SELECT ASPECTS OF ECONOMIC ACTIVITY RELATED TO THE OKLAHOMA 4-H YOUTH DEVELOPMENT SHOOTING SPORTS PROJECT

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SELECT ASPECTS OF ECONOMIC ACTIVITY

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PROJECT

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DEDICATION

During certain periods in my life there have been times when no clear path has presented itself. This work is dedicated to all those people that believed in me at a time when I should have believed more in my own abilities. I would like to specifically extend great appreciation to my brother, Justin Kirk, and dear friend, Kelly VanBeek for their kind words of encouragement when I needed them most.

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Abstract:

The economic turmoil of the past decade has reinvigorated the debate over the use of public funds to support local Extension efforts. State Extension groups across the country have begun to demonstrate their worth in a variety of ways, including attempting to show both the behavioral and economic outcomes of Extension initiatives. However, showing the value of the 4-H Youth Development Program has proved challenging. The benefits of joining youth programs tend to be latent, not fully manifesting for years or even decades until participants mature into adults. Studies are starting to provide insights into the social, physical and mental rewards of joining youth development organizations such as 4-H, but these behavioral outcomes are disproportionally reported when compared to economic studies. From 2012-2013 families enrolled in Oklahoma's 4-H Youth Development Shooting Sports Project were surveyed about their recreational spending habits. Economic contributions for the state of Oklahoma, and impacts on local economies are estimated using primary data and an IMPLAN model. These economic analyses provide estimates of the economic worth of one youth project overseen by the Oklahoma Cooperative Extension Service. Subsequently, policy makers are provided justification of the project not only from a social, physical, and mental perspective, but are additionally provided economic indicators of the project's immediate worth.

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CHAPTER I

INTRODUCTION

Background of the Study

The main reason groups such as 4-H Youth Development (4-H), Future Farmers of America (FFA), and Boy and Girl Scouts exist is to assist minors on their path to adulthood. Often the missions of these organizations are so similar many fail to see the distinctions between them. Shared objectives include, *life skills development*, *teaching ethical and moral decision making,* and *developing leaders*. Yet when one considers how these different organizations are funded, 4-H, in addition to some private donations relies on county, state, and federal units of government for financial support (Lamm & Harder, 2009).

In an effort to further youth development research in the United States, 4-H has extensively provided evidence on the positive effects of engaging youth. Insights gained from previous research include a better understanding of youth-adult partnerships (Paisley & Ferrari, 2005), life skills development (Fox, Schroeder, & Lodl, 2003), and positive behaviors attributed to program involvement (Astroth & Haynes, 2002; Sabo & Hamilton,1997). Arguably, the strongest evidence of 4-H's social, physical, and mental benefits can be found from Tufts University's decade long Positive Youth Development study (Lerner, Lerner, & Phelps, 2007). For many these findings provide the justification needed for investment in 4-H. However, Lamm and Harder (2009) suggest, "Accountability efforts must provide evidence of economic output to convince taxpayers and lawmakers there is a tangible return on the public investment" (para 9).

Rationale

4-H is unique in that the program is a facet of the United States Department of Agriculture (USDA) Cooperative Extension Service (CES). “The Cooperative Extension System is financed primarily by federal, state, and local taxes, although substantial sums are contributed to Extension - mainly to 4-H - by private individuals and institutions” (Rasmussen, 1989, p.9). State and local governments particularly hurt from the economic turmoil of the past decade are feeling pressured when it comes to funding public social programs such as 4-H (Harder & Hodges, 2011). Kalambokidis (2004) expresses the current criteria required to finance social programs, stating, “to secure public funding for a program, Extension staff must also be able to explain why citizens and policymakers who are not direct program participants should value the program” (para.7). Even when policymakers agree that Extension initiative bring about needed community changes, elected officials often favor implementing user charges over public investment (Kalambokidis, 2004). These struggles outline why it is important for a group like 4-H to work progressively on economically justifying programs.

Little information is currently available on the economic activity related 4-H programming. Lamm and Harder (2009) lament on this issue, “4-H has programs contributing to the economy, but these outcomes are mentioned far less often than changes in life skills” (para.9). Projects focused on Science, Technology, Engineering, and Mathematics (STEM), and Workforce Preparation are clear economic contributors (Lamm & Harder, 2009). Not unlike STEM and Workforce Preparation Projects, the 4-H Shooting Sports Project holds the potential to influence regional, state, and national economies. Families involved 4-H’s recreational projects often have substantial costs due to required travel and equipment costs. If 4-H wants to understand the economic activity caused by projects it offers, the Shooting Sports Project is an ideal candidate for inquiry.

Statement of the Problem

Information regarding the economic activity generated by families participating in Oklahoma 4-H Shooting Sports Project does not currently exist. Additionally, there is little understanding of the demographic, behavioral, and recreational characteristics of participating families.

Purpose of the Study

The intent of the study is to document the economic activity of families participating in different aspects of the Shooting Sports Project, while gaining insights into the relationships of demographic, behavioral, and recreational variables.

Research Objectives

In order to successfully achieve the goals of this project for the 2012-2013 study period, the following research objectives were identified:

1. Estimate the economic impact of travel parties that attended shooting sports competitions hosted by the Oklahoma Cooperative Extension Service (OCES) State 4-H Office.
2. Estimate the total economic contribution of families that participated in the OCES Shooting Sports Project by:
    A) Estimating the economic contribution of travel parties that attended competitions hosted by the OCES State 4-H Office.
    B) Estimating the economic contribution of families that participated in local and regional OCES Shooting Sports activities.

3. Identify the significant relationships between demographic, behavioral, and recreational variables.

Theoretical Basis for the Study

Access to information regarding youth development activities is limited when compared to other facets of Cooperative Extension Services (Scholl & Munyua, 2004). George McDowell (2001) highlights this fact when he states, "We always knew more about cows then we did about kids" (p.156). Even further frustrating, research that is published primarily focuses on traditional 4-H projects (Scholl & Munyua, 2004). In order for 4-H to take the necessary steps in determining which programs are economically effective, research efforts must focus not only on agriculture and family consumer science projects but rather encompass the diverse nature of 4-H.

Research on recreational spending habits is limited because insights gleaned from such studies are often not generalizable (Lee, 2001). Differences in trip types, such as day, overnight, and multi-day, geographic location, type of recreational activity, as well as the geographic distribution and socioeconomic characteristics of recreationists all limit the external validity of these types of studies (Lee, 2001). To summarize, this study fills a gap in knowledge related to youth recreational shooting sports expenses and how those expenses influence the economies of Oklahoma; The intent being, for 4-H program coordinators to incorporate consumer spending into event planning and help identify the economic barriers to project participation.

