Alberta Conservation Association
2017/18 Project Summary Report

Project Name: Taber Pheasant Festival

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Partnerships

Alberta Culinary Tourism Alliance
Alberta Fish & Game Association
Alberta Hunter Education Instructors' Association
Beretta/Benelli/Tikka (Stoeger Canada)
C&B Alberta Solar Development/Canadian Solar/Bow Mont Capital & Advisory
Cycle Works
Heritage Inn Taber/Canadian Destinations Group
Landowners
MacFarlane Pheasants Inc.
Municipal District of Taber
Pheasants Forever – Calgary chapter
Taber & District Chamber of Commerce
Taber Irrigation District
Town of Taber
Town of Vauxhall
Taber Organizing committee
Vortex

Key Findings

- The Taber Pheasant Festival is the biggest hunting festival in Canada! Since 2011, roughly 4,865 hunters have participated in the festival. In 2017, about 765 hunters, including 101 novice hunters, came to the Municipal District of Taber to participate in the one-week festival.
- The annual Game to Gourmet culinary event was sold out again this year, with 125 people attending. Two chefs demonstrated their talents and provided a wide variety of dishes to a thankful crowd. Tanner James and company provided live musical entertainment.
- The wing and scotch-tasting evening was paired with beer tasting from Lethbridge's Coulee Brew Co.
- The banquet with silent auctions and raffles was a huge success, with 350 attendees.
- More than 60 individuals/companies/organizations sponsored the festival.
- We purchased a 10-foot inflatable pheasant to use as advertising for the festival and the Town of Taber held a "name that bird" contest.

Introduction

We initiated the Taber Pheasant Festival in 2011with a collaborative group including Alberta Hunter Education Instructor's Association (AHEIA), Alberta Fish & Game Association, Pheasants Forever, and many others. The festival's vision is multifaceted, but at its core, we seek to foster a positive relationship between local rural communities and hunters. Toward this goal, this program raises awareness of the economic benefits of hunting, seeks to improve hunter and landholder interactions, creates hunting opportunities, increases recruitment of new hunters, and increases awareness of the habitat needs of upland game birds and many other wildlife.

Our mission is to facilitate a working model in which the local community is more comfortable, aware, and motivated to preserve the cultural heritage of hunting. For this to occur, we seek to provide an environment that promotes, celebrates, and nurtures a future for hunters and rural communities that is mutually beneficial.

There are several components of the week-long festival. The festival starts with a novice shoot over the first weekend. At this event, new pheasant hunters are coached on shotgun shooting and matched with mentors for a hunt. The hunts during the rest of the week begin on Monday and continues for six days, with morning and afternoon hunting opportunities offered at 40 sites spread throughout the Municipal District of Taber. A celebration banquet and special events are held throughout the week that includes, opportunity to tour/practice trap shooting at the Vauxhall shooting range, butchering demonstrations, Town of Taber sponsored lunch, fly tying demonstrations, and food and beverage tastings.

Methods

Planning for the 2017 festival began as soon as the previous year's festival was over. We collaborate with a large local committee, including the Taber Chamber of Commerce, Municipal District of Taber, the Heritage Inn, the Town of Taber, AHEIA, and local individuals. Pheasants are ordered from MacFarlane's in the spring to ensure the birds are in top condition come fall. We organize 40 hunting sites from supportive landowners across the municipality of Taber and reserve venues and caterers for the banquet and novice shoots. We actively campaign for sponsorship dollars and auction items, as well as promote the event throughout the year.

Registration for hunting slots is held in June, with successful hunters getting a maximum of three hunting spots during the week. Since 2016, we changed the location of the pheasant festival office to accommodate higher traffic and to increase contact time with ACA staff and hunters. Since this move, we have increased hunter satisfaction with the event and augmented sales of promotional items, raffle tickets, banquet tickets, as well as offered an opportunity to fill out a survey.

Alberta Hunter Education Instructor's Association coordinates the novice shoot over the first weekend of the event. More than 30 volunteers participate to make the event run smoothly. Volunteers are a key part of the entire week, from helping with pheasant releases to providing a warm welcome as hunters arrive from out of town. For the Game to Gourmet culinary events, the Alberta Culinary and Tourism Alliance brought chefs from Calgary to demonstrate pheasant butchering at the novice event as well as showcase recipes at an evening social.

A variety of additional events occurred through the week including a hunters' lunch hosted by the Town of Taber, trap shooting at the Vauxhall shooting range, and a raffled hunt hosted by local hunting experts, Jay and Ryan Doolittle.

In 2017, students from the University of Alberta conducted an economic analysis of the Taber Pheasant Festival and the pheasant release program. They had two specific objectives: to determine the impact of the festival on hunting licence sales and to estimate the benefits incurred to hunters attending the festival.

Results

The festival ran from October 21 to 28, 2017. During the first weekend, 101 participants attended the novice hunt led by AHEIA. We provided an opportunity for first-time hunters to develop their shooting skills on clay targets with a shooting coach and followed this up with controlled hunting scenarios with a mentor to guide each participant through a pheasant hunt. Chefs from Calgary showed the novice how to prep birds for transport and cooking as well as offered the crowd a tasting of a wonderful pheasant stew. One chef demonstrated fly-tying to the novice using feathers from their harvested birds.

During the rest of the week, the 40 hunting sites had bookings in the morning and afternoon. Registered hunting parties were allowed a maximum of four hunters in their party and were required to follow all Alberta hunting regulations. This year, 664 hunters registered their hunting

parties at the pheasant office. Of these hunting parties, eight percent were from outside of Alberta: British Columbia, Manitoba, Saskatchewan, and United States. Of the Alberta hunters, 27 percent travelled less than one hour, seven percent travelled one to two hours, 54 percent travelled two to five hours, and 12 percent travelled five to ten hours to attend the festival.

About 350 people attended the celebration dinner held on the Thursday night of the festival week. This dinner recognizes festival sponsors and the landowners who offered their land for the hunting sites. The event hosted a silent auction. Funds raised during this dinner support the following year's festival. In 2017 the festival had 63 sponsors as well as a pheasant festival beer that was featured at the banquet (Ringneck Ryley). This year we also purchased an inflatable pheasant that was displayed during the week of the festival above the banquet location.

The scotch and beer tasting evening resulted in a full lounge at the Heritage Inn.

The Game to Gourmet culinary event was attended by 125 people. The event featured several pheasant recipes created and served by chefs from Calgary and was accompanied by live music by Tanner James and company.

We ensured our raffled mentored hunt winners experienced a great hunting day. They were so pleased about the experience that they personally came to thank us after their hunt.
The economic study conducted by the University of Alberta determined there has been a gradual increase in sales of pheasant licences (resident) since the festival began (see attached "An Economic Analysis of the Taber Pheasant Festival). They also determined that there was an approximate consumer surplus of $191.57 per group attending the festival in 2016. There is no registration fee for the festival but there are costs associated with travel, accommodation, food, hunting gear, etc. If there is a consumer surplus it means that the hunters were willing to pay more to come and participate in the festival. A consumer surplus occurs when the consumer is willing to pay more for a given product than the current market price.

Conclusions

The Taber Pheasant Festival has become a growing success story over the past seven years. Hunters are keen to participate, and the local community is providing more direction with each passing year. Media coverage of the event has increased, perhaps suggesting a positive shift in recognition of the cultural value of hunting. It also has been determined that there is a direct economic benefit to this community.

Communications

- *Vauxhall Advance* newspaper article: http://www.vauxhalladvance.com/news/2017/02/16/town-looking-to-further-participation-in-pheasant-festival/

- *Taber Times* newspaper article: "Taber Pheasant Festival taking flight this weekend" by Cole Parkinson: http://www.tabertimes.com/sports/2017/10/18/taber-pheasant-festival-taking-flight-this-weekend/

- Shandal, M., Bertram, A., Rogers, K., and Sarauer, A.2017. An Economic Analysis of the Taber Pheasant Festival. University of Alberta. 54pp.

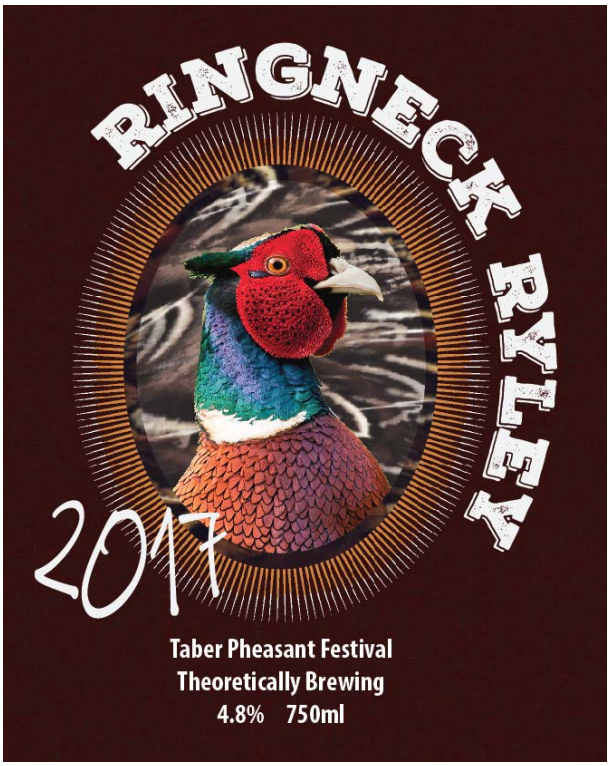
Photos

"Ringo," the Ring-necked pheasant mascot. Photo: Carol Zelenka

Alberta Conservation Association employee, Brad Downey and son, Colter cooking up lunch at the novice hunter event October 2017. Photo: Carol Zelenka

Two young hunters waiting their turn at the mentored novice hunt in October 2017. Photo: Carol Zelenka

The newly wrapped ACA trailer. Photo: Bruce Ingram



Ringneck Ryley beer created for the 2017 celebration banquet.

AREC 410: Final Report

April 21st, 2017

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An Economic Analysis of the Taber Pheasant Festival

Acknowledgements

We would like to thank Dr. Peter Boxall, Dr. Maik Kecinski, and Dr. Marty Luckert of the Department of Resource Economics and Environmental Society at University of Alberta for their guidance and supervision with this study. We would also like to thank Dr. Todd Zimmerling and Ms. Julie Landry-DeBoer of the Alberta Conservation Association for all the information they provided and guidance offered throughout the study; as well as Mr. Stuart Nadeau and Dr. Jason Caswell of Alberta Fish and Wildlife for their guidance and information; and Dr. Glen Hvenegaard for the information and assistance with developing the participant and business surveys.

