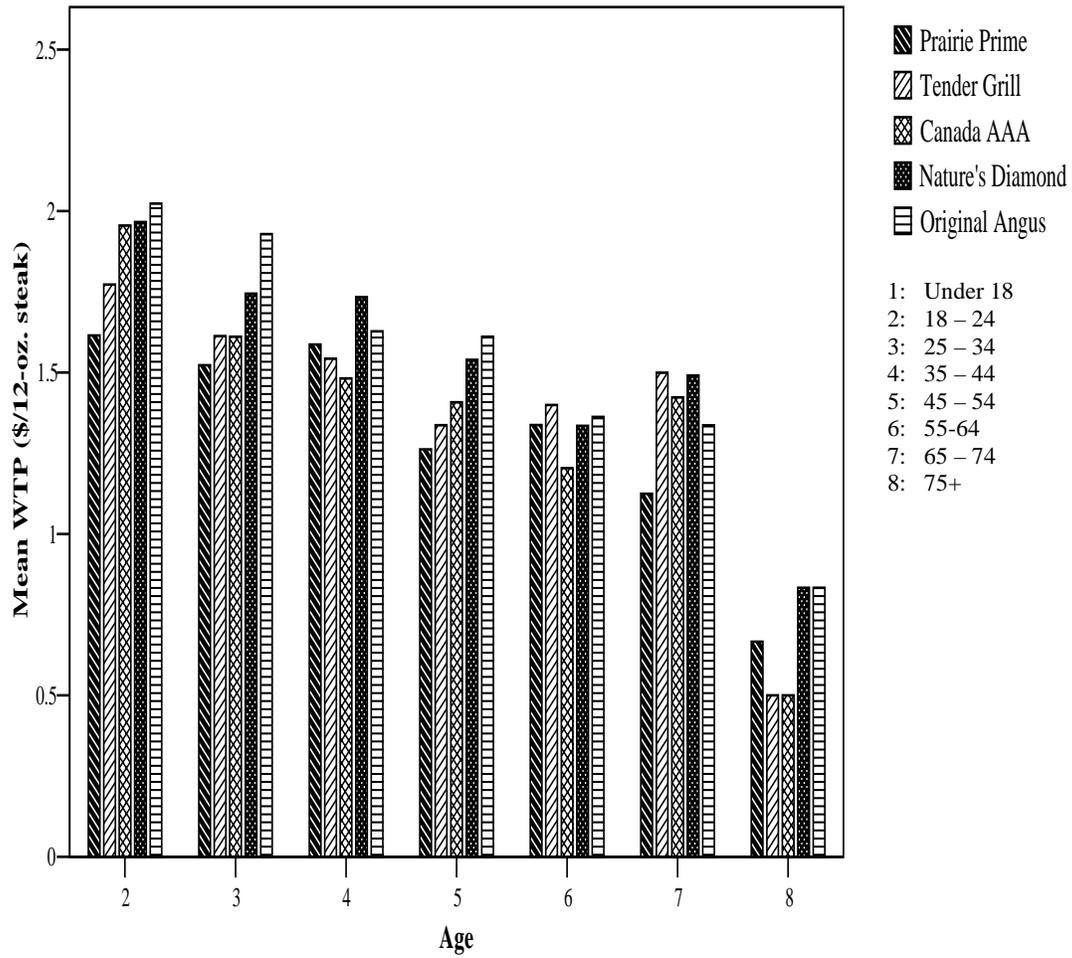


Figure 18. Cheap Talk Survey. Mean willingness-to-pay premiums for Income categories.