The primary goal of Extension should be to function efficiently while informing, educating and making those that allocate funds aware of the quantity and quality of programming. In Oklahoma, 4-H Shooting Sports events are often held in urban regions of the state because the pre-existing facilities capable of accommodating competitions are located in these central areas. Residents across the state, from the panhandle, to the Arkansas border are drawn to these central communities in order to participate in aspects of the project. State lawmakers representing locations where shooting sports activities are held and those representing urban districts that have

in the past been hesitant to continue funding 4-H, need both social and economic research to weigh the program's benefits. Policy makers need to determine for themselves if supporting youth initiatives garner enough of a social and economic change to make the investment worthwhile. Studies on the economics of recreation, such as this one, provide the needed resources administrators can use when making decisions to fund Extension initiatives.

Significance

Several states have made efforts to determine the participation costs associated with the 4-H Shooting Sports Project. This study goes further, developing an economic activity model to reflect participant purchase decisions. Other key design elements include specifically looking at the economic contributions and impacts that this project has on a state or local economies. In determining the economic activity of the Shooting Sports Project, decision makers and legislative appointees can make better informed decisions on issues related to 4-H. Additionally, economic figures from this study will serve as a baseline of research, allowing program administrators to gauge future program growth. Although many of the results from this study will not be generalizable, the methodological process employed will provide future youth development researchers a clear way to conduct an economic impact or contributions analysis. Other youth development projects will soon be able to conduct similar studies as a way to gauge their own economic effectiveness, eventually providing Extension insights into how youth development programming affects community economies. Little research has focused on Oklahoma's 4-H Shooting Sports Project thus far, besides an investigation into adult volunteerism associated with the project (Manske, 2000). This study provides an opportunity to better understand a project that has seen much less investigation when compared to the more traditional 4-H projects. The information gained by estimating the economic worth of Oklahoma's Shooting Sports Project will provide baseline information on the projects popularity, economic effectiveness, and needed changes to address logistical issues.

Scope

The scope of research conducted includes travel parties to seven select competitions hosted by the OCES State 4-H Office involving 800 youth and their families. Additionally, information gathered on local and regional involvement is generalizable to the families of 5,072 youth who were enrolled in the Oklahoma's Shooting Sports Project during the 2012-2013 study period.

Assumptions

The following assumptions have been made in relation to the research presented throughout this document:

1. Safety and development of youth is the primary goal of the Oklahoma 4-H Shooting Sports Project.
2. A 4-H club member is considered actively involved if they have attended a minimum of one related activity for the current project year.
3. Enrollment information in the database system "4-H Access" was valid and as up to date as possible at the time of the study.
4. Questionnaire responses provided by participants are truthful and accurate.

Limitations

The following limitations need to be taken into consideration when reviewing the subsequent research. Foremost, economic figures presented throughout this document are estimates and are only valid for the events they represent. Due to the fluid nature of the economy, figures should not be used out of context to describe alternative, historical, or future shooting sports activities.

Surveying at shooting sports competitions during the 2012-2013 study period initially utilized census survey sampling methodology. However at several events the resulting response rates were not high enough to consider the sample as a valid representation of the population and should be treated as purposive samples. Generalizations made from non-probability samples should be interpreted with caution (Lohr, 2010; Dillman, Smyth, & Christian, 2009); often certain portions of the population are absent, or the easiest to select units are over represented in non-probability samples (Lohr, 2010). However, purposive samples can offer valid information that guides further investigations (Lohr, 2010). Additionally, when one considers both the types of families drawn to shooting competitions and the nature of expenses related to recreational shooting, the inherent costs of participation are shared by participants.

All research has intrinsic flaws, interpretation of data needs to take into account the biases of a study and refrain from over generalizations. All economic figures related to data collected at competitions hosted by the OCES State 4-H Office are presented as a range. The lower bound of the range represents known expenditures collected from returned questionnaires. The upper bound reflects values for the population provided the returned questionnaires are a representative sample, and that all registered shooters had a travel party associated with their participation. The questionnaire distributed to address research Objectives 2B and 3 achieved a less than ideal response (n=140), leading to a confidence interval of +/- 10% rather than the standard +/- 5%. Although several of the previous issues present challenges to research, the results from this study have value in building upon the practices employed while conducting an economic activity analysis related to youth development programming.

Common Terms

United State Department of Agriculture (USDA) - Is the formal government department responsible for the administration and supervision of state Cooperative Extension Service units throughout the United States.

Cooperative Extension Service (CES) - An entity formally created by the passing of the Smith-Lever Act (1914) with the primary purpose of applying Land-grant university research.

4-H Youth Development Program (4-H) - Youth organization that is coordinate by CES to help develop young peoples social, mental, and physical skills through engaged local community mentors and a variety of project work. The four H's stand for head, heart, hands, and health and provide guiding qualities to all members.

4-H Club - A group of individuals engaged in 4-H activities and in coordination with local CES personnel. Often schools, communities, and special interests, such as shooting sports help lead individual families to 4-H programming.

4-H Project - Project work forms the core curriculum of programming. Members can choose from a variety of projects based on their own interests to become engaged in. Projects cover a broad range of content including recreational sport shooting, but all projects include central principles of 4-H.

Economic Activity Analyses - Processes that help capture the production, distribution, or consumption of goods and services within a geographic unit of analysis.

Economic Impact - An economic activity analyses that measures the net amount of economic activity within a defined geographic unit.

Economic Contribution - An economic activity analyses that measures the gross amount of economic activity within a defined geographic unit.

CHAPTER II

REVIEW OF THE LITERATURE

Previous Research

The following chapter highlights previous research conducted that relates to this study. Readers should review the following information to build on their understanding of Cooperative Extension Services, 4-H Youth Development, aspects of the 4-H Shooting Sports Project, and the economic activity analyses employed throughout the study. Two sections divide the chapter; the first relates to dimensions of 4-H, while the later references the basis and application of economic justification studies.

The Progressive Movement

Many consider the progressive era in the United States to be from the mid 1890's into the 1920's (Felene, 1970). During this period, the United States, as evident by the era's name, underwent a distinct period of social shifts and progressive thought. "Progressives generally believed in the value of education in bringing about the needed changes in American life" (Rasmussen, 1989, p. 41). Theodore Roosevelt was the main leader and spokesman for the movement's national agenda, while Robert M. Follette, Charles Evan Hughes, and future president,Woodrow Wilson contributed significantly to directing the movement's agenda (Rasmussen, 1989). Progressivism became popularized through several social groups including urban voters, farmers, and organized labor (Felene, 1970).

Specifically addressing farmer's support behind the movement, agricultural mechanization of the early twentieth century allowed rural leaders to turn their attention from a strict focus on agricultural outputs to the needed social services in their local communities (Rasmussen, 1989). The Rural Life Commission was appointed in 1908 with the encouragement of Theodore Roosevelt and agricultural leaders (Rasmussen, 1989). Tasked with identifying current social issues in rural communities and the means by which inadequacies could be addressed, the commission found that country schools were not progressing at the same pace as their urban counterparts (Rasmussen, 1989). Insufficient educational resources and a lack of financial means meant rural communities could not continue to make needed educational reforms. Young Men's Christian Association, Boy Scouts of America, Boys and Girls Clubs, Future Farmers of America, and 4-H Youth Development all formed during this period to address the deficiencies in the American education system.