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Introduction and Background

We are researching the Taber Pheasant Festival held annually in October in Taber, Alberta. This festival is hosted and largely funded by the Alberta Conservation Association (ACA) who approached the University of Alberta with this capstone project in hopes that we would be able to perform a current analysis of the festival in order to better understand its economic impacts. An economic analysis has never been performed on the festival prior to this project. The ACA is primarily interested in seeing how the festival has economically benefited all shareholders involved, including Taber's local businesses, landowners, citizens and participants.

i. The Alberta Conservation Association (ACA):

The ACA was founded in 1997, and took over the pheasant release program in 2014. Their mission is to "[conserve, protect, and enhance] fish and wildlife populations and their habitats for Albertans to enjoy, value, and use" (ACA, 2017). In doing so, they hope that future generations will have access to the rich outdoor heritage we experience today (ACA, 2017). The ACA hopes to reach these goals through providing scientific information, management plans, as well as education to the government and people of Alberta (ACA, 2017).

ii. The Taber Pheasant Festival:

The festival began in 2011 and was started by the ACA, who teamed up with the Alberta Hunter Education Instructors' Association; the festival was intended to be a way of introducing people to 'the dying art' of hunting (ACA, 2017). Since its inauguration, the Taber Pheasant Festival has turned into the largest hunting festival in Canada, and spans over a week every

October (ACA, 2017). Some of the events of the festival include a bird dog training day, a scotch tasting night, and a 'Game to Gourmet' pheasant tasting dinner, in addition to the advanced and novice pheasant hunts (ACA, 2017).

Figure 1: Taber Pheasant Festival Logo

Ring-necked Pheasants have been part of Alberta's hunting scene for more than 100 years (Landry-DeBoer, 2017, pers.comm.), which has resulted in Alberta becoming a hub for pheasant hunting in North America (Landry-DeBoer, 2017, pers.comm.), The once copious pheasant population has dwindled over recent history as urbanization and industrial expansions have occurred throughout Alberta (Landry-DeBoer, 2017, pers.comm.), These factors have led to the diminished size of pheasant populations, which in turn has impacted recreational pheasant hunting. The Taber Pheasant Festival relies on the availability of pheasants; therefore, the ACA imports thousands of pheasants specifically for the festival each year from farms in Wisconsin (ACA, 2017). The importation of pheasants for the festival is part of the greater good of pheasant conservation as it is part of the ACA's pheasant release program. (ACA, 2017[2]).

The festival aims to showcase and foster relationships that support both hunting for heritage and habitat conservation. Furthermore, the Taber Pheasant Festival provides a platform for discussions between the county and landholders in regards to habitat enhancement and creation. The festival also provides an opportunity to educate, inform, and approach landowners about wildlife, especially pheasants, and discuss the habitat needs that are required in order to sustain a long term population (Landry-DeBoer, 2017, pers.comm.),

iii. Objectives:

To truly understand the Taber Pheasant Festival and its impacts, we currently have two specific research questions that we will be pursuing through this project. Firstly, we will determine the impacts of the festival on pheasant hunting trends in Alberta. We are interested in seeing whether pheasant hunting in Alberta has been impacted since the beginning of the festival. To study these hypothesized changes in hunting, we will work with Alberta Fish and Wildlife to complete a database that includes the sales of various hunting licenses in Alberta, spanning from 1985 to 2015. Using this, we will be able to compare resident wildlife certificates to resident pheasant licenses and see how the sales of both have changed since the ACA started the Taber Pheasant Festival in 2011 and took over the Alberta pheasant release program in 2014. Secondly, we are interested estimating the benefits incurred to attendees of the festival. These benefits, measured as consumer surplus, will be quantified through the revealed preference technique of a zonal travel cost model. Data required to create the model was retrieved from the geographic information provided by the ACA and statistical information on incomes and populations was retrieved from Statistics Canada. In addition to our two large objectives, we will also establish an evaluation survey, which can be implemented by the ACA in the future to understand the specific benefits and costs associated with participation in the festival, to businesses and attendees. Results from these surveys can provide a more holistic understanding of the benefits and costs pertaining to the festival.

Literature Review

This project is centered on the notions of hunting participation and the ability to quantify benefits of hunting to individuals and communities, specifically with respect to the Taber Pheasant

Festival. In order to do this, we will first establish a foundation of the current research conducted in the fields of hunting trends and participation and economic valuation of recreational hunting. By focusing on these areas, we will be able to display how our study builds on current research. This will be seen in that our study will provide a more comprehensive understanding of recent pheasant hunting in Alberta, as well as will provide more in depth information on the festival case study (the Taber Pheasant Festival).

Specifically, these areas were chosen as our areas of interest, because of how they are intertwined in helping us understand our end goal. Hunting trends are influenced through a number of different factors such as license and transportation prices. These prices specifically influence individual's decisions to participate based on their perceived benefits and costs; and ultimately lead to shifts in hunting participation trends.

i. Hunting Trends and Participation

In the past hunting participation studies were completed more frequently than they are today. Previous studies conducted, which look at hunting trends in Canada, specifically Alberta, have all come to the same result: hunting participation has been steadily declining since reaching its peak in the 1980s (McFarlane et al., 1999; Boxall et al., 1991; Adams et al., 2004). This decline in hunting participation was evident across Canada. (McFarlane et al., 1999). However, when looking at more recent data collected by the Government of Canada (Statistics Canada, 2010; 2010[2]; 2011; 2012; 2013) and Government of Alberta (Populations Research Laboratory, 2015), it is seen that hunting participation and the perception of hunting have been changing, and the decline has been leveling off (Saskatchewan Environment, 2006). From these household and travel surveys it is observed that positive responses to hunting may be increasing on a marginal basis.

These numbers provide reason to believe that hunting trends do not anymore align with trends previously studied, but require a closer analysis in order to determine if the growth in participation is significant with respect to population growth. When looking at a more recent national study conducted in the USA, it is seen that there has been an increase in hunting participation in recent years (U.S. Fish & Wildlife Service, 2011), which also goes against these previous studies.

Furthermore, Boxall et al. (1991) identified six key factors that influence an individual's decision to participate in hunting. Originally, these factors showed the reasons behind the decline in hunting participation; but when looking at them today, taking into consideration the societal shifts that have taken place, they can still be used to help explain the current movement in hunting trends.

First, a strong correlation exists between socialization into hunting "culture" and the adoption/continuation of hunting. Socialization into hunting occurs when experienced hunters help guide youth into activities of hunting. From recent surveys conducted by the Government of Canada (Statistics Canada, 2010; 2010[2]; 2011; 2012; 2013) individuals are increasingly willing to support youth if they do decide to participate in outdoor recreational activities, including hunting and fishing. Another factor that affects participation is geographical location, as this is a direct link to the convenience of the hunting activities themselves. As cities have become larger, there has been substantial population migration from rural to urban centers (Statistics Canada, 2011[2]), which do not traditionally coincide with hunting.

There have also been major shifts in the opinion and acceptance of hunting; people are more commonly at the extremes of either support or abandonment (Washington Department of Fish & Wildlife, 2008). When considered in 1991 by Boxall et al., these factors led to a decrease in hunter satisfaction, thus leading to an increased abandonment rate. While today there are no

directly comparable results, some more recent surveys conducted have displayed moderate to high satisfaction rates today. (Fulton et al., 2005).

Furthermore, government institutions and regulations have also played a heavy role in participation rates. Both the regulative and administrative costs associated with the sport have increased, leading to a higher financial burden for participation (Boxall et al., 1991). Lastly, the habitat and availability of wildlife itself has dropped significantly due to increased urbanization, ultimately making hunting much more difficult to access (Boxall et al., 1991).

Overall, the drop in hunting participation seen through the analysis conducted by Boxall et al. (1991) can be attributed to a number of complications, which range from the economic development of a community to the conservation of a species. Since then, there have been a number of different shifts that have occurred both on an institutional level as well as on a societal level. Such shifts have the potential to change participation in recreational hunting. These shifts have been further explored in a study conducted by Texas A&M University where potential mechanisms to increase participation were identified (Adams et al., 2004). In the strategic plan identified, there is a major focus on community engagement by increasing interests and awareness in hunting through means of focus groups and community activities (Adams et al., 2004). The Taber Pheasant Festival has aligned well with these objectives of community engagement and exposure, and thus has the potential to help introduce recreational pheasant hunting to new individuals.

ii. Economic Valuation of Recreational Hunting

As mentioned above, many Albertans engage in the sport of hunting. They enjoy a number of benefits through their participation in hunting. Such benefits include the inherent values associated with outdoor activities, tangible skills associated with the practice of hunting,

community culture reacted between others participating in the sport, and consumptive-use benefits. Assigning quantifiable values to such benefits has been assessed in a number of papers and proven to be quite difficult (Bennett & Whitten, 2003; Boxall et al., 1996). This is because pheasant hunting is not allocated in an economic market.

Through one's participation in hunting, it is said that one gives value to wildlife habitats and other environmental stewardship measures (Saskatchewan Environment, 2006). Thus one of the largest factors influencing hunting is wildlife habitat, as there is a strong relationship between hunting success and the availability of wildlife habitat (Boxall et al., 1991). As mentioned earlier, increased urban expansion has led to diminished natural wildlife habitat, and thus there has been increased importance placed on stewardship and protection programs in Alberta (Phillips et al., 1993). One prime example of such a program is Alberta's "Buck for Wildlife Program," (Alberta Environment and Sustainable Resource Development, 1999) which was established in 1973 and has since spent over $18 million in habitat restoration projects. Programs like this have set the scene for studies to attempt to quantify willingness to pay (WTP). Such attempts have been conducted by Macnab and Brusnyk (1993) through a survey-based method. They determined that Alberta's WTP for additional habitat benefits exceeded 120,000 acres of enhanced habitat. The researchers estimated the value of improved habitat for Albertans ranged between $35.6 million to $98.9 million depending on the model used (simple vs. multivariate) and the group assessed (consumptive vs. nonconsumptive users) (Macnab and Brusnyk, 1993).

Another prominent economic value, when looking at the case of recreation hunting, is the social culture that is created between individuals that gather to participate in the sport. One way this is done is by holding festivals/gatherings. Such festivals have been divided into three groups: "homegrown, tourist-tempter and big bang events" (Dzupka & Sebova, 2016). By comparing the

Taber Pheasant Festival to the ones described, it actually has components of each type, as it is "home-grown" in the sense that a large contribution of support comes from the local community, and it is a "tourist-tempter" as it attempts to attract visitors to stimulate economic activity locally, as well as a "big-bang" festival that works as a marketing tool for hunting in Alberta as a whole. Different festivals have different audiences, but all result in a creating an environment for similar individuals to communicate and interact. These festivals also have broader effects as they can serve as a means to provide valuable information to a large audience, which is similar to the reasons behind the ACA's decision to hold the Taber Pheasant Festival.

In regards to the festival, a challenge arises from the lack of market prices associated with attending festivals. Part of the problem is that there are limited studies on festival benefits and this makes it hard to compare festival benefits across similar activities. Calculating the benefits becomes increasingly complex as you consider the varying nature of the nonmarket benefits an attendee might experience from attending the festival, which outweigh the direct monetary costs, such as fees of attending and hunting licences (Boxall et al., 1996). Understanding the magnitude of nonmarket hunting benefits associated with the festival is important because it allows sponsors to justify continued financial support for the event. Perhaps more importantly, it provides baseline information about the value of benefits the festival provides to those who attend, particularly if similar festivals are to be developed in the future.