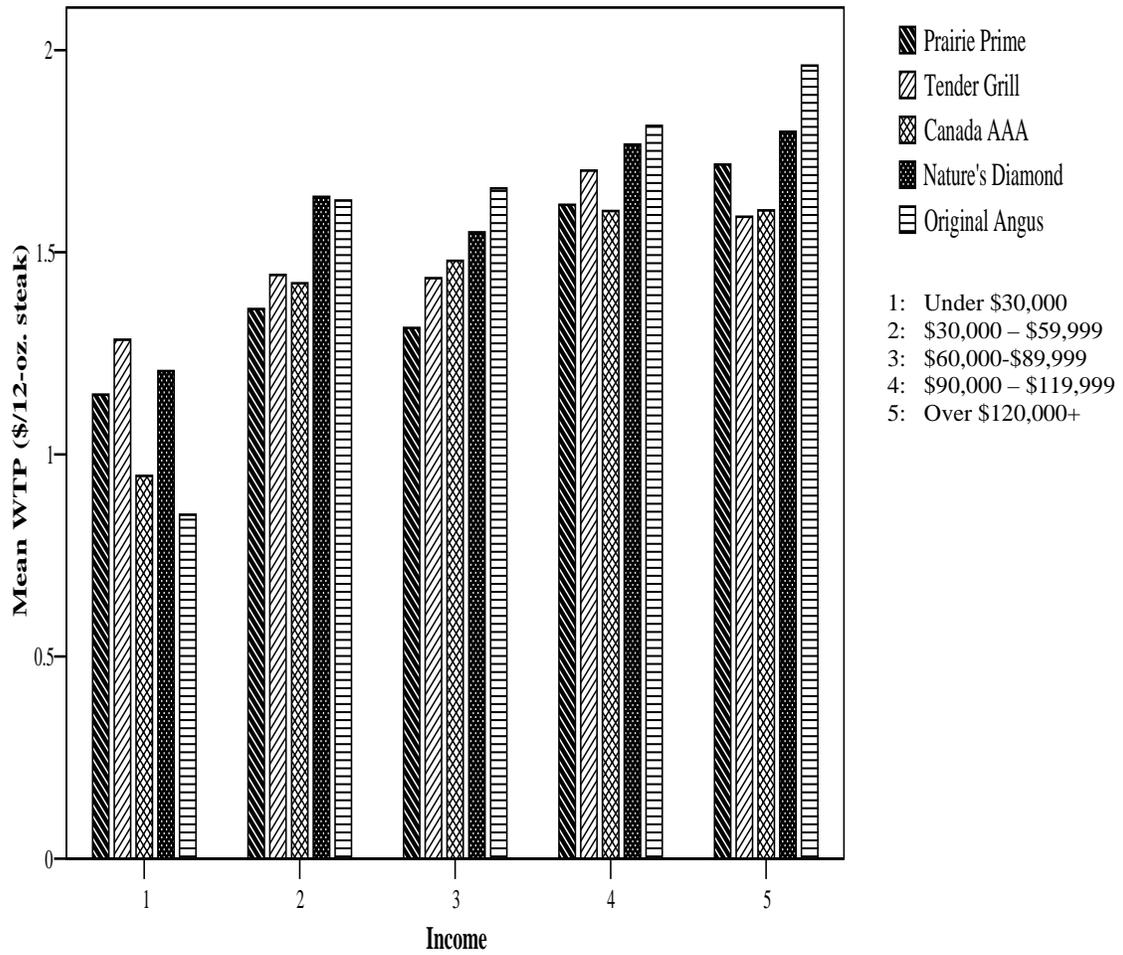


Figure 19. Cheap Talk Survey. Mean willingness-to-pay premiums for beef Grade categories.