4-H Youth Development

The 4-H Youth Development Timeline (2013) suggests that by 1902 precursory 4-H clubs began forming in rural Ohio due to the cooperative work between A.B. Graham, Ohio State University Agricultural Experiment Station, and Ohio State University. Similar to Graham, T.A. Erickson of Minnesota, and O.H. Benson of Iowa, all of whom were school superintendents, saw a need for rural youth to receive vocational skills outside of a classroom (Rasmussen, 1989). Eventually these rural youth development clubs were organized by agents of the state Cooperative Extension Service, an entity formally created by the Smith-lever Act (1914) and overseen by the United States Department of Agriculture (Rasmussen, 1989).

Oklahoma is closely linked to what many credit as the original founding of the Cooperative Extension Service. Agricultural pests, namely the Mexican Cotton boll Weevil had become increasingly problematic at the turn of the twentieth century (Rasmussen, 1989). "It seemed that in 1903 the whole cotton industry of the south would be destroyed unless something

could be done to exterminate the boll weevil in the cotton area" (Roberts, 1971, p.7). USDA work mainly being overseen by Saeman A. Knapp began immediately in the region to minimize agricultural losses (Roberts, 1971). "Dr. Knapp asked help from railroads, commercial bodies, colleges, and private individuals" (Roberts, 1971, p. 8); all were eager to improve the quality of life in their communities and limit business losses caused by the weevil (Roberts, 1971). Experience from years of being a farmer, educator, and administrator, and nearly seventy years of life had taught Knapp that university knowledge needed to be available to farmers facing problems in their fields (Rasmussen, 1989). Summarizing this underlying basis for Extension, Knapp vigorously took the stance that, "What a man hears, he may doubt; but what he does, he cannot doubt" (Rasmussen, 1989, p. 35). Demonstration farms, Agricultural trains, and precursory 4-H clubs referred to as "Corn and Cotton Clubs" began popping up in Texas and the western half of Oklahoma (Roberts, 1971). Prior to 4-H even being officially recognized a component of CES, in Oklahoma 5,644 youth were enrolled in corn clubs, and 1,672 youth were active in cotton clubs, indicating the popularity of such clubs with boys and girls of the period (Roberts, 1971). Extension activities including youth development work had been taking place in Oklahoma for more than a decade when the Smith-Lever Act passed Congress. Today, 4-H continues to engage in its mission of aiding youth to achieve their goals through partnerships with local adults ("4-H Youth Development Mission", 2013). Projects offered by the organization incorporate some of the most popular educational and psychological theories to date, including *learning by doing* (Dewey, 1897; 1931; 1938), *experiential learning* (Roberts 2006; Kolb 1984; Joplin, 1981; Dale, 1946), *positive youth development* (Lerner, 2005), *youth initiative* (Larson, 2000) and *positive affect* (Ashby, Isen, & Turken, 1999). These research backed approaches to education help 4-H ensure that every project offered is learner focused, allowing members to reach their full potential in an environment that is challenging yet welcoming and inclusive.

The Education Problem and Learn by Doing

John Dewey summarized his interpretation of the education system in *The Way Out Of Educational Confusion* (1931). He criticized society saying, "In a situation where the skills or arts of the subject-matter of knowledge have become interwoven and interdependent, adherence to the policy forming the studies of secondary and collegiate instruction on the basis of many isolated and independent subjects is bound to result precisely the kind of confusion we have at present" (Dewey, 1931, p.19). In other words, education that is curriculum based and isolated by subject matter resulted in little application, the intended purpose of educating the masses. Students viewed independent subjects as past accomplishments clearly disconnected that previous knowledge should be used in future application (Dewey, 1931). Dewey's main critique was that formative years should be spent arousing intellectual interests in a broad array of subjects and supplying youth with the tools to carry out those interests beyond an academic setting. The argument could be made that little has changed in the vast majority of educational institutions since Dewey expressed his opinions. Students are still prescribed curriculum that is deemed need to know, resulting in little application and ongoing debate over the effectiveness of mass education. *Learning by doing* (Dewey, 1897; 1931, 1838), the alternative method of education that Dewey advocated for, proposes a "project" method of education. "There can not be a problem that is not a problem of *something*, nor a project that does not involve something in a way which demands inquiry into fresh fields of subject matter" (Dewey, 1931, p. 31). In traditional educational settings knowledge has always been assumed to be the appropriate material for the learner, but in project based learning students draw materials and references from a number of subjects in order to meet the needs of the problems they face (Dewey, 1931). Current formal education settings pressure learners into passive receptivity of content, becoming the endpoint for distant reservoirs of knowledge but producing no genuine thoughts of their own (Dewey, 1931). In his final reasoning for advocating the project method, Dewey (1931) states, "while the student with the proper 'project' is intellectually active, he is also overtly active; he applies, he constructs, he expresses himself in new ways" (p. 35). Youth that are given the

responsibility of pursuing their own interest must in effect put their knowledge to the test and do something with the actual subject matter that they have learned (Dewey, 1931). 4-H takes all of Dewey's insights into account, providing mentored, episodic, learner focused educational projects that culminate over a period of time and allow learners to be engaged in projects that hold their interest, are challenging, and provide a sense of accomplishment.

Experiential Learning

Experiential learning (Dewey, 1931) is a broad term that many prominent educational theorists (Roberts 2006; Kolb 1984; Joplin, 1981; Dale, 1946) have attempted to describe. Four key components are included in most models, those being (1) personal experience, (2) reflective observations, (3) conceptualization, and (4) application of knowledge learned from the experience (Stehno,1986). When discussing the Experiential Learning Model*,* 4-H Youth Development often references Pfeiffer and Jones (1985) as presented in Figure 1. The model has three distinct divisions, doing, reflecting, and applying. The initial division draws on current experiences of learners, supporting Dewey's insights that, "Education must be conceived as the continuing restructuring of experiences," (Dewey, 1897, p.79). Reflective insights are gained when learners are given adequate time to describe and share their experiences. In the final stage of the model, generalizations are made that learners can use to apply knowledge in future situations.