Methods

i. Hunting Trends

To understand the evolution of hunting trends in Alberta, we chose to focus on license sales over the last three decades, starting in 1985 and ending in 2015. For these years, we used

historical sales of resident wildlife certificates, resident game bird licenses, and resident pheasant licenses (definitions of these certificates and licenses can be found in (Appendix A). Since there is no market to determine optimal prices for licenses and certificates, these prices are set through estimations of willingness to pay by legislative ministers, and not reflect the consumer's willingness to pay for recreational hunting.

Data for the first 20 years (1985 to 2005) on the sale of wildlife and game bird license was provided by Dr. Peter Boxall of the University of Alberta (Boxall, 2017, pers.comm.), while information pertaining specifically to pheasant licenses for this time period was provided by Stuart Nadeau of Alberta Fish and Wildlife (Nadeau, 2017, pers.comm.). Data about the sale of these certificates and licenses in Alberta for the years of 2005 to 2015, was retrieved from the "My Wild Alberta" website (Government of Alberta, n.d.), where this information is publicly available.

Since game birds and pheasants have a similar appeal to hunters, the inclusion of game bird license sales was used as a comparison to the trends exhibited in the sales of pheasant licenses. We assumed that people who would be interested in game bird hunting would also be interested in pheasant hunting due to the similarities between the two.

In order for someone to hunt any game species in the province of Alberta, one must first purchase a wildlife certificate; thus, for our study, it was assumed that anyone who has purchased either a game bird or pheasant license had also purchased a wildlife certificate. Our analysis for this project is specifically focused on the sale of Alberta resident licenses. This was due to the fact that our data set did not include information on non-Resident Canadian licenses or non-Resident Alien licenses. Since our analysis focused on Alberta resident licenses, we also obtained the annual population for Alberta. This information was used to understand the how the changes in hunting

trends change on a per capita rate. Population information was retrieved from the Government of Alberta Economic Dashboard feature on the government website (Government of Alberta, 2017).

From here, the numbers of resident licenses sold was compiled in a spreadsheet and graphed using Microsoft Excel. The sold licenses were then divided by the Alberta population in order to better understand how trends in hunting vary on a per capita basis. Lastly, we divided the sales of pheasant and game bird licenses by resident wildlife certificates for each year to see what proportion of resident hunters were hunting game birds and/or pheasants (Appendix B).

Since these licenses are not free, an important consideration in the sales is the license fee itself. To further the actuality of the study, we collected the data for license sales, along with the historic licensing fee data from 1985 onward provided by Stuart Nadeau and Jason Caswell of Alberta Fish and Wildlife (Nadeau, 2016, pers.comm.; Casewell, 2017 pers.comm.). General Sales Tax was added to these fees and they were adjusted to 2004 Canadian dollars (CAD) using the Canadian Consumer Price Index (CPI) available on the Statistics Canada website (Statistics Canada, 2017).

Lastly, to account for the festival and its effects on pheasant populations, Todd Zimmerling of the ACA provided us with the data for attendance (Zimmerling, 2017, pers.comm.) of all Taber Pheasant Festivals, as well as the number of pheasants released (Zimmerling, 2017, pers.comm.)[2] within the province of Alberta from 1987 to present.

With this collection of data, a regression was run using STATA data analysis software to determine which variables influence the sale of resident pheasant licenses in Alberta. The following formula was used:

$$licenses\ sold_t = constant + real\ price_t + \#\ of\ pheasants\ released_t + Taber_t + ACA_t \quad \textit{(formula 1)}$$

The variables in the formula are defined as:

- Licenses sold$_t$: the number of resident pheasant licenses sold in Alberta in year t.
- Constant: sales of resident pheasant licenses assuming zero cost. (10101.92)
- Real price$_t$: license fees, including the price of a resident wildlife certificate, as well as a resident pheasant license, adjusted to 2004 CAD to account for inflation (Appendix C).
- # of pheasants released$_t$: the number of pheasants released in the province of Alberta in hunting period t (Appendix D).
- Taber$_t$: dummy variable representing when the Taber Pheasant Festival was taking place (Appendix E)
- ACA$_t$: dummy variable representing when the ACA took over the pheasant release program from Alberta Fish and Wildlife.

ii. Travel Cost

In order to estimate the economic benefits received by festival attendees, we used the zonal travel cost model. It should be noted that there are different travel cost models (TCMs) and choosing the right one can be crucial to the type of data available and the statistical assumptions being made (Fletcher et al., 1990). We decided that the most appropriate model for our purposes is an aggregate or zonal TCM. This is because we wanted to estimate the values associated with attending the festival and not changes in recreational hunting quality (Hellerstein, 1991). Additionally, Hellerstein (1991) suggests that this is the best model to use when information on the number of trips taken by individuals is not available, which is the nature of the geographical data available to us. A travel cost model makes the assumption that the costs of traveling between a person's hometown to a place of recreation can be used as a proxy for the price of recreation (Boxall et al., 1996). Assuming sufficient variation between distances travelled by attendees, a

statistical model can be generated that depicts trips per capita as a function of travel costs. It must be noted that bias can be introduced from a lack of variation in the timing of the year that trips are taken. Generally travel cost models assume sufficient variation in the "number of trips taken during a particular time period" (Boxall et al., 1996). The nature of the data available to us relies on the assumption that people were travelling at the same time period in order to attend the festival.

We used a zonal travel cost model to estimate the demand curve or the willingness to pay for nonmarket benefits for those who attend the festival (Boxall et al., 1996). By calculating the area under the demand curve we are able to calculate consumer surplus for hunting groups, and thus provide an estimation for the nonmarket value of the Taber Pheasant Festival.

To conduct the zonal TCM, we used information on the hometowns of the 682 participant groups for the 2016 festival, which was provided to us by Dr. Todd Zimmerling (Zimmerling, 2017, pers.comm.)[3] of the ACA. For this analysis we are assuming that one participant group is equivalent to 1.11 people travelling together, due to the participant number in 2016 being 760, and there being 682 recorded geographical responses. With this said, the travel cost analysis was only performed on the 625 groups from Alberta (further discussion of this decision is in the limitations section).

To complete the analysis itself, we started by calculating the distance from the home location to Taber by using Google Maps to determine the distance driven by car. To remain consistent for all locations, we selected the midpoint of the town or city, to the midpoint of Taber. We would select the first suggested option for all routes, and added that into our data set (Appendix F).

To incorporate a substitute to the festival into our model, we followed the exact same steps mentioned above for Brooks, Alberta (Appendix G). We chose this location due to its history in pheasant hunting and concentration of pheasant release sites (ACA, 2017). In comparing these two locations, we can see whether it would be more costly for people to travel to Taber, compared to Brooks. This would ultimately display the "festival premium" that people are willing to pay to attend the Taber Pheasant Festival. The addition of the substitute also allows us to test our findings against microeconomic theory, which states that as the price of a substitute increases, the consumption of a good or service also increases. In this case, as travel cost of going to Brooks increases, we would expect the trips per capita to Taber to increase.

Our next steps involved collecting information about average income for each census subdivision, using Statistics Canada 2011 National Household Survey Data (Statistics Canada, 2011[2]). When searching for locations on Stats Canada, we first selected locations that had their town/city listed as the census subdivision. Having this subdivision classification allowed us to be accurate in the information we were gathering. From the census subdivision we obtained both the population, as well as the average after-tax income of all the locations found. Since the census survey was conducted in 2011, we inflated the average after-tax incomes to their 2016 equivalent value (Bank of Canada Inflation Calculator, n.d.) (Appendices F & G).

For hometowns that were not found by their location as a census subdivision, we used the next level up, the census division. Subdivision information was not available as it had been either removed or modified from the data due to various reasons. To gather the population information, we used the 2011 Census Profile by finding the population for each location (Appendices F & G).

Using all of the information explained above, we performed the zonal TCM in Microsoft Excel. To do this, we modified Hellerstein's (1991) travel cost formula in relation to the Taber Pheasant Festival to better fit the parameters for the festival. The modified formula is as follows:

$$travel\ cost = \underbrace{\$0.65\ * distance}_{\text{Vehicle operating costs}} + \underbrace{\left[\frac{1}{80} * \frac{1}{3} * \left(\frac{income}{2040}\right) * distance\right]}_{\text{Opportunity cost of time}} + \underbrace{license\ fee}_{\text{Entrance fee}}$$

(Formula 2)

This formula can be understood as:

- Vehicle operating costs: $0.65 is the out of pocket expenses for a pickup truck in Alberta, in dollars per kilometre (Canadian Automobile Association, 2017), multiplied by the distance in a round trip to Taber in km, in 2016 CAD (Appendix H).
- Opportunity cost of time: This section of the formula was created assuming an average speed of 80 km/h and the opportunity cost of travel time estimated at one-third the wage rate (Cesario, 1976); multiplied by the wage rate assuming a 2040 hours per year work schedule, at the average income of the census subdivision, and multiplied by the round trip distance to Taber. We adjusted the 2011 income from Statistics Canada to 2016 CAD, using the Bank of Canada Inflation Calculator (n.d.).
- Entrance fee: We include the license fee for hunting a pheasant, which includes the cost for a WIN card, wildlife certificate, and pheasant license. With GST and adjusted to 2016 CAD, the price is $62.36.
- In the original formula, the authors included the cost of staying at the festival. We have chosen to leave this out, as we do not have information on the typical number of nights

stayed nor can we assume the cost of stay. Due to this, we may be underestimating the true cost of visiting the Taber Pheasant Festival.

Lastly, a regression was run in STATA data analysis software where the trips per capita were compared against the travel costs to Taber, the travel costs to Brooks, and the population of the town. The specification of the regression was a count data model using a truncated Poisson model used by Boxall et. al. (1996), which was developed by Adamowicz et. al. (1989). This regression type is analogous to a semi-logarithmic regression equation, which means that the area under the curve is an estimate of consumer surplus. To solve for consumer surplus per trip, we equate it to the negative inverse of the travel cost parameter ($-1/\beta_{TC}$) solved for in the regression (Boxall et al., 1996; Adamowicz et al., 1989).

Results

i. Hunting Trends

Since the festival's inception in 2011, we found a steady increase in the sale of resident pheasant licenses each year between 8 and 15% annually (figure 2). Furthermore, festival attendance has also increased with every year, with the inaugural festival in 2011 counting 472 participants and the 2016 festival this past October counting 760 participants (figure 3). When considering the change in provincial population, the sales of resident pheasant licenses per capita has remained relatively constant over the past few years, remaining between 0.0014 and 0.0018 pheasant licenses per resident (figure 4).

Through the regression run on licences sold (Formula 1) it was determined that there were two variables that have a significant impact on the sales of resident pheasant licenses in the province of Alberta. The first significant indicator being the real cost of the wildlife certificate and resident pheasant license combined (coeff: -178.62; p-value: 0.006). We discovered that for every one dollar increase in the real price of the two licenses, there would be a decrease in resident pheasant licenses sales by approximately 179 licenses, holding all other variables in the model constant. Secondly, the number of pheasants being released was also found to have a significant impact on the sale of resident pheasant licenses, where for every five additional pheasants released, one more hunter would purchase a resident pheasant license, everything else held constant (coeff: 0.19; p-value: 0.000) (Appendix I).