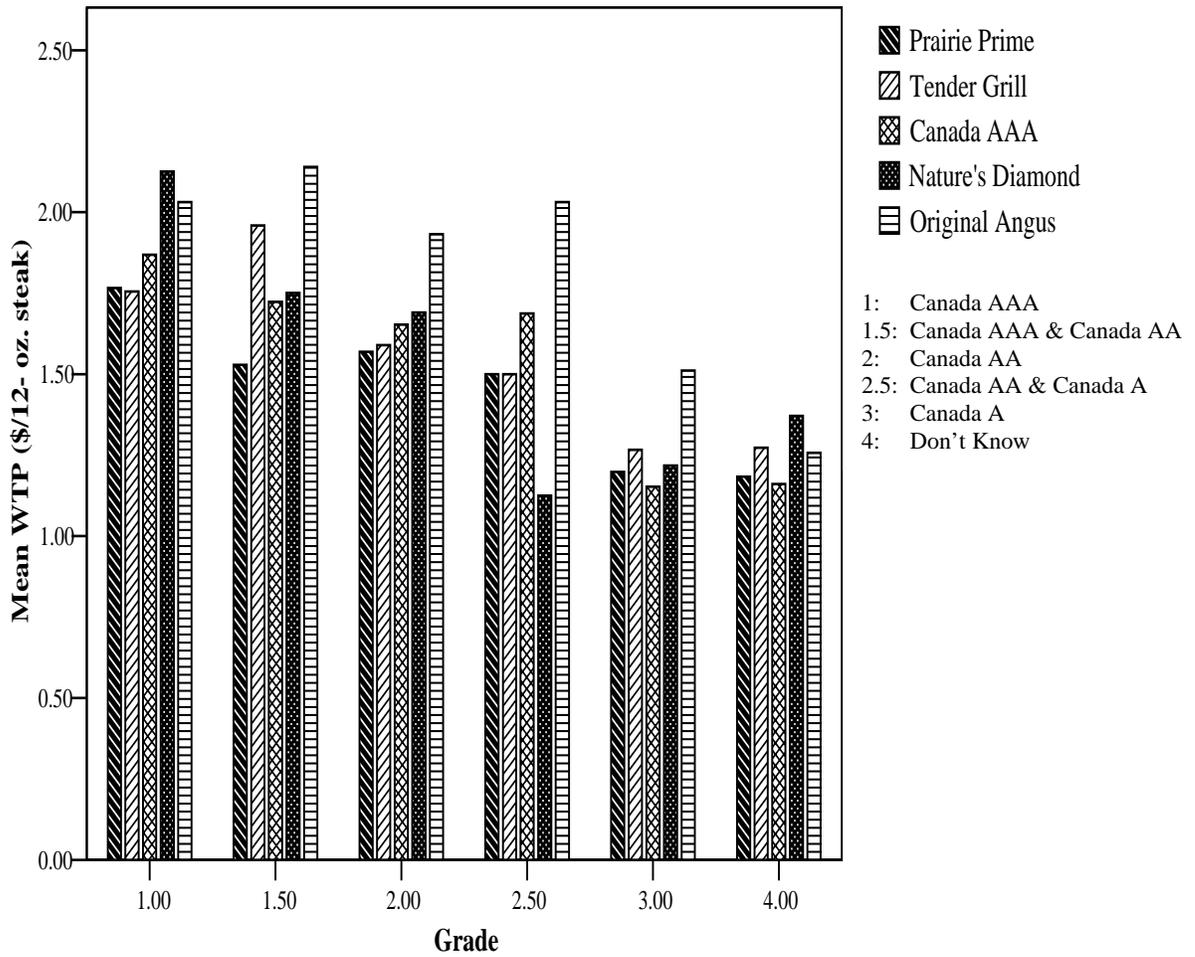


Figure 20. Cheap Talk Survey. Mean willingness-to-pay premiums for Confidence levels.