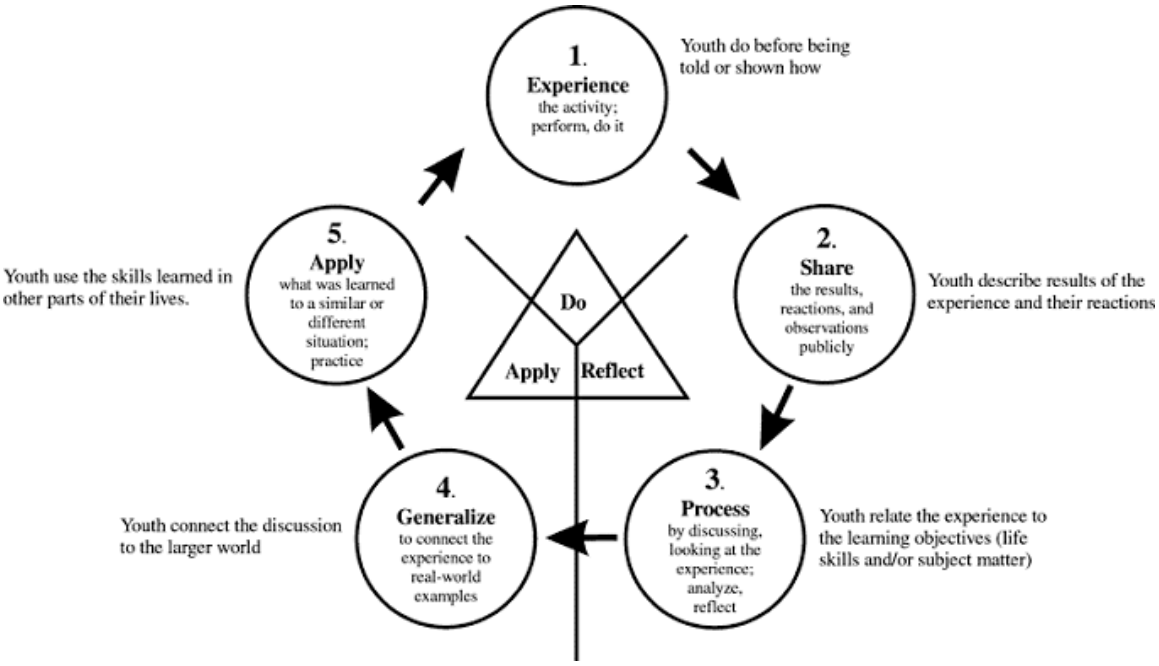

Figure 1. Five Step Ordered Cycle of Experiential Learning by Pfeiffer and Jones (1985)

Positive Youth Development, Initiative, and Positive Affect

Lerner's 2005 longitudinal study, *Waves of the Future,* outlined core principles of the 4-H Youth Development Program by describing the five C's of *positive youth development* (Lerner et al., 2005). Those components being (1) competence in social, academic, cognitive, health, and vocational skills through positive views of a 4-H members own actions, (2) confidence through self-worth and self-efficacy, (3) connection or the interactive relationships between different people, institutions, and club members, (4) character that is in agreement with the accepted behavior of society, and (5) compassion including empathy and sympathy for others (Lerner et al., 2005). Lerner et al. (2005) continues by stating:

> Researchers theorized that young people whose lives incorporated these Five C's would be on a developmental path that demonstrates a Sixth C: Contributions to self, family, community, and the institutions of civil society. In addition, young people whose lives contained lower amounts of the Five Cs would be at higher risk for a developmental path that included personal, social, and behavioral problems and risks. (p.11)

Although positive youth development is an emphasized component in encouraging 4-H members, other dimensions such as initiative, and positive affect are essential for advancing club member abilities.

Initiative plays a central role in the development of personal challenges (Larson, 2000), such as the 5 C's. Larson (2000) hypothesizes that intrinsic motivation, engagement in the environment, and engagement over time must be present to develop initiative. His argument is that in order for youth to meet challenges in adulthood they need the ability to focus their attention, call upon their mental capacity, and develop a course of action beyond the first unaccounted obstacle (Larson, 2000).

> In schoolwork, they experience concentration and challenge without being intrinsically motivated. In most leisure, including watching TV and interacting with friends, they experience intrinsic motivation but not in a context of concentration and challenge. Neither provides the combination of both of these elements necessary for the experience and development of initiative. There is, however, one small segment of adolescents' time that combines intrinsic motivation and concerted attention. (Larson, 2000, p.173:174)

Extracurricular activities are the only time when youth are challenged, intrinsically motivated, and concentrated, all of the essential qualities needed for developing initiative (Larson, 2000). As an extra curricular activity 4-H not only encourages positive youth development, but is a catalyst for initiative.

Isen (1993, 1999) demonstrated that moderate changes in positive feelings can affect cognitive capacities. 4-H believes in maintaining an environment of positive encouragement so that youth are free to engage in their own creative pursuits. Other researchers have provided supplemental support that positive affect can aid in problem solving (Estrada, Young, & Isen, 1994; Greene & Noice, 1988), the ability to recall materials (Nasby & Yando, 1982), and decision making (Isen, Rosenzweig, & Young, 1991). Analyzing information found in *Waves of the Future*, Lerner et al. (2005) states, "4-H participants had better grades, were more behaviorally and emotionally engaged with school, and were more likely to see themselves going to college" (p. 19). These desirable outcomes are clear indicators that positive affect directly relates to better educational success.

Educational practitioners in both formal and informal settings need to think long and hard about the theories incorporated into the 4-H Youth Development Program. As an organization, 4-H is based on Dewey's principle of learning by doing through project based assignments. Projects cover a diverse range of interests, from showing livestock, to leadership development, to creative arts. However, all project areas are required to incorporate experiential learning, positive youth development, initiative, and positive affect to engage youth in the developmental process.

Economic Activity Analysis

Program administrators frequently look to conduct economic activity studies for a particular recreational activity (Johnson & Moore, 1993), in this case the 4-H Youth Developments Shooting Sports Project. These types of economic justification studies have proven to be useful in their ability to convince communities to reinvestment in local infrastructure or social services (Wilton & Nickerson, 2006). According to Lee (1993) economic activity studies also have the ability help identify both public and private societal groups attracted to certain recreational activities, providing the opportunity for program organizers to refine marketing strategies. Previous research using economic activity analyses tends to be diverse in nature and translates well to many contexts, including studies on sports (Daniels & Norman, 2003; Daniels, Norman, & Henry, 2003; Breen, Bull, & Walo, 2000; Crompton & Lee 2000), natural resource and agricultural issues (Harder & Hodges, 2011; Wilton, Polovitz, & Nickerson, 2006; Marcouiller, Ray, Schiner, & Lewis 1992), and rural events (Long & Perdue, 1990). The breadth of previous research indicates well developed support behind this technique and overall acceptance in the academic community. Two types of economic activity analyses exist, the first being contribution analysis, and the second being impact analysis.

Today, consumers in your local community are purchasing goods and services in visibly unrelated and non-quantifiable transactions, but with an economic lens all of these transactions demonstrate an interdependent and fluctuating reality of the availability of goods or services in

your region (Shields & Deller, 2003). “Businesses sell goods and services to households and other businesses, households sell resources (such as their labor) to businesses, and governments collect taxes from both to pay for public services” (Shields & Deller, 2003, para. 16). Economic contribution analysis is the process to determine the “gross changes in economic activity associated with an industry, event, or policy in a regional economy” (Watson, 2007, p.142). This type of analysis is useful if objectives include following the flow of money through an already existing regional economy (Watson et. al., 2007). Often, when people talk about impact of a project or program they are actually talking about contributions (Watson et. al., 2007), however studies should be analyzed based on the techniques employed during the study.