Figure 2: Sales of various resident hunting licenses in Alberta (1985-2015)

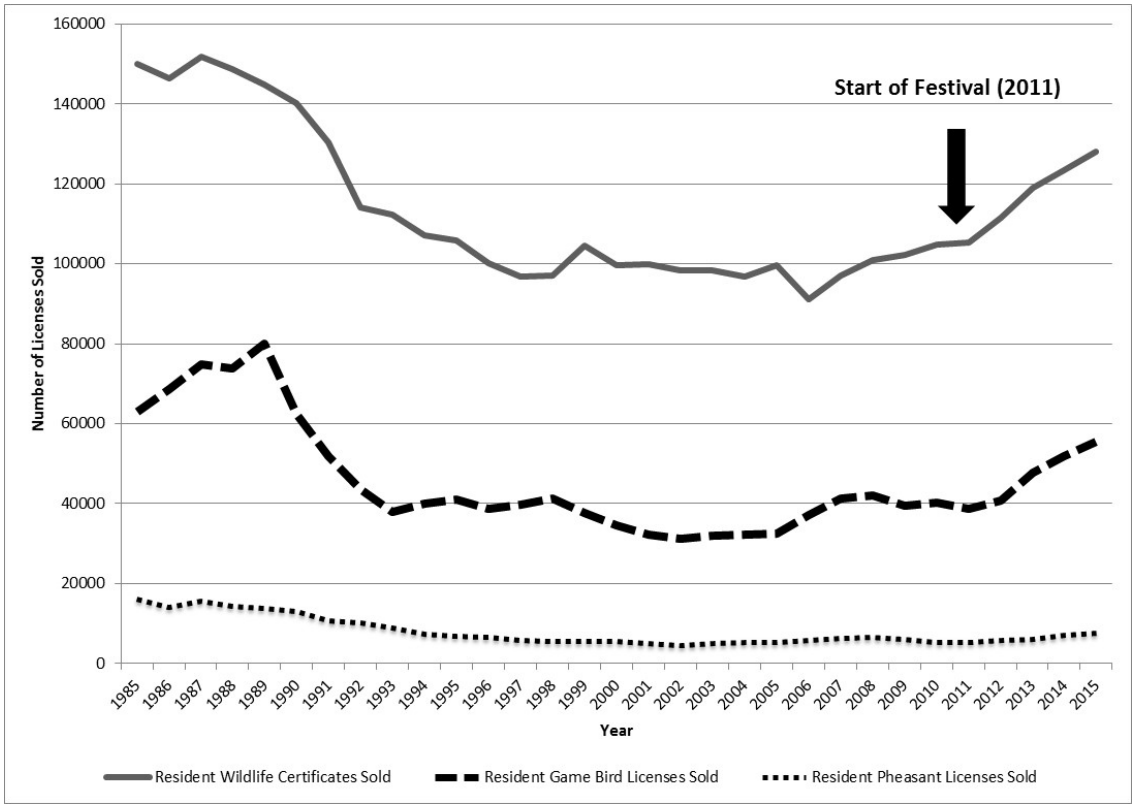
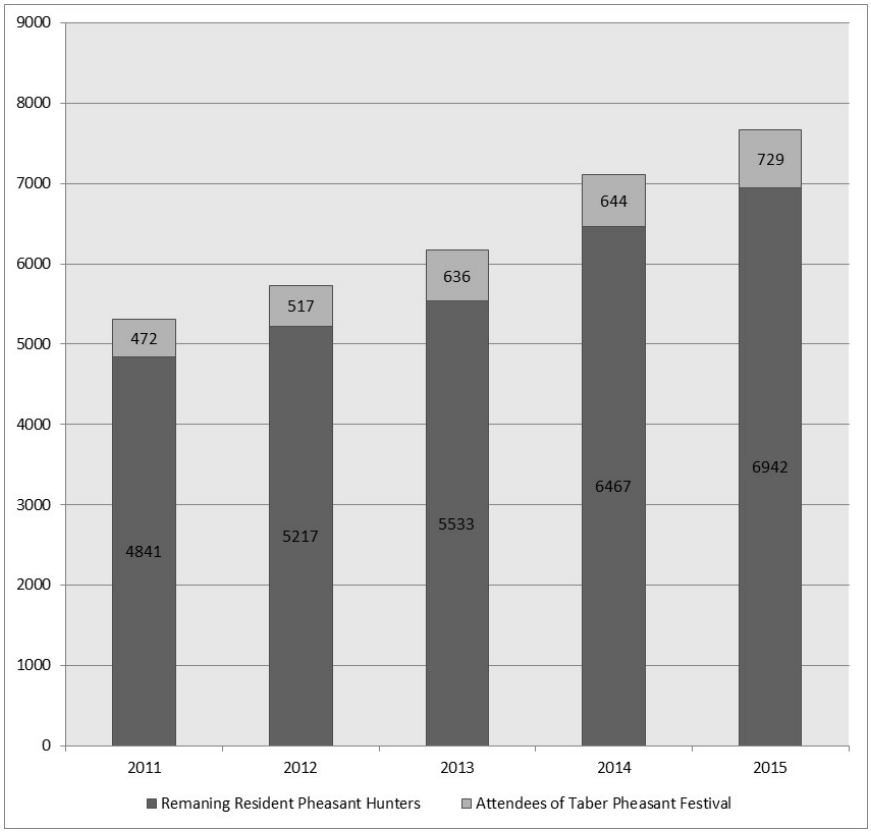


Figure 3: Festival attendees as part of resident pheasant licensed sold



* 'Attendees of the Taber Pheasant Festival' include resident, non-resident, and non-resident alien attendees.

Figure 4: Per capita sales of various resident hunting licenses in Alberta (1985-2015)

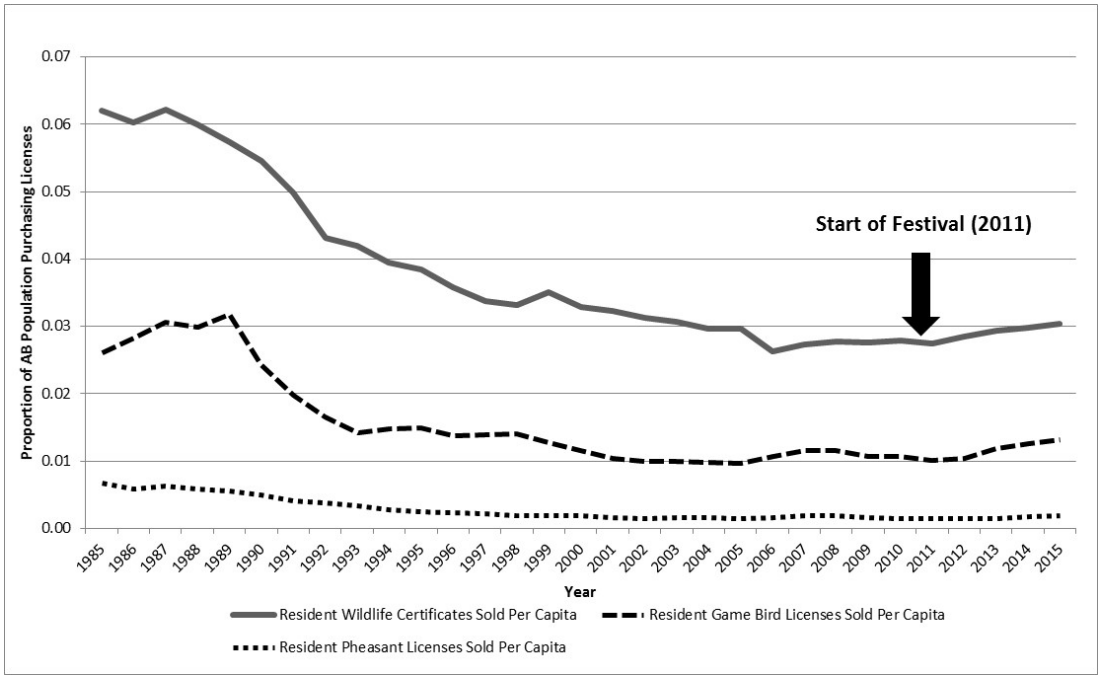
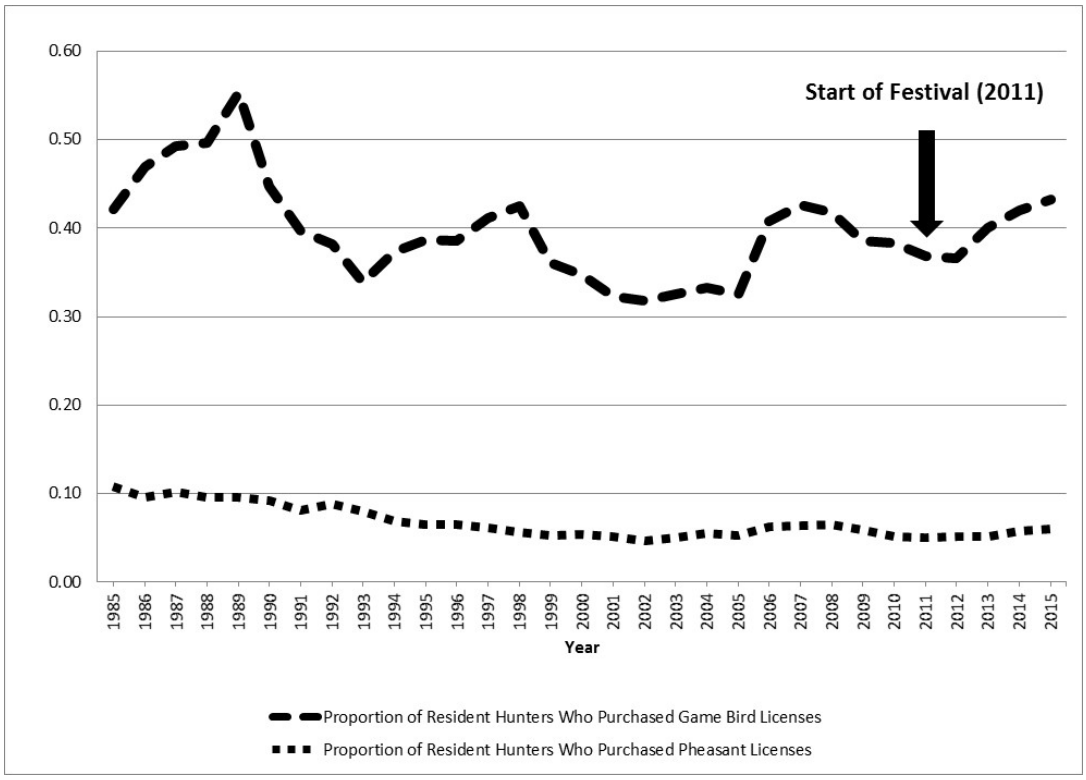