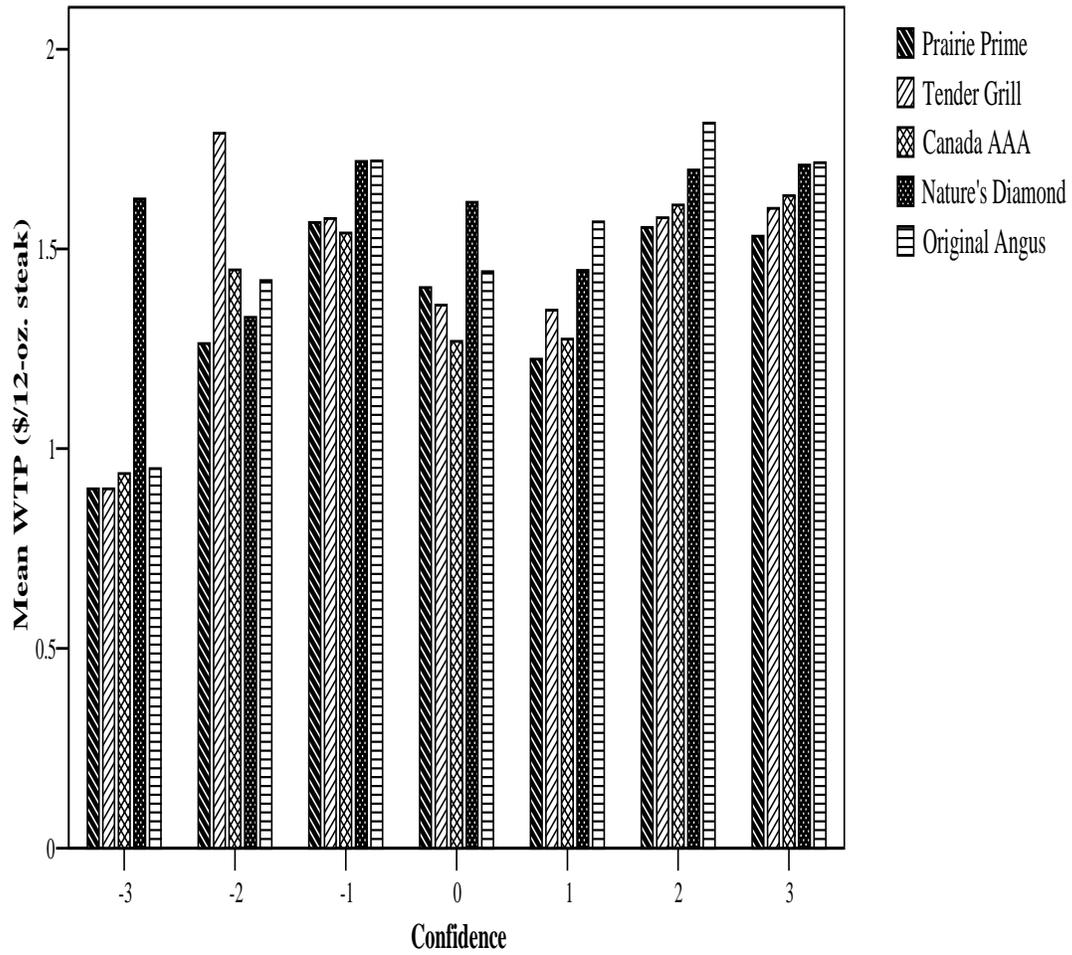


Table 1. Willingness-to-Pay Model Results, Experimental Auction Data

	AAA	Prairie Prime	Tender Grill	Original Angus	Nature's Diamond
Intercept	1.7291 **	0.6812	2.0747 **	0.3915	-0.7570
(std. err.)	0.7815	0.4662	0.6925	0.7595	0.5555
Beef Eaten	0.0788	0.0753	0.0494	0.1817 **	-0.0296
(std. err.)	0.0719	0.0619	0.0828	0.0915	0.0693
Like Name	n/a	0.3192 **	0.2076 **	0.2871 **	0.3693 **
(std. err.)	n/a	0.0720	0.0899	0.1249	0.0630
Confidence	-0.0282	-0.1798 **	-0.1021	-0.0867	-0.0948
(std. err.)	0.0664	0.0607	0.0760	0.0829	0.0677
Gender	0.0432	0.2997 *	0.3248	0.6618 **	0.1746
(std. err.)	0.1807	0.1555	0.2035	0.2155	0.1777
Age	-0.1682 *	-0.0045	-0.1981 **	-0.2384 **	0.1400 **
(std. err.)	0.0877	0.0589	0.0879	0.0975	0.0677
Income	0.1497 **	-0.0042	0.0792	0.1610	0.1002
(std. err.)	0.0737	0.0655	0.0936	0.1017	0.0765
Education	0.0038	-0.0524	-0.0898	0.0225	0.1065 *
(std. err.)	0.0733	0.0541	0.0861	0.0860	0.0652
Family Size	-0.2879	0.0179	-0.1543	-0.0622	0.0840
(std. err.)	0.2170	0.0609	0.1189	0.1271	0.0868

** indicates significance at $\alpha = 0.05$

* indicates significance at $\alpha = 0.10$

Table 2. Willingness-to-Pay Model Results, Cheap Talk Survey

	AAA	Prairie Prime	Tender Grill	Original Angus	Nature's Diamond
Intercept (std. err.)	1.1172 * 0.6065	0.2894 0.5856	0.2733 0.6567	0.7954 0.5680	1.0442 0.6993
Beef Eaten (std. err.)	0.0820 0.0749	0.0720 0.0686	0.0959 0.0799	-0.0128 0.0700	-0.1090 0.0857
Like Name (std. err.)	n/a n/a	0.3803 ** 0.0632	0.5094 ** 0.0755	0.6155 ** 0.0659	0.6080 ** 0.0624
Confidence (std. err.)	0.1052 * 0.0595	-0.0036 0.0546	-0.0349 0.0649	0.0215 0.0554	-0.0192 0.0661
Gender (std. err.)	0.1902 0.1829	0.4612 ** 0.1710	0.4311 ** 0.1996	0.6029 ** 0.1730	0.2151 0.2073
Age (std. err.)	-0.2315 ** 0.0759	-0.1455 ** 0.0712	-0.1696 ** 0.0854	-0.2481 ** 0.0687	-0.1395 * 0.0833
Income (std. err.)	0.2568 ** 0.0814	0.2584 ** 0.0757	0.2395 ** 0.0887	0.1708 ** 0.0757	0.1907 ** 0.0934
Education (std. err.)	-0.0803 0.0735	-0.1152 * 0.0660	-0.1275 * 0.0770	-0.0968 0.0662	-0.0190 0.0800
Family Size (std. err.)	0.0283 0.0720	0.0504 0.0698	0.0502 0.0630	0.0663 0.0720	-0.0437 0.0877