Economic impact studies have a number of functions, but one of the most popular uses is to identify the new economic activity being brought to a region by tourism (Johnson & Moore, 1993). “These models focus on how a local economy functions, how various elements of the local economy are interrelated, and how a change in one element may affect the others” (Shields & Deller, 2003, para. 3). In other words, impact analysis measures new economic activity within the local region brought by those that reside outside of it. Impact models help identify the underlying relationships of a local economy and can be used to gain insights into economic indicators (Shields & Deller, 2003). Impact analysis is generally viewed as the more conservative analysis tool than contribution analysis (Watson et. al., 2007), because the economic activity of residents that already reside within the geographic region is excluded from the analysis (Crompton & Lee, 2000).

Impact Analysis for Planners (IMPLAN)

Several software packages have been used to conduct economic activity studies, however IMPLAN LLC’s Impact Analysis for Planning (IMPLAN) has been the most widely used. Previous works that have used IMPLAN include Harder and Hodges (2011), Daniels and Norman (2003), Daniels et al (2003), Crompton & Lee (2000), Johnson and Moore (1993), Marcouiller et

al (1992). Originally IMPLAN was developed to conduct economic analyses for the United States Forest Service at a county level across the United States (Marcouiller et al, 1992). Developers Scott Lindall and Doug Olson provided the current version of the software after previously working with United State Forest Service and Dr. Wilber Maki on the original application ("MIG: About IMPLAN", 2013). According to Marcouiller (1992), "IMPLAN's database represents county-level economic activity for a total of 528 sectors and can, in addition to describing regional economies, show the effects of introducing new industries, removing existing industries, and changing demand or supply of some product in the economy" (para. 9). The software has the ability to conduct both impact and contribution analyses, taking into account changes in a region's economy.

IMPLAN identifies three multiplier effects or rounds of economic stimulation. One should interpret direct effects as additional money brought into, and retained by the study region ("MIG: Glossary", 2013). Indirect effects are caused by interindustry transactions and occur when industries purchase goods or services from one another using additional revenue from direct effects (Crompton & Lee, 2000). The third category of effects are those induced by those employed in direct and indirect effect industries ("MIG: Glossary", 2013). Describing the multiplier effect of an impact analysis, Cropton and Lee (2000) suggest:

> it can be likened to ripples in a pool if more water is poured in to the system. The pool represents the economy and the additional water symbolizes extra spending by outside visitors. The ripples show the spread of money through the economy (p.114)

These direct, indirect, and induced effects add to the picture of how a region's economy is impacted from changes in supply or demand.

Four measures of economic activity are provided by IMPLAN when conducting an economic activity analysis: employment, personal income, value added, and output. Measures of economic activity do not compound, but are rather different ways of interpreting changes within a regional economy. Crompton and Lee (2000) suggest, "the only meaningful measure for tax payers and elected officials in local communities is the personal income that accrues to residents as a result of out-of-town visitors spending at the event."(p. 123). Employment, value added, and

output measures do provide some insights, however the main reason they have been included is to contextualize personal income values. Providing all measures of economic activity allows readers to compare the measures of this study to like figures of other research as recommended by Crompton and Lee (2000). Employment, measured in jobs, represents either full or part time work demands by industries within the region (MIG Glossary). When dealing with episodic events it is hard to rationalize businesses hiring additional labor based on a single event. More likely, those already employed or at risk of losing employment see increased demand placed on their labor, and those that reside outside the region are employed on a commuter basis (Crompton & Lee, 2000). Personal income is essentially direct financial gains by residents within the study area. As explained by Crompton and Lee (2000), "the income measure has substantial practical implications for stakeholders because it enables them to relate the economic benefits received by residents to the costs they have invested" (p. 114). Value added is the value of a product or service beyond physical input costs (MIG Glossary). Employee compensation, taxes on imports and production, and gross operating surpluses all factor into the value added measures of economic activity (MIG Glossary). Sales by service sectors refer to output measures of economic activity (MIG Glossary). Output measures are frequently the largest values included in an economic activity analyses because they include the cost of input products, and value added (which includes the markup for the business or sector to remain profitable). General practices for conducting economic activity analyses include collecting primary data through administering questionnaires at events and then using IMPLAN to interpret findings. It is important to keep in mind that IMPLAN and economic activity analyses provide "best guesses" rather than standalone economic figures and need to be interpreted with caution (Crompton & Lee, 2000).

Previous 4-H Studies utilizing IMPLAN

To the best of the researcher's knowledge there is only one previous study that has used IMPLAN to analyze the economic activity of 4-H programming. Harder and Hodges (2011)

tested whether IMPLAN could be used in determining the economic value of 4-H livestock projects in Florida. As a testament to IMPLAN's lack of use within the youth development field, they stated, "little to no research has documented the use of IMPLAN for estimating the economic impact of 4-H livestock projects" (Harder & Hodges, 2009, para. 3). Although a valiant effort was made to accomplish this study, data collection methods and the questionable use of economic terms make this study's results difficult to interpret. Concerns include the use of secondary data from 4-H record books, the misinterpretation of what an "impact" really is, and the emphasis placed on reporting large economic figures, such as the models output, instead of more appropriate measures of personal income . As a result, this study looks to clarify and describe the appropriate uses of IMPLAN in developing economic models for describing youth development activities.

CHAPTER III

METHODOLOGY

Research Design

The following chapter discusses the logic for practices employed during the study, primarily addressing survey and correlational research. In an effort to provide clarity, conceptual distinctions are related to specific study objectives. Further, key elements used in the development, implementation, interpretation and analysis of the study are described.

Institutional Review Board (IRB)

Oklahoma State University, in accordance with the United States Government, requires that an Institutional Review Board (IRB) review research involving human subjects for their safety. To abide by this protocol, a determination form was submitted to Oklahoma State University's IRB on November 1st, 2012. A "Does Not Qualify" status was granted by the IRB (Appendix B1) for the collection of data at competitions hosted by the OCES State 4-H Office; noting that the study instrument does not collect sensitive information related to human subjects that can be related back to specific individuals. On March 1st, 2013 an additional expedited review request was submitted for the surveying families active in the 4-H SS Project. On April 15th, 2013, an approval form was returned listing the project as "Exempt" from review (Appendix B2).

Research Objectives

1. Estimate the economic impact of travel parties that attended shooting sports competitions hosted by the OCES State 4-H Office.
2. Estimate the total economic contribution of families that participated in the OCES Shooting Sports Project by:
    A) Estimating the economic contribution of travel parties that attended competitions hosted by the OCES State 4-H Office.
    B) Estimating the economic contribution of families that participated in local and regional OCES Shooting Sports activities.
3. Identify the significant relationships between demographic, behavioral, and recreational variables.

Study Populations

Three main populations exist in the research that was conducted. A summary of the *sampled populations* (Lohr, 2010) for each shooting competition can be found in Table 1. This population describes the actual number of 4-H club members that participated in select competitions hosted by the OCES State 4-H Office. As previously explained, the difference in the number of club members varies between impact and contribution analyses because impact analyses exclude residents living within the counties where shooting sports events took place.