Figure 5: Resident hunters who purchased (proportion) game bird or pheasant licenses (1985-2015)



ii. Travel Cost

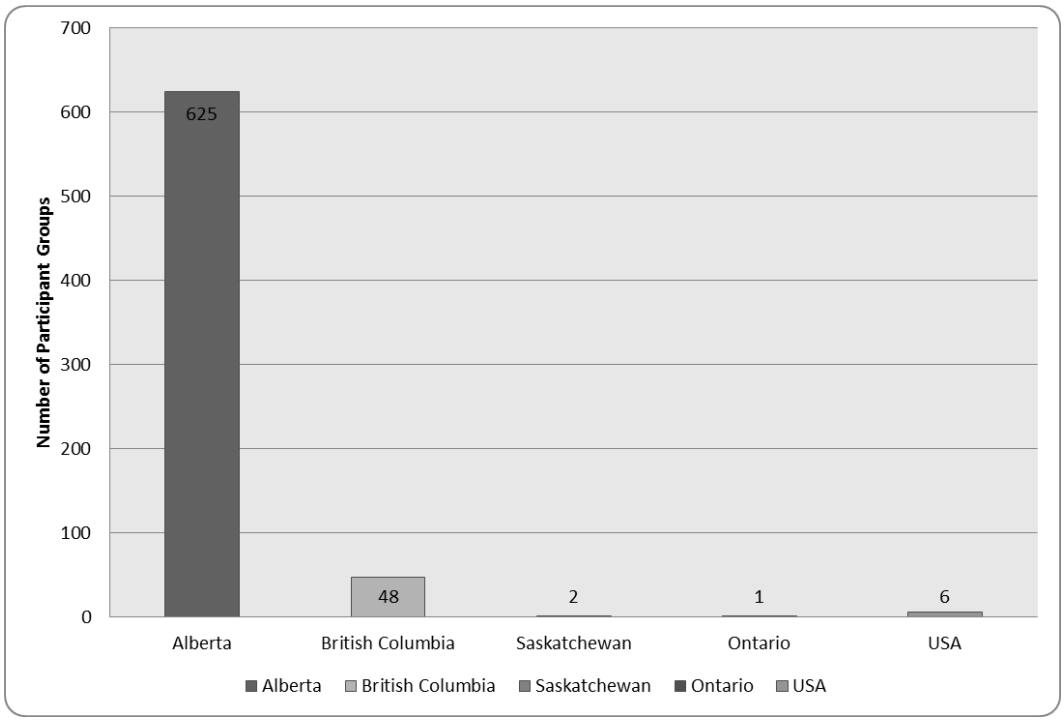
We found that the majority of participant groups were travelling from within Alberta, with 91.6% of the groups; while British Columbia had 7.04% of groups; and all other groups travelled from either Saskatchewan, Ontario, or the United States (figure 6).

Using the TCM formula (formula 2), we discovered the weighted average travel cost for a resident group attending the Taber Pheasant Festival was found to be $390.86; and the weighted average travel cost for the substitute location of Brooks was found to be $360.72 . Weighted average refers to adjustment of the travel costs to reflect hometowns that had a larger number of participant groups. Therefore, the premium to attend the festival in Taber, is valued at the difference between the two travel costs, at $30.14 per group.

From the regression, we found two statistically significant relationships. First we found that there was a negative relationship between the travel cost to Taber and the trips per capita to Taber (coeff: -0.00521, p-value: 0.000) (Appendix J). This implies that as the travel cost to Taber increases, the amount of trips per capita will decrease. Factors that could impact the travel cost include distance from Taber and average income of the home location, as the entrance fee component to the equation was fixed. As either of these factors increase, the travel cost will also increase and therefore we would a decrease in trips per capita. Specifically from our model run, as travel cost to Taber increases by one dollar, we would expect a decrease of 0.00521 trips per capita to Taber. Secondly, we found that there was a positive relationship between the travel cost to the substitute, Brooks, and the trips per capita to Taber (coeff: 0.00158, p-value: 0.016)(Appendix J). This implies that as the price of attending to the substitute increases, the trips per capita to the original good also increases. As expected, these results act in accordance with microeconomic theory, and validates the results of the regression. As travel cost to Brooks increases by one dollar, we would expect an increase of 0.00158 trips per capita to Taber.

Lastly, we used the truncated Poisson count model to estimate consumer surplus for participant groups attending the Taber Pheasant Festival. As described in the methods section, calculating the consumer surplus per trip is done by equating it to the negative inverse of the travel cost parameter ($-1/\beta_{TC}$). Calculated consumer surplus for a participant group attending the Taber Pheasant Festival in 2016 is $191.57 per trip. Aggregating this consumer surplus per trip by the total number of Albertan participant groups (n=625), we find that the total consumer surplus of the festival is $119,731.25.

Figure 6: Proportion of visits from Alberta, British Columbia, Saskatchewan, Ontario, and the USA for the 2016 Taber Pheasant Festival



Discussion

As seen from our analysis, it can be seen that there has been an increase in pheasant and game bird hunting participation. This trend supports ideas of changes in the perception of hunting. When looking specifically at pheasants, hunting rates have been increasing since before the introduction of the ACA's Taber Pheasant Festival. That being said, since the festival began the trends have continued to increase.

This, paired with the positive consumer surplus experienced from taking part in the festival, may provide insight to an increase in participation. This is because attending the festival is worth the travel and associated costs, as exhibited in the travel cost model.

i. Limitations

Due to the fact that our study is more exploratory than informative, there are a number of limitations to our study, largely due to the assumptions that were made.

One limitation to our results, is the fact that only Alberta participants were considered in both analyses. Regarding our findings on hunting sales and participation, only Alberta resident license sales were considered. This could lead to problems in determining actual hunting trends in Alberta as there are hunters who travel from out of province to hunt recreationally within Alberta. These hunters must purchase non-resident or non-resident alien hunting licenses, which are sometimes priced differently. Due to the fact that we did not include them in our analysis we are unable to understand if they follow the same trends and principles as resident license sales. We ran into a similar issue for our travel cost analysis, as only participants traveling from within Alberta were considered. This decision was made because we felt there was more room for uncertainty for travellers coming from outside of Alberta, specifically in determining if their primary reasons for visiting Taber was the festival. If travellers had alternative reasons to visit Taber or Southern Alberta, it would affect their consumer surplus. By preventing this error from skewing our analysis, we are missing out on understanding consumer surplus for those visiting from out of province.

We encountered limitations in the TCM because we did not have individual point data; rather, we only had information on participant groups. We assumed that groups had 1.11 people by dividing the total participants in 2016 by the number of participant groups. This could have had implications in the weighted travel cost averages estimated. Having only town names and lacking postal code information impacted the accuracy of the distance variable and income variable in the TCM formula. Due to Statistics Canada's confidentiality policy for smaller communities, which

resulted in us having to use census divisions rather than census subdivisions for some communities, our income variable could have been impacted further.

Since our analysis on hunting trends was conducted over several decades, the variable of inflation may introduce uncertainty. Though we corrected for inflation using the CPI, this does not truly reflect the costs in that year due to internal CPI assumptions of a constant basket of goods. Furthermore, our base years in both analyses were different, using 2004 CAD for hunting trends and 2016 CAD for the travel-cost method.

Lastly, we also experienced a number of problems with availability of data, which includes missing data on individual expenditures, in terms of what festival participants spent while traveling to and in the Town of Taber during the festival. Ultimately, this limited the scope of our analysis as we were not able to complete a benefit-cost analysis for the Town of Taber and the local businesses involved.

ii. Future Research

Originally our study's primary goal was to conduct a benefit-cost analysis (BCA) of the Taber Pheasant Festival, which would provide quantitative values for the benefits and costs incurred by participants, businesses, the Town of Taber, and the ACA. These benefits and costs would have included both monetary and nonmonetary assets that would have played a role economically and environmentally. Unfortunately, there was insufficient data to conduct a BCA of this sort.

Throughout the duration of our project, our discussions with the ACA, as well as conducting the analysis itself, we identified what information would be necessary to conduct this type of BCA. Thus we have taken this opportunity to create two surveys, which can be used during future festivals to help create a database of information that would support a BCA of the Taber

Pheasant Festival. Since businesses and participants have different objectives at the Taber Pheasant Festival, one survey was tailored to each group. Both surveys are listed in Appendix L.

With the implementation of these surveys, various other studies could be done in the future. First, an updated and more accurate version of this study should be done, accounting for several limitations identified in the previous section, including: postal code information, participant group size (to weight the travel costs), participant expenditure information, whether or not the festival is the primary reason for visiting Taber, and income information. With this information, a more precise TCM could be conducted, and therefore a more accurate consumer surplus per trip could be estimated. With information on whether or not the festival is the primary reason for a participant to visit Taber, we could adjust the TCM to include out of province visitors and expand our understanding of consumer surplus.

A further study could focus on the impact of both distance and income on the TCM model. Essentially this study would complete a comprehensive analysis of estimates of the parameters and significance for each independent variable included in the model and further explore multivariate interactions.

Another potential future study could focus more closely on the relationship between hunting license fees and the sale of hunting licences, using the principles found in this study as background. This study could help to explain the impact of manipulation of prices on hunting participation.

Finally, a comparative study between the Taber Pheasant Festival and another similar festival, such as the Canadian Badlands Pheasant Festival in Stettler, AB (Canadian Badlands, 2106), could be done to better understand consumer surplus and participant willingness to pay to attend a festival. These festivals could be compared to other hunting areas in Alberta, so that travel

costs and “festival premiums” are further understood as well.

Conclusion

The Taber Pheasant Festival provides value to festival attendees that is not captured in an economic market, thus we can then say that the festival is providing non-market benefits to those attending the festival. We calculated the consumer surplus to inform the Alberta Conservation Association and those who sponsor the event. The value we calculated for consumer surplus was $191.57 per participant group attending the festival.

This study attempts to provide a more comprehensive understanding of willingness to pay for pheasant hunting in Alberta, as well as the impact of organized festivals like the Taber Pheasant Festival, in relation to recreational hunting trends. Although the existence of the festival itself has not had a direct significant impact on the sales of resident pheasant licenses in Alberta, it provides an excellent gateway for introducing people into the dying art of hunting.

We feel as though our study of the Taber Pheasant Festival has provided a good baseline for future studies to be conducted and we hope that a more in depth economic analysis is done in the coming years.