** indicates significance at $\alpha = 0.05$

* indicates significance at $\alpha = 0.10$

Table 3. Willingness-to-Pay Model Results, Conventional Survey

	AAA	Prairie Prime	Tender Grill	Original Angus	Nature's Diamond
Intercept	2.0849 **	1.9140 **	2.0236 **	1.9659 **	2.1099 **
(std. err.)	0.4779	0.4906	0.5172	0.5811	0.6806
Beef Eaten	-0.0244	-0.0922	-0.1110	-0.0958	-0.1777 **
(std. err.)	0.0592	0.0627	0.0665	0.0675	0.0904
Like Name	n/a	0.3412 **	0.4566 **	0.5538 **	0.5765 **
(std. err.)	n/a	0.0673	0.0656	0.0731	0.0636
Confidence	0.1328 **	0.0541	0.0767	0.0414	-0.0275
(std. err.)	0.0537	0.0541	0.0554	0.0614	0.0729
Gender	0.1459	0.3793 **	0.5035 **	0.3526 *	0.3208
(std. err.)	0.1657	0.1702	0.1751	0.1890	0.2251
Age	-0.1908 **	-0.2303 **	-0.3120 **	-0.2715 **	-0.2779 *
(std. err.)	0.0688	0.0680	0.0698	0.0796	0.0926
Income	0.0051	0.0146	-0.0012	-0.0541	0.1405
(std. err.)	0.0710	0.0715	0.0740	0.0823	0.0956
Education	-0.0288	-0.0229	-0.0209	0.0264	0.0868
(std. err.)	0.0609	0.0615	0.0629	0.0691	0.0818
Family Size	-0.0102	-0.0368	0.0117	-0.0019	-0.0928
(std. err.)	0.0663	0.0603	0.0670	0.0736	0.0759

** indicates significance at $\alpha = 0.05$

* indicates significance at $\alpha = 0.10$

Table 4. Willingness-to-Pay Model Results, AAA Beef

	Experimental Auction	Cheap Talk Survey	Conventional Survey
Intercept	1.7291 **	1.1172 *	2.0849 **
(std. err.)	0.7815	0.6065	0.4779
Beef Eaten	0.0788	0.0820	-0.0244
(std. err.)	0.0719	0.0749	0.0592
Confidence	-0.0282	0.1052 *	0.1328 **
(std. err.)	0.0664	0.0595	0.0537
Gender	0.0432	0.1902	0.1459
(std. err.)	0.1807	0.1829	0.1657
Age	-0.1682 *	-0.2315 **	-0.1908 **
(std. err.)	0.0877	0.0759	0.0688
Income	0.1497 **	0.2568 **	0.0051
(std. err.)	0.0737	0.0814	0.0710
Education	0.0038	-0.0803	-0.0288
(std. err.)	0.0733	0.0735	0.0609
Family Size	-0.2879	0.0283	-0.0102
(std. err.)	0.2170	0.0720	0.0663

** indicates significance at $\alpha = 0.05$

* indicates significance at $\alpha = 0.10$

Table 5. Willingness-to-Pay Model Results, Prairie Prime

	Experimental Auction	Cheap Talk Survey	Conventional Survey
Intercept (std. err.)	0.6812 0.4662	0.2894 0.5856	1.9140 ** 0.4906
Beef Eaten (std. err.)	0.0753 0.0619	0.0720 0.0686	-0.0922 0.0627
Like Name (std. err.)	0.3192 ** 0.0720	0.3803 ** 0.0632	0.3412 ** 0.0673
Confidence (std. err.)	-0.1798 ** 0.0607	-0.0036 0.0546	0.0541 0.0541
Gender (std. err.)	0.2997 * 0.1555	0.4612 ** 0.1710	0.3793 ** 0.1702
Age (std. err.)	-0.0045 0.0589	-0.1455 ** 0.0712	-0.2303 ** 0.0680
Income (std. err.)	-0.0042 0.0655	0.2584 ** 0.0757	0.0146 0.0715
Education (std. err.)	-0.0524 0.0541	-0.1152 * 0.0660	-0.0229 0.0615
Family Size (std. err.)	0.0179 0.0609	0.0504 0.0698	-0.0368 0.0603