Table 1: OCES 4-H SS Competition Sampled Populations

	Populations (Persons)	
4-H SS Competitions	Impact	Contribution
Air Rifle and Pistol	81	87
Indoor Archery	178	184
Trap (Shotgun)	228	244
Muzzleloader Rifle (Black Powder)	6	6
Sporting Clays (Shotgun)	126	126
Skeet (Shotgun)	113	123
Smallbore .22 Rifle and Pistol	30	30
TOTALS	762	800

Table 2 contains a summary of *target populations* (Lohr, 2010) for each competitions hosted by the OCES State 4-H Office. Target populations include travel party companions such as parents, siblings, extended family members, family friends, etc. in addition to the 4-H club members that actually participated in the competition. Total attendance for each competition is unknown, however estimates from questionnaire data and the number of registered participants at each event helped determine the figures in Table 2. The decision to estimate event populations in this manner was based on the level of accuracy needed to accomplish the goals of this project. Measuring total attendance at each event would have been more accurate, however the logistical issues that arise from trying to collect this information would have limited the researchers ability to collect other pertinent data. To stress this issue, images of surveying conditions can be viewed in Appendix E.

Table 2: OCES 4-H SS Projected Competition Attendance Summary

	Estimated Event Populations (Persons)	
4-H SS Competitions	Impact	Contribution
Air Rifle and Pistol	316	339
Indoor Archery	570	589
Trap (Shotgun)	684	732
Muzzleloader Rifle (Black Powder)	20	20
Sporting Clays (Shotgun)	115	115
Skeet (Shotgun)	355	386
Smallbore .22 Rifle and Pistol	110	110
TOTAL	2170	2291

The *sampling frame* (Lohr, 2010) for Objectives 2B and 3 is more concrete. 4-H club members interested in participating in the Shooting Sports Project are registered yearly by Extension staff into "4-H Access", a web based enrollment system. Information from the Access system, including phone numbers, email addresses, and demographic were exported to a Microsoft Excel file. Last names, addresses, ages of club members, and types of involvement were used to confirm that there were 5,072 non-duplicated families in the target population. Adding legitimacy of this figure is that a state that shares both a population and similar economic profile to Oklahoma, Mississippi (U.S Census Statistics), in 2008 reported a similar 4-H SS Project population of 5,874 families (Holder, 2010).

Questionnaire Development

Primary data collection took place using two questionnaires that incorporated principles consistent with *The Tailored Design Method* (Dillman et al., 2009). Often these instruments utilized items from previous research, limited questionnaire lengths, and provided response options based on *Gestalt grouping principles* (Dillman et al., 2009).

The questionnaire used to address Objectives 1 and 2A (Appendix A1), was based on the work of Wilton and Nickerson (2006), Crompton and Lee (2000), and Long and Perdue (1990).

Design and pilot testing of the instrument took place in the fall of 2012, while administration for actual data collection began in December 2012 after minor layout adjustments. Natural resource and agricultural economics professionals reviewed the questionnaire prior to it being administered. Three sections were included on the eight-item questionnaire. The first section was comprised of five items pertaining to travel party demographics: (1) residential zip code, (2) trip travel times, (3) reason for traveling (4) a description of the travel party, and (5) satisfaction with the event. The second section asked respondents to record amounts of money their travel party had spent during the trip. Although recall bias is of concern, few errors are made with short recall periods (Osborn & Matlock, 2011). Specific expense categories were included on the questionnaire based on insights from previous research (Wilton & Nickerson, 2006; Crompton & Lee, 2000; Long & Perdue, 1990) including:

a. Lodging
b. Restaurants
c. Registration
d. Other recreation
e. Large Retailers
f. Apparel
g. Groceries
h. Gas stations
i. Sporting goods
j. Other

Expense categories directly related to unaggregated industries in the IMPLAN model, except the "Other" category which represented the regions aggregated economy. In the last section of the questionnaire, respondents weighed the distribution of purchases made during trips by assigning a location percentage to where they felt they had spent money. Purchase location categories included expenses incurred by the travel party in the county where they reside, during their trip, or within the county where the event was being held.

In order to address research objectives 2B and 3, a questionnaire (Appendix A2) was developed from December 2012 to March 2013. Family expenses due to program involvement were measured similarly to Objectives 1 and 2A. Respondents were asked to recall specific expense information over a one month time period; Osborn and Matlock (2011) suggest a one month time period is prudent for digit and recall bias. Two additional sections focused on the

behavior and demographics of respondents. Although not considered an objective of the study, collecting measures of parental and non-parental club member engagement were made a priority. The rationale behind including this section was to add breadth to Objective 3 providing the opportunity to identify the associations between parental and non-parental involvement and other variables. Items in the third and final section of the questionnaire focused on family behaviors and demographics, including:

Behaviors

- Months of activity
- Level of involvement
- Shooting disciplines participation
- Event attendance
- Other 4-H programming involvement

Demographics

- Number of youth in 4-H SS Project
- Family size
- Self perceived economic status

Data Collection Procedures

In order to conduct an economic activity study, the most straightforward data collection method is to sample in person at the event (Wilton & Nickerson, 2006). Distribution of the questionnaire used to address Objectives 1 and 2A took place at select shooting competitions during the 2012 - 2013 study period (Table 3). Due to the relatively small size of the events, census survey sampling was utilized and dissemination of questionnaires took place using the *Intercept method* (Daniels & Norman, 2003). 4-H club members registered for competitions were used to identify either travel party leaders or heads of households, the *observational units* (Lohr, 2010). Prior to competitions starting, shooting sports coaches and individual families checked into a registration booth. At this point questionnaires and writing utensils were provided to adults (those 18 years of age or older). Respondents returned completed questionnaires to the

registration booth at their convenience. An additional announcement to complete the questionnaire was made after youth had finished competing and prior to distributing competition awards. This process was repeated for each event throughout the study period. One exception to this method was the archery competition hosted by the OCES State 4-H Office. Inclement weather conditions and the lack of infrastructure conducive for successful questionnaire administration forced abandonment of surveying. The indoor archery competition hosted by Payne County OCES was substituted for this event. Both competitions are held at the Payne County fairgrounds located in Stillwater, Oklahoma, pertain to the archery discipline, had a similar number of registered shooters, and are open to all residents of the state. Using Microsoft Access, a database was built to store information gathered from each shooting competition. Spending at each purchase location for each expense category was determined using Access SQL commands; this action was conducted by multiplying travel party spending by purchase location percentages. To utilize partially completed questionnaires, common purchase location distributions from similar travel parties were substituted for missing data.