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Appendix

A. Hunting definitions – adapted from http://albertaregulations.ca/huntingregs/licencecosts.html
   A.1. WIN Card – Wildlife Identification Number required to purchase wildlife certificates as well as hunting and angling licenses in Alberta. Valid for 5 years. This was taken into account in our analysis
   A.2. Resident Hunters – people engaging in hunting activities within Alberta who reside in the province of Alberta
   A.3. Non-resident Hunters – people engaging in hunting activities within Alberta who reside in Canada but not in Alberta
   A.4. Non-resident Alien Hunters – people engaging in hunting activities within Alberta who reside outside of Canada

B. License sales information for resident wildlife certificates, game bird licenses, and pheasants sold in actual numbers and per capita basis for 1985-2015)

Year	Resident Wildlife Certificates Sold	Resident Game Bird Licenses Sold	Resident Pheasant Licenses Sold	Alberta Population	Resident Wildlife Certificates Sold Per Capita	Resident Game Bird Licenses Sold Per Capita	Resident Pheasant Licenses Sold Per Capita
1985	149838	63045	16138	2415590	0.0620	0.0261	0.0067
1986	146413	68766	14035	2432958	0.0602	0.0283	0.0058
1987	151708	74822	15463	2443396	0.0621	0.0306	0.0063
1988	148621	73749	14293	2477533	0.0600	0.0298	0.0058
1989	144738	79991	13788	2520056	0.0574	0.0317	0.0055
1990	140115	62569	12920	2572947	0.0545	0.0243	0.0050
1991	130351	51772	10630	2611786	0.0499	0.0198	0.0041
1992	114208	43671	10111	2650886	0.0431	0.0165	0.0038
1993	112306	37993	8967	2683346	0.0419	0.0142	0.0033
1994	107030	39893	7344	2715701	0.0394	0.0147	0.0027
1995	105818	40947	6911	2753463	0.0384	0.0149	0.0025
1996	100266	38718	6506	2799561	0.0358	0.0138	0.0023
1997	96655	39807	5874	2859305	0.0338	0.0139	0.0021
1998	97030	41172	5487	2926079	0.0332	0.0141	0.0019
1999	104433	37644	5474	2974517	0.0351	0.0127	0.0018
2000	99711	34691	5395	3027941	0.0329	0.0115	0.0018
2001	99762	32190	5074	3092320	0.0323	0.0104	0.0016
2002	98358	31270	4604	3155065	0.0312	0.0099	0.0015
2003	98246	32000	4976	3209141	0.0306	0.0100	0.0016
2004	96836	32184	5377	3276666	0.0296	0.0098	0.0016
2005	99730	32479	5206	3371743	0.0296	0.0096	0.0015
2006	91214	37208	5726	3472643	0.0263	0.0107	0.0016
2007	96912	41288	6229	3548699	0.0273	0.0116	0.0018
2008	100820	42094	6501	3638623	0.0277	0.0116	0.0018
2009	102193	39355	6070	3702578	0.0276	0.0106	0.0016
2010	104889	40193	5344	3754621	0.0279	0.0107	0.0014
2011	**105389**	**38813**	**5313**	**3826708**	**0.0275**	**0.0101**	**0.0014**
2012	111568	40782	5734	3931225	0.0284	0.0104	0.0015
2013	119057	47614	6169	4050711	0.0294	0.0118	0.0015
2014	123438	51884	7111	4146691	0.0298	0.0125	0.0017
2015	128077	55363	7671	4216375	0.0304	0.0131	0.0018

*shaded indicates the start of the Taber Pheasant Festival

C. Cost of pheasant licences and wildlife certificates adjusted to 2004 CAD$ for 1985-2015

Year	Current Cost Resident Pheasant License	Pheasant License Plus GST	Adjusted to 2004 $	Current Cost Resident Wildlife Certificate (GST incl)	Adjusted to 2004 $	Total Current Cost	Total Cost Adjusted to 2004 $
1985	$10.00	$10.00	$16.62	$11.00	$18.27	$21.00	$34.89
1986	$10.00	$10.00	$15.96	$11.00	$17.55	$21.00	$33.51
1987	$10.00	$10.00	$15.28	$13.00	$19.87	$23.00	$35.16
1988	$10.00	$10.00	$14.71	$13.00	$19.10	$23.00	$33.81
1989	$10.00	$10.00	$14.00	$15.00	$21.00	$25.00	$35.00
1990	$10.00	$10.00	$13.35	$16.00	$21.37	$26.00	$34.72
1991	$11.75	$12.57	$15.90	$22.00	$27.83	$34.57	$43.73
1992	$11.45	$12.25	$15.27	$22.00	$27.41	$34.25	$42.68
1993	$11.45	$12.25	$14.99	$22.00	$26.93	$34.25	$41.91
1994	$12.15	$13.00	$15.88	$22.85	$27.91	$35.85	$43.80
1995	$12.15	$13.00	$15.54	$22.85	$27.32	$35.85	$42.86
1996	$13.00	$13.91	$16.38	$24.45	$28.77	$38.36	$45.15
1997	$13.00	$13.91	$16.11	$24.45	$28.31	$38.36	$44.42
1998	$12.15	$13.00	$14.91	$24.45	$28.05	$37.45	$42.96
1999	$12.15	$13.00	$14.65	$24.45	$27.57	$37.45	$42.22
2000	$12.15	$13.00	$14.27	$24.45	$26.84	$37.45	$41.11
2001	$12.15	$13.00	$13.92	$24.45	$26.17	$37.45	$40.09
2002	$12.15	$13.00	$13.61	$24.45	$25.60	$37.45	$39.21
2003	$12.15	$13.00	$13.24	$24.45	$24.91	$37.45	$38.15
2004	$12.15	$13.00	$13.00	$24.45	$24.45	$37.45	$37.45
2005	$13.65	$14.61	$14.29	$26.05	$25.49	$40.66	$39.78
2006	$13.65	$14.47	$13.89	$25.81	$24.77	$40.28	$38.65
2007	$13.65	$14.47	$13.59	$25.81	$24.24	$40.28	$37.82
2008	$15.38	$16.15	$14.82	$29.63	$27.19	$45.78	$42.01
2009	$15.38	$16.15	$14.78	$29.63	$27.12	$45.78	$41.90
2010	$15.38	$16.15	$14.51	$29.63	$26.63	$45.78	$41.14
2011	$15.38	$16.15	$14.10	$29.63	$25.87	$45.78	$39.98
2012	$15.38	$16.15	$13.89	$29.63	$25.49	$45.78	$39.38
2013	$15.38	$16.15	$13.77	$29.63	$25.26	$45.78	$39.03
2014	$15.38	$16.15	$13.50	$29.63	$24.78	$45.78	$38.28
2015	$22.38	$23.50	$19.43	$29.63	$24.50	$53.13	$43.94

D. Pheasants released in Alberta under the pheasant release program for 1987- 2015

Year	Pheasants Released
1987	66963
1988	53536
1989	40108
1990	39668
1991	39668
1992	39228
1993	25795
1994	25762
1995	30869
1996	16468
1997	17268
1998	20586
1999	19327
2000	15555
2001	12000
2002	10240
2003	10000
2004	10000
2005	11400
2006	14400
2007	15750
2008	16630
2009	16630
2010	16630
2011	16440
2012	16250
2013	16000
2014	18605
2015	20350
2016	34510

shaded indicates data was unavailable, to fix for this we took the mean of the two adjacent years
Chart: Regression results:

E. Attendance numbers for the Taber Pheasant Festival, displaying total and novice attendees for 2011-2015

Year	Total Attendees of TPF	Novice Attendees Only
2011	472	32
2012	517	52
2013	636	66
2014	644	47
2015	729	73
2016	760	73

F. Complied Taber 'travel cost' data for all hometowns of 2016 attendees of the Taber Pheasant Festival

Town	# cars	Round trip to Taber (km)	Income ($)	Income/2040 ($/hrs)	Income/2040 (adjusted to 2016)	Travel cost	Travel cost of all cars from that town
Airdrie	5	598	43293	21.22	22.84	507.97	2539.84
Alberta Beach	1	1174	35846	17.57	18.91	917.96	917.96
Barnwell	3	18	31787	15.58	16.77	75.32	225.95
Black Diamond	5	476	35477	17.39	18.72	408.88	2044.40
Blairmore	1	378	36726	18.00	19.37	338.58	338.58
Brooks	7	204	37593	18.43	19.83	211.82	1482.72
Bow Island	2	116	30291	14.85	15.98	145.48	290.97
Cardston	1	256	30479	14.94	16.08	245.91	245.91
Calgary	255	526	44906	22.01	23.69	456.18	116326.11
Camrose	2	836	34046	16.69	17.96	668.32	1336.65
Canmore	4	724	48077	23.57	25.36	609.47	2437.89
Carstairs	6	660	37483	18.37	19.77	545.74	3274.43
Champion	1	252	25625	12.56	13.52	240.35	240.35
Claresholm	1	260	31550	15.47	16.64	249.39	249.39
Coaldale	7	71	32303	15.83	17.04	113.55	794.86
Cold Lake	1	1274	45480	22.29	23.99	1017.82	1017.82
Cochrane	10	590	30790	15.09	16.24	485.79	4857.91
Cranford	1	31.8	31470	15.43	16.60	85.23	85.23

Cremona	7	712	35981	17.64	18.98	581.47	4070.31
Crowsnest Pass	5	400	36726	18.00	19.37	354.65	1773.26
Del Bonita	1	268	30479	14.94	16.08	254.52	254.52
Diamond City	1	134.8	34443	16.88	18.17	160.19	160.19
Didsbury	4	694	36140	17.72	19.07	568.59	2274.37
Drumheller	1	464	35215	17.26	18.58	399.88	399.88
Edmonton	31	1028	36637	17.96	19.33	813.35	25213.77
Fort Sask	2	1038	42726	20.94	22.54	834.55	1669.09
Grande Prairie	3	1946	42161	20.67	22.24	1507.61	4522.82
Hays	3	122.6	31470	15.43	16.60	150.53	451.59
High River	5	402	37423	18.34	19.74	356.73	1783.64
Innisfail	1	754	37895	18.58	19.99	615.27	615.27
Langdon	1	482	45667	22.39	24.09	424.04	424.04
Leduc	2	1030	41771	20.48	22.04	826.43	1652.86
Lethbridge	96	106.8	34382	16.85	18.14	139.85	13425.74
Lloydminster	1	1054	43882	21.51	23.15	849.13	849.13
Lundbreck	1	330	30479	14.94	16.08	298.97	298.97
Medicine Hat	4	234	35492	17.40	18.72	232.72	930.86
Millarville	1	504	55525	27.22	29.29	451.47	451.47
Nanton	3	342	34190	16.76	18.04	310.36	931.09
Nobleford	1	170.2	31184	15.29	16.45	184.66	184.66
Okotoks	14	442	44827	21.97	23.65	393.21	5504.98
Olds	1	720	38025	18.64	20.06	590.54	590.54
Peace River	1	2004	43163	21.16	22.77	1555.09	1555.09
Picture Butte	1	126.4	31787	15.58	16.77	153.35	153.35
Pincher Creek	3	302	33726	16.53	17.79	281.05	843.15
RedCliff	1	248	33649	16.49	17.75	241.90	241.90
Red Deer	14	788	38593	18.92	20.36	641.41	8979.71
Rimbey	1	908	32896	16.13	17.35	718.22	718.22
St Albert	7	1070	47571	23.32	25.10	869.75	6088.23
Seven Person	2	184.4	35480	17.39	18.72	196.60	393.20
Sherwood Park	2	1006	48613	23.83	25.65	823.76	1647.52
Spring Bank	1	554	79892	39.16	42.15	519.75	519.75
Spruce Grove	1	1084	41958	20.57	22.13	866.94	866.94
Strathmore	7	456	37592	18.43	19.83	396.44	2775.08
Sundre	2	768	45667	22.39	24.09	638.65	1277.31

Taber	68	0	31470	15.43	16.60	62.36	4240.48
Turner Valley	3	480	36465	17.88	19.24	412.83	1238.50
Vegreville	5	894	33573	16.46	17.71	709.43	3547.17
Vermilion	1	948	35022	17.17	18.48	751.54	751.54
Vulcan	1	292	34943	17.13	18.43	274.59	274.59
Waterton	1	362	30479	14.94	16.08	321.91	321.91
Wetaskiwin	1	896	34155	16.74	18.02	712.03	712.03
Sum of groups	625				**Totals:**	29770.07917	244285.68
Average cost per car	390.86						