** indicates significance at $\alpha = 0.05$

* indicates significance at $\alpha = 0.10$

Table 6. Willingness-to-Pay Model Results, Tender Grill

	Experimental Auction	Cheap Talk Survey	Conventional Survey
Intercept (std. err.)	2.0747 ** 0.6925	0.2733 0.6567	2.0236 ** 0.5172
Beef Eaten (std. err.)	0.0494 0.0828	0.0959 0.0799	-0.1110 0.0665
Like Name (std. err.)	0.2076 ** 0.0899	0.5094 ** 0.0755	0.4566 ** 0.0656
Confidence (std. err.)	-0.1021 0.0760	-0.0349 0.0649	0.0767 0.0554
Gender (std. err.)	0.3248 0.2035	0.4311 ** 0.1996	0.5035 ** 0.1751
Age (std. err.)	-0.1981 ** 0.0879	-0.1696 ** 0.0854	-0.3120 ** 0.0698
Income (std. err.)	0.0792 0.0936	0.2395 ** 0.0887	-0.0012 0.0740
Education (std. err.)	-0.0898 0.0861	-0.1275 * 0.0770	-0.0209 0.0629
Family Size (std. err.)	-0.1543 0.1189	0.0502 0.0630	0.0117 0.0670

** indicates significance at $\alpha = 0.05$

* indicates significance at $\alpha = 0.10$

Table 7. Willingness-to-Pay Model Results, Original Angus

	Experimental Auction	Cheap Talk Survey	Conventional Survey
Intercept	0.3915	0.7954	1.9659 **
(std. err.)	0.7595	0.5680	0.5811
Beef Eaten	0.1817 **	-0.0128	-0.0958
(std. err.)	0.0915	0.0700	0.0675
Like Name	0.2871 **	0.6155 **	0.5538 **
(std. err.)	0.1249	0.0659	0.0731
Confidence	-0.0867	0.0215	0.0414
(std. err.)	0.0829	0.0554	0.0614
Gender	0.6618 **	0.6029 **	0.3526 *
(std. err.)	0.2155	0.1730	0.1890
Age	-0.2384 **	-0.2481 **	-0.2715 **
(std. err.)	0.0975	0.0687	0.0796
Income	0.1610	0.1708 **	-0.0541
(std. err.)	0.1017	0.0757	0.0823
Education	0.0225	-0.0968	0.0264
(std. err.)	0.0860	0.0662	0.0691
Family Size	-0.0622	0.0663	-0.0019
(std. err.)	0.1271	0.0720	0.0736

** indicates significance at $\alpha = 0.05$

* indicates significance at $\alpha = 0.10$

Table 8. Willingness-to-Pay Model Results, Nature's Diamond

	Experimental Auction	Cheap Talk Survey	Conventional Survey
Intercept	-0.7570	1.0442	2.1099 **
(std. err.)	0.5555	0.6993	0.6806
Beef Eaten	-0.0296	-0.1090	-0.1777 **
(std. err.)	0.0693	0.0857	0.0904
Like Name	0.3693 **	0.6080 **	0.5765 **
(std. err.)	0.0630	0.0624	0.0636
Confidence	-0.0948	-0.0192	-0.0275
(std. err.)	0.0677	0.0661	0.0729
Gender	0.1746	0.2151	0.3208
(std. err.)	0.1777	0.2073	0.2251
Age	0.1400 **	-0.1395 *	-0.2779 *
(std. err.)	0.0677	0.0833	0.0926
Income	0.1002	0.1907 **	0.1405
(std. err.)	0.0765	0.0934	0.0956
Education	0.1065 *	-0.0190	0.0868
(std. err.)	0.0652	0.0800	0.0818
Family Size	0.0840	-0.0437	-0.0928
(std. err.)	0.0868	0.0877	0.0759

** indicates significance at $\alpha = 0.05$

* indicates significance at $\alpha = 0.10$