Table 3: OCES 4-H Shooting Sports Contest Data Collection Dates

County	4-H SS Competition	Date
Canadian	Trap	6 April 2013
Logan	Sporting Clays	17 August 2013
Oklahoma	Skeet	12 October 2013
Oklahoma	Muzzleloader	14 April 2013
Oklahoma	Smallbore .22	2 November 2013
Payne	Air	8 December 2012
Payne	Archery	12 January 2013

A mixed-mode internet and mail questionnaire, using multiple delivery contacts (Table 4) and following the suggested delivery strategy of the *Tailored Design Method* (Dillman et al., 2009) was used for addressing Objectives 2B and 3. A randomly selected sample consisting of 600 families was drawn from a list of 5,072 active 4-H Shooting Sports families, with the hope that 357 completed questionnaires would be returned (60% response rate). Potential respondents

were first identified by stratifying the 4-H Shooting Sports population by Extension districts (Northeast, Northwest, Southeast, Southwest). Stratification can dramatically increase the precision of a sample, however it adds to the complexity of a study (Lohr, 2010). Random numbers were assigned to each family using a random number generator. Potential respondents were drawn from each strata in an effort to maintain representation of the population. This specific procedure was used to maximize the geographic representation of the sample and ensure that any cultural differences of shooting sports families would be fully present. A media blitz, including articles in county 4-H newsletters and promotions on several OCES 4-H Facebook pages occurred immediately prior to disseminating *deliverables* (Dillman et al., 2009).

Table 4: Deliverables Sequence

Item	Mode	Date	Appendix
Pre-notice letter	Mail	23 April 2013	A3
Pre-notice and web questionnaire URL	Web	24 April 2013	A4
Main questionnaire package	Mail	1 May 2013	A2, A5
Reminder	Web	10 May 2013	A6
Thank you postcard with URL	Mail	15 May 2013	A7
Replacement questionnaires	Mail	22 May 2013	A2

Analysis of Data

Samples used for analysis varied by objectives. Objectives 1 and 2A used figures produced from all returned questionnaires. Only a sample (n=100) could be used for analysis of Objectives 2B and 3 even though a total of 133 usable questionnaires were returned. This limited sample is essential due to strata response rates not being equal across the state, with Western Oklahoma Extension districts responding considerably better than Eastern Oklahoma Extension districts. In order to address this over representation by certain geographic locations, the sample selection process prioritized responses from as many different counties within the state as was possible while maintaining Extension district representation.

Economic activity analyses require local, regional, or national economic datasets. IMPLAN comes with these datasets built into the software. However, in order for models to remain reflective of the ever changing economy, IMPLAN Group LLC regularly updates datasets. Geographic units such as Canadian, Logan, Oklahoma, and Payne counties (Objective 1) and the state of Oklahoma (Objective 2) need to be identified by users to build models. Separate impact models reflective of the county (Objective 1) and contribution models reflective of the state (Objective 2A) were used to calculate known and estimated spending attributed to competitions throughout the 2012 and 2013 4-H Shooting Sports seasons. Estimated family spending at a local and regional level is included in the the contribution model (Objective 2B). Impact analyses and contribution analyses are performed differently from one another, however the basic steps of analysis include: (1) constructing the model based on IMPLAN economic datasets, (2) setting up new activities, (3) adding new events to an activity, (4) entering total spending figures for each event or "Expense category", (5) analyzing the scenario, and (6) reviewing and exporting the contribution or impact summary.

Correlations examine variable relationships (Objective 3). Bivariate correlations are specific to two variable relationships, examining both the strength and direction of association (Field, 2009). A two tailed test at the 0.05 significance level was performed because the relationships between economic, recreation, and demographic variables was unknown before testing. Spearman's rho correlation coefficient was used to analyze data because variables did not exhibit normal distribution (Appendix D1). Histograms, normal qq plots, and p values derived from the Shapiro-Wilk test of normality led to this conclusion. It should be noted that for the variable measuring a respondents residential proximity to the State 4-H Office, the Shapiro-Wilk test suggested the distribution could be normal, but upon investigation the normal qq plot data appeared sigmoid rather than linear indicating the distribution was not normal.

CHAPTER IV

FINDINGS

Study Populations

Three populations existed within the study, two of which where accounted for at shooting competitions hosted by the State 4-H Office, and the final population was determined using a project enrollment database. In total 762 travel parties had the potential to have an economic impact in counties where the State 4-H Office hosted competitions, while 800 travel parties made economic contributions around the state during coordinated competitions. The difference in these figures is attributed to the exclusions of local residence from impact analyses. Those eligible to complete a questionnaire focused on local and regional shooting sports behaviors were identified using 4-H's project enrollment database. It determine that 5,072 non-duplicated families were actively participating in local Shooting Sports Project activities at the time of the study.

The State 4-H Office hosted shooting sport competitions in four different counties during the 2012-2013 study period. Canadian, Logan, Oklahoma, and Payne counties can be viewed in Figure 2. Noted in the study's limitations, census survey sampling at some shooting sports events failed due to travel parties declining to participate (Table 5). To deal with this inaccuracy, models were used to analyze measures of known and estimated spending. Expenses that were recorded on questionnaires representing known expenditures can be interpreted as a lower bound of spending. Estimated numbers were obtained by: (1) determining average spending per person for each expense category based on returned questionnaires, (2) then multiplying average per person spending by the estimated event populations. This extrapolated measure of total spending for each expense category ultimately provides the maximum or upper bound of spending that occurred

during trips to shooting sports competitions. To clarify, lower bound measures are valid because, to the best of our knowledge, we know those purchases actually took place. Upper bound measures are left to interpretation. Readers need to personally take into account how likely samples represent the population and consider the possibility of bias. The likelihood that the true measure of spending lies somewhere within the range of measures is credible, that is why figures associated with Objectives 1 and 2A have been presented in a range.

Figure 2: Data Collection Locations for State Competitions within the State of Oklahoma.

Table 5: Sample size and Response Rates at Competitions Hosted by the OCES State 4-H Office During the 2012-2013 Study Period.

Analysis	Event	Sample Size	Ineligible Responses	Sample Size (adj)	Total Usable	Response Rate (%)
Impact	Air	81	1	80	43	53.7
	Archery	178	1	177	77	43.5
	Trap	228	7	221	49	22.2
	Muzzleloader	6	1	5	5	100
	Sporting Clays	126	0	126	37	29.4
	Skeet	113	0	113	38	33.6
	Smallbore .22	30	0	30	15	50.0
Contribution	Air	87	1	86	43	50.0
	Archery	184	1	183	81	44.3
	Trap	244	7	237	59	24.9
	Muzzleloader	6	1	5	5	100
	Sporting Clays	126	0	126	37	29.4
	Skeet	123	0	123	42	34.1
	Smallbore .22	30	0	30	15	50.0

Ethical Data Interpretation

Economic figures, descriptive statistics, and correlational findings are presented throughout the following chapter. Creswell (2012) points out that when conducting educational research ethical issues arise during every period of the study. As interpreters of the following data, readers must remember that data is presented as is, and should not be interpreted beyond the limits of this study. More explicitly in regards to correlational research, Field (2009) states, “Considerable caution must be taken when interpreting correlational coefficients because they give no indication of causality.” (p.173). Two variables may correlate together however that does not mean those two specific variables are responsible for that relationship; a third, or multiple variables may very well affect the interaction. That being said, if the goal of a study is to establish general trends amongst multiple variables, correlational research is ideal.