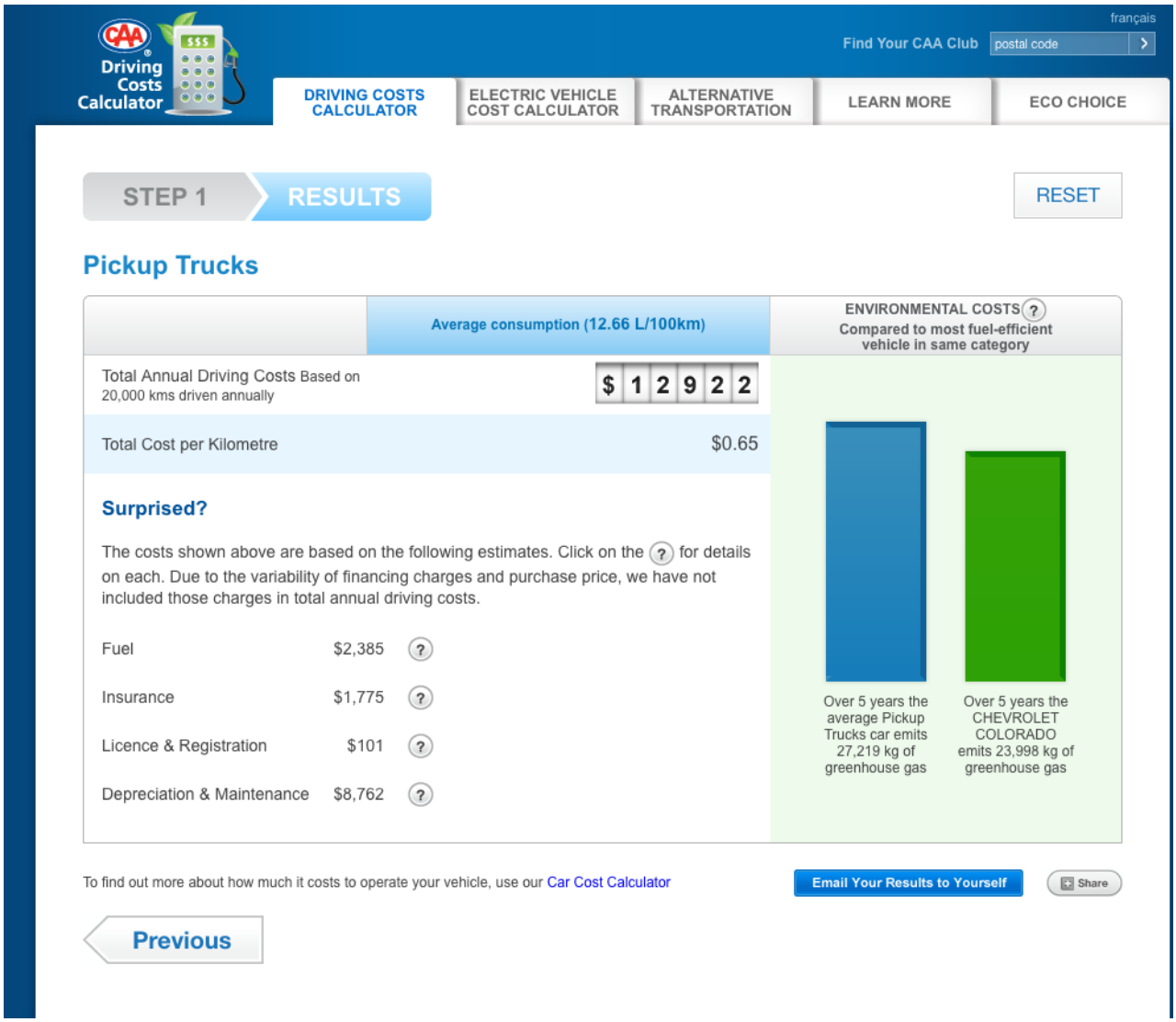
G. Complied Brooks 'travel cost' data for all hometowns of 2016 attendees of the Taber Pheasant Festival

town	**# cars**	**Round Trip to Brooks (km)**	**Income ($)**	**Income/2040 ($/hr)**	**Income/2040 adjusted to 2016**	**Travel Cost**	**Travel cost of all cars**
Airdrie	5	416	43293	21.22	22.84	372.35	1861.74
Alberta Beach	1	992	35846	17.57	18.91	785.32	785.32
Barnwell	3	222	31787	15.58	16.77	222.17	666.51
Black Diamond	5	390	35477	17.39	18.72	346.27	1731.37
Blairmore	1	562	36726	18.00	19.37	473.03	473.03
Brooks	7	0	37593	18.43	19.83	62.36	436.52
Bow Island	2	230	30291	14.85	15.98	227.17	454.35
Cardston	1	460	30479	14.94	16.08	392.18	392.18
Calgary	255	378	44906	22.01	23.69	345.37	88069.84
Camrose	2	654	34046	16.69	17.96	536.40	1072.81
Canmore	4	614	48077	23.57	25.36	526.35	2105.39
Carstairs	6	480	37483	18.37	19.77	413.91	2483.45
Champion	1	248	25625	12.56	13.52	237.53	237.53
Claresholm	1	368	31550	15.47	16.64	327.08	327.08
Coaldale	7	274	32303	15.83	17.04	259.92	1819.41
Cold Lake	1	1092	45480	22.29	23.99	881.33	881.33
Cochrane	10	464	30790	15.09	16.24	395.36	3953.64
Cranford	1	236	31470	15.43	16.60	232.09	232.09
Cremona	7	530	35981	17.64	18.98	448.78	3141.45
Crowsnest Pass	5	586	36726	18.00	19.37	490.57	2452.83

Del Bonita	1	482	30479	14.94	16.08	407.95	407.95
Diamond City	1	292	34443	16.88	18.17	274.27	274.27
Didsbury	4	512	36140	17.72	19.07	435.83	1743.33
Drumheller	1	282	35215	17.26	18.58	267.49	267.49
Edmonton	31	846	36637	17.96	19.33	680.39	21092.11
Fort Sask	2	856	42726	20.94	22.54	699.15	1398.31
Grande Prairie	3	1764	42161	20.67	22.24	1372.44	4117.32
Hays	3	120.6	31470	15.43	16.60	149.09	447.28
High River	5	368	37423	18.34	19.74	331.83	1659.16
Innisfail	1	584	37895	18.58	19.99	490.61	490.61
Langdon	1	300	45667	22.39	24.09	287.47	287.47
Leduc	2	848	41771	20.48	22.04	691.42	1382.84
Lethbridge	96	310	34382	16.85	18.14	287.29	27579.70
Lloydminster	1	874	43882	21.51	23.15	714.76	714.76
Lundbreck	1	514	30479	14.94	16.08	430.90	430.90
Medicine Hat	4	216	35492	17.40	18.72	219.61	878.45
Millarville	1	408	55525	27.22	29.29	377.36	377.36
Nanton	3	328	34190	16.76	18.04	300.21	900.63
Nobleford	1	308	31184	15.29	16.45	283.67	283.67
Okotoks	14	358	44827	21.97	23.65	330.34	4624.70
Olds	1	538	38025	18.64	20.06	457.03	457.03
Peace River	1	1822	43163	21.16	22.77	1419.53	1419.53
Picture Butte	1	270	31787	15.58	16.77	256.73	256.73
Pincher Creek	3	488	33726	16.53	17.79	415.74	1247.21
RedCliff	1	198.4	33649	16.49	17.75	205.99	205.99
Red Deer	14	606	38593	18.92	20.36	507.67	7107.36
Rimbey	1	726	32896	16.13	17.35	586.76	586.76
St Albert	7	888	47571	23.32	25.10	732.42	5126.91
Seven Person	2	260	35480	17.39	18.72	251.64	503.27
Sherwood Park	2	824	48613	23.83	25.65	686.01	1372.02
Spring Bank	1	406	79892	39.16	42.15	397.56	397.56
Spruce Grove	1	904	41958	20.57	22.13	733.33	733.33
Strathmore	7	276	37592	18.43	19.83	264.57	1851.96
Sundre	2	606	45667	22.39	24.09	517.09	1034.18
Taber	68	204	31470	15.43	16.60	209.07	14216.87
Turner	3	398	36465	17.88	19.24	352.96	1058.88

Valley							
Vegreville	5	712	33573	16.46	17.71	577.70	2888.52
Vermilion	1	766	35022	17.17	18.48	619.23	619.23
Vulcan	1	244	34943	17.13	18.43	239.70	239.70
Waterton	1	766	30479	14.94	16.08	611.58	611.58
Wetaskiwin	1	714	34155	16.74	18.02	580.06	580.06
Sum of all groups	625				**Totals:**	27629.98	225450.84
Average cost per car	360.72						

H. Calculation of vehicle operation cost from the Canadian Automobile Association



I. STATA analytical software output for hunting trends regression

```
. reg Licsold TTcostAd Taber aca Release

      Source |       SS           df       MS      Number of obs   =        29
-------------+----------------------------------   F(4, 24)        =     79.84
       Model |   247867875         4  61966968.7   Prob > F        =    0.0000
    Residual |  18626732.6        24  776113.859   R-squared       =    0.9301
-------------+----------------------------------   Adj R-squared   =    0.9185
       Total |   266494607        28  9517664.54   Root MSE        =    880.97

------------------------------------------------------------------------------
     Licsold |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    TTcostAd |  -178.6237   58.80077    -3.04   0.006    -299.9826   -57.26492
       Taber |  -489.2645    555.513    -0.88   0.387    -1635.787    657.2579
         aca |    1311.22   813.1724     1.61   0.120    -367.0853    2989.526
     Release |   .1956357   .0132966    14.71   0.000       .168193    .2230785
       _cons |   10101.92    2515.87     4.02   0.001     4909.421    15294.42
------------------------------------------------------------------------------
```

J. STATA analytical software output for travel cost regression

```
Truncated Poisson regression                    Number of obs     =         61
Truncation point: 0                             LR chi2(3)        =    1790.28
                                                Prob > chi2       =     0.0000
Log likelihood =  -246.4671                     Pseudo R2         =     0.7841

------------------------------------------------------------------------------
       trips |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       lnpop |   .8970671   .0246275    36.43   0.000     .8487982    .9453361
       tcost |  -.0052199     .00046   -11.35   0.000    -.0061215   -.0043183
    subtcost |   .0015831   .0006561     2.41   0.016     .0002971    .0028691
       _cons |  -5.260613   .3005955   -17.50   0.000     -5.84977   -4.671457
------------------------------------------------------------------------------
```

K. Table showing trips per capita to Taber

Town	Round Trip to Taber (km)	Trips per capita
Airdrie	598	0.00011747
Alberta Beach	1174	0.00115607
Barnwell	18	0.00389105
Black Diamond	476	0.00210704
Blairmore	378	0.00058038
Brooks	204	0.00051185
Bow Island	116	0.00098765
Cardston	256	0.00023998
Calgary	526	0.00023249
Camrose	836	0.0001157
Canmore	724	0.00032552
Carstairs	660	0.00174317
Champion	252	0.0026455
Claresholm	260	0.0002661
Coaldale	71	0.00093421
Cold Lake	1274	7.226E-05
Cochrane	590	0.00056883
Cranford	31.8	0.00014596
Cremona	712	0.01531729
Crowsnest Pass	400	0.00089847
Del Bonita	268	0.00023998
Diamond City	134.8	0.00617284
Didsbury	694	0.00080694
Drumheller	464	0.00012455
Edmonton	1028	3.8168E-05
Fort Saskatchewan	1038	0.00010498
Grande Prairie	1946	5.4514E-05
Hays	122.6	0.00043789
High River	402	0.000387
Innisfail	754	0.00012697
Langdon	482	0.004
Leduc	1030	8.2376E-05
Lethbridge	106.8	0.00114947
Lloydminster	1054	5.5457E-05
Lundbreck	330	0.00409836
Medicine Hat	234	6.6661E-05
Millarville	504	4.7041E-05

Town	Round Trip to Taber (km)	Trips per capita
Nanton	342	0.00140713
Nobleford	170.2	0.001
Okotoks	442	0.00057117
Olds	720	0.00012143
Peace River	2004	0.00014828
Picture Butte	126.4	0.00060606
Pincher Creek	302	0.00081411
RedCliff	248	0.00017895
Red Deer	788	0.00015459
Rimbey	908	0.00042052
St Albert	1070	0.00011388
Seven Person	184.4	0.00865801
Sherwood Park	1006	1.8133E-05
Spring Bank	554	2.7427E-05
Spruce Grove	1084	3.821E-05
Strathmore	456	0.00056887
Sundre	768	0.00076628
Taber	0	0.00992556
Turner Valley	480	0.0013844
Vegreville	894	0.00087458
Vermilion	948	0.00025445
Vulcan	292	0.00054466
Waterton	362	0.01136364
Wetaskiwin	896	7.984E-05

L. Future study surveys for participants (1) and businesses (2)

Survey #1 - Participant Survey:

This survey should be given to participants at the event to complete immediately, or via email in a timely manner post event. To increase the participation rate, having a prize or incentive to complete the survey would be required.

Dear Participant,

We would like to learn about your impressions and feelings towards the Taber Pheasant Festival. We are interested in the personal motivations and reasons to attend this festival. Thank you for your participation and we appreciate your time to complete the survey.

Taber Pheasant Festival Survey

DESCRIPTION

This survey is being conducted by a team of individuals working with the Alberta Conservation Association, in association with the University of Alberta. The aim of this survey is to identify the social and economic benefits pertaining the Taber Pheasant Festival.

PARTICIPATION

It is expected that the survey will be no longer than 20 minutes. Your participation in this project is entirely voluntary and anonymous. If you agree to participate you do not have to answer any question(s) that you are uncomfortable answering. You can withdraw anytime during the survey.

EXPECTED BENEFITS

Findings from the research project are expected to provide insight into the benefits and costs pertaining to the festival.

RISKS

There are no risks associated with your participation in this project.

PRIVACY AND CONFIDENTIALITY

All comments and responses are anonymous and will be treated confidentially unless otherwise required by law. The names of individual persons are not required as part of any response.

CONSENT TO PARTICIPATE

By choosing to submit your responses to the survey you are indicating your consent to participate in this project.

QUESTIONS / FURTHER INFORMATION ABOUT THE PROJECT

If you have any questions or require any further information please contact **XXXXXX at XXXXXXX**

If you would like to participate in this research project?

- Yes
- No

If **NO** please return the survey

1. How satisfied are you with your experience at the Taber Pheasant Festival? (circle one)
    a) Very satisfied
    b) Somewhat satisfied
    c) Neutral
    d) Somewhat dissatisfied
    e) Very dissatisfied

2. What was your main reason for attending the Taber Pheasant Festival?
    a) _____

3. Will you be visiting any other attractions in the Taber area?
    a) Yes
    b) No
    c) Unsure

If "**Yes**" was selected for **3. Will you be visiting any other attractions in the Taber area,** please answer the following question.

3a. Since you responded "Yes," what other attractions are you planning on seeing?
    a) _____

4. Was the Taber Pheasant Festival your main reason for you visit to visiting Taber?
    a) Yes
    b) No

If "**No**" was selected for **4. Was the Taber Pheasant Festival your main reason for you visit to visiting Tabe**r, please answer the following question.

4a. Since you responded "No," what was your main reason to visit Taber?

b) _____

5. How many people did you attend the festival with?

a) _____ people

6. Of these people, how many are from your own household?

a) _____ people

7. How long did you stay/ have you stayed and participate in the festival? (circle one)

a) less than one day
b) 1 -2 days
c) 3- 4 days
d) 5-7 days
e) Unknown

8. How many times have you have participated in the Taber Pheasant Festival?

a) _____year(s)
b) This is my first time at the festival

9. Would you attend the festival again next year? (circle one)

a) Definitely
b) Probably
c) Probably not
d) Definitely not
e) Unsure

10. In what ways did you participant in festival? (circle all that apply)

a) Hunting
b) Culinary activities
c) Scotch tastings
d) Novice shoot
e) Banquet & Silent auction
f) Other _____

If "**a) Hunting**" was selected for **10. In what ways did you participant in festival**, please answer the following question.

10a. Since you hunted (a) pheasants in at the festival, do you plan on hunting pheasants elsewhere in the province of Alberta (i.e Brooks)?

a) Yes; where _____
b) No

c) Unsure

11. Roughly how much money did you personally spend during your period of time at the festival (transportation, accommodations, food, souvenirs)
    a) Registration/ Participation fees $_____
    b) Hunting administration costs (i.e. licences, ammunition) $_____
    c) Transportation and Fuel $_____
    d) Accommodations $_____
    e) Food $_____
    f) Souvenir's / shopping $_____
    g) Other $_____
    Total $_____

12. Are you a first time hunter?
    a) Yes
    b) No
    c) Unsure

13. Are you a frequent hunter (or do you plan on becoming one)?
    a) Yes
    b) No
    c) Unsure

    A frequent hunter is one that partakes in hunting activities on average once a month, or at least 2+ times per month during in season

14. What other types of hunting do you try to do annually? (circle all that apply)
    a) Other upland game birds (i.e. grouse or partridge)
    b) Water fowl
    c) Deer
    d) Moose
    e) Elk
    f) Fishing
    g) Other _____

15. Where are you from (City/town AND postal code)?
    a) City/town_____
    b) Postal code _____

16. In which of the following brackets does you annual income fit into
    a) Less than $20,000

b) $20,000-$49,000
c) $50,000-$74,000
d) $74,000- $99,000
e) Over $100,000
f) Rather not say

16. In which of the following age groups do you belong
    a) Less than 19
    b) 20- 34
    c) 35- 49
    d) 50- 64
    e) Over 65

17. What is your gender?
    a) Male
    b) Female
    c) Prefer not to answer

18. Do you have any feedback or comments in which you would like to share?
    a) _____

Thank you for your participation.

Survey #2 – Business

This survey would be distributed to businesses upon the completion of the festival in a timely manner. Ideally, the best means to distribute this survey would be via email.

Dear Business,
We would like to learn about your impressions and feelings towards the Taber Pheasant Festival. We are interested in the benefits and costs associated with festival on your business. Thank you for your participation and we appreciate your time to complete the survey.

Taber Pheasant Festival Survey

Taber Pheasant Festival Survey

DESCRIPTION

This survey is being conducted by a team of individuals working with the Alberta Conservation Association, in association with the University of Alberta. The aim of this survey is to identify the social and economic benefits pertaining the Taber Pheasant Festival.

PARTICIPATION

It is expected that the survey will be no longer than 20 minutes. Your participation in this project is entirely voluntary and anonymous. If you agree to participate you do not have to answer any question(s) that you are uncomfortable answering. You can withdraw anytime during the survey.

EXPECTED BENEFITS

Findings from the research project are expected to provide insight into the benefits and costs pertaining to the festival.

RISKS

There are no risks associated with your participation in this project.

PRIVACY AND CONFIDENTIALITY

All comments and responses are anonymous and will be treated confidentially unless otherwise required by law. The names of individual persons are not required as part of any response.

CONSENT TO PARTICIPATE

By choosing to submit your responses to the survey you are indicating your consent to participate in this project.

QUESTIONS / FURTHER INFORMATION ABOUT THE PROJECT

If you have any questions or require any further information please contact **XXXXXX at XXXXXXX**

If you would like to participate in this research project?

- Yes
- No

If **NO** please return the survey

1. What type of business are you? (circle all that apply)
    a) Retail
    b) Restaurant
    c) Hotel
    d) Gas Station
    e) Convenience Store
    f) Other _____

2. How satisfied are you with your experience at the Taber Pheasant Festival?
    a) Very satisfied
    b) Somewhat satisfied
    c) Neutral
    d) Somewhat dissatisfied
    e) Very dissatisfied

3. How many times have you have participated in the Taber Pheasant Festival?
    a) _____year(s)
    b) This is my first time at the festival

4. In what ways did your business experience a gain from participating in the festival?
    a) Advertisement
    b) Increased foot traffic
    c) Increased social media presence/ network
    d) Other--_____

5. Do you feel that the Taber Festival benefits the Community of Taber?
    a) Yes
    b) No
    c) Unsure
    Please provide the reasons behind your response_____

6. Do you feel that the Taber Festival benefits the businesses (like you) of Taber?
    a) Yes
    b) No
    c) Unsure
    Please provide the reasons behind your response_____

7. Do you feel that the Taber Festival benefits the Alberta Conservation Association?
    a) Yes
    b) No
    c) Unsure
    Please provide the reasons behind your response_____

8. Do you feel that the Taber Festival benefits the province of Alberta?
    a) Yes
    b) No
    c) Unsure
    Please provide the reasons behind your response_____

9. Do you find that your sales increased during your time are the festival?
    a) Yes
    b) No
    c) Unsure

If "**Yes**" was selected for 9**. Do you find that your sales increased during your time are the festival**, please answer the following question.

9b. Over the length of time you participated in the Taber Pheasant Festival, by how much were your profits/ benefits positively affected in comparison to an equivalent duration of time (i.e. the weekend) that the festival is not running (%)?

a) < 10%
b) 11-20%
c) 21-30%
d) > 31%
e) Unsure

10. From participating in the Taber Pheasant Festival, did you experience an increase in costs (i.e. increase in labour, increase in materials required)?

    a) Yes
    b) No
    c) Unsure

If "**Yes**" was selected for **10. From participating in the Taber Pheasant Festival, did you experience an increase in costs** please answer the following question.

10a. Since you experienced an increase in costs due to your participation in the festival, by how much do you believe your costs increased?

    a) < 10%
    b) 11-20%
    c) 21-30%
    d) > 31%
    e) Unsure

10b. Do you believe that the costs incurred with your participation in the festival were outweighed by the benefits experienced (by you, and the greater community)?

    a) Yes
    b) No
    c) Unsure

11. Would you like to continue your relationship with/ participation in the Taber Pheasant Festival next year?

    a) Yes
    b) No
    c) Unsure

12. Do you have any feedback you would like to give pertaining to the festival?

    a) _____

Thank you for your participation.