In County Spending Patterns at Competitions

Hotel, restaurant, gasoline, sporting goods, and "other" costs appeared to be large contributors to overall trip costs. While registration, recreation, large retailers, clothing, and groceries categories were less influential. These conclusions are supported by other authors including Lee (1993) and Crompton and Lee (2000) providing a sense that these expenses were commonly associated with other recreational activities in addition to shooting sports. 4-H Shooting Sports travel parities spent the most money ($750, Table 6) during the archery competition held in Payne County. This figure is significantly higher than the cost of any other trip throughout the 2012 - 2013 study period and was nearly double the amount of money spent during any other trip. The skeet, trap, smallbore .22, sporting clays, air, and muzzleloader competitions followed respectfully with average trip expenses ranging from $26 to $440. Table 6 also provides clear indicators of the cost of products or services within the counties where competitions were held. Referencing the table, travel parties that required lodging within the county where shooting sports competitions were being held spent between $79 and $128 during trips. Other similar conclusions can be made about any of the expense categories and provide potential participants a sense of what it will likely cost to attend a State Office hosted shooting competition. Conclusions can also be made about the cost of participation based on the average cost of sporting goods. For example, the average cost for sporting goods in preparation for the archery competition was $207, while little money was spent by those that attended the muzzleloader competition. This situation poses interesting questions about the differences in the cost of participation between shooting disciplines, whether 4-H club members buy sporting goods for activities outside of 4-H, and what kind of expenses program administrators need to incorporate into their plans for overcoming participation barriers.

Table 6: Average Travel Party Expenses Within the County Attributed to State 4-H State Office Hosted Competitions

	Expense Categories ($)										
Competition	Lodging & Hotels	Restaurants	Registration	Recreation	Large Retail	Apparel	Groceries	Gasoline	Sporting Goods	Other Expenses	Total
Air	100	53	10	10	18	0	27	69	32	10	327
Archery	86	54	10	68	25	61	14	39	207	187	750
Trap	97	44	20	41	30	0	33	74	37	0	376
Muzzleloader	0	9	15	0	0	0	0	0	0	0	24
Sporting Clays	79	52	25	25	84	1	11	11	28	50	366
Skeet	128	35	20	23	69	25	8	44	67	22	440
Smallbore .22	97	45	15	25	80	28	5	30	50	0	374

Statewide Spending Patterns at Competitions

Whereas Table 6 took into account average party spending within the county, Table 7 accounts for the average trip expenses throughout the entire state. Travel parties directly linked to participating 4-H club members spent money throughout the state while on their way to competitions. Expenses associated with sporting goods become a much more prominent expense when compared with hotels and lodging expenses, and the cost of gasoline figuring less prominently than in Table 6. Referencing the total trip expense column, the cost of participation at competitions hosted by the State 4-H Office is relatively consistent, ranging from $205 to $375 per party. Overall spending throughout the state for the archery competition ($384) was consistent with other competitions hosted by the State 4-H Office (e.g. trap ($329), skeet ($375), and sporting clays ($299).

Table 7: Average Travel Party Expenses Within the State of Oklahoma Attributed to State 4-H State Office Hosted Competitions

	Expense Categories ($)										
Competition	**Lodging & Hotels**	**Restaurants**	**Registration**	**Recreation**	**Large Retail**	**Apparel**	**Groceries**	**Gasoline**	**Sporting Goods**	**Other Expenses**	**Total**
Archery	34	43	20	9	81	8	22	54	109	3	384
skeet	45	40	10	11	52	16	13	64	119	4	375
Trap	18	56	20	12	24	20	11	51	92	27	329
Smallbore .22	23	34	15	4	26	6	6	51	146	6	317
Sporting Clays	16	44	25	5	26	9	6	54	113	1	299
Air	31	58	10	0	18	13	18	77	12	3	241
Muzzleloader	0	44	15	12	15	0	0	66	53	0	205

Competition Impacts and Contribution Effects

The direct, indirect, and induced effects of the economic impacts analysis for competitions hosted by the State 4-H Office can be found in Table 8, while the direct, indirect, and induced effects of the economic contribution analysis can be found in Table 9. In an effort to reiterate to readers the difference in these two types of analyses, economic impacts only look at the net amount of economic activity in a region. In doing so the analysis only looks at new activity being brought into a region by non-residents while excluding the effects by those that currently already reside within the local region. Economic contributions analysis is used to describe the economic activity that already existed within the geographic area of interest, focusing on the gross amount of economic activity in the region. Examining Tables 8 and 9 readers should note that the direct effects are the largest figures because these figures represent the amount of money consumers used to make direct purchases from businesses. Indirect effect and induced effect figures follow share the next highest values because these transactions either represent interindustry transactions between direct effect industries and their supporting industries or the additional economic activity by those employed in direct and indirect industries. Each event is described using direct, indirect, and induced values so the readers can make comparisons between the different competitions held during the 2012 - 2013 study period.

Table 8: Estimated Direct, Indirect, and Induced Impacts Attributed to Competitions Hosted by the State 4-H Office

County	Competition	Estimated Attendance	Total Expenditures	Effect	Jobs	Personal Income ($)	Total Value Added ($)	Output ($)
Canadian	Trap	684	$7,515 - 16,591	Direct	2 - .3	1,719 - 4,765	2,588 - 7,735	7,515 - 16,591
				Indirect	0	631 - 1,185	1,239 - 2,230	2,120 - 3,756
				Induced	0	287 - 723	569 - 1,434	896 - 2,259
Logan	Sporting Clays	115	$5,518 - 9,494	Direct	.1 -.2	1,438 - 2,742	2,039 - 4,073	5,518 - 9,494
				Indirect	0	348 - 557	692 - 1,082	1,293 - 1,972
				Induced	0	196 - 361	385 - 709	633 - 1,164
Oklahoma	Skeet	355	$5,632 - 10,788	Direct	.1 - .2	1,879 - 3,904	2,826 - 6,069	5,632 - 10,788
				Indirect	0	772 - 1,290	1,367 - 2,287	2,290 - 3,782
				Induced	0	548 - 1,066	962 - 1,869	1,534 - 2,982
Oklahoma	Muzzleloader	20	$99 - 104	Direct	0	25 - 26	32 -34	99 - 104
				Indirect	0	18 -19	33	56 -57
				Induced	0	9 -10	16 - 17	25 -27
Oklahoma	Smallbore .22	110	$1,894 - 3,010	Direct	0	623 - 1,021	963 - 1,602	1,894 - 3,010
				Indirect	0	249 - 374	439 - 660	727 - 1,085
				Induced	0	179 - 286	314 - 501	501 - 799
Payne	Air	316	$5123 - 9,526	Direct	.1 - .2	1,597 - 3,411	2,416 - 5,300	5,123 - 9,526
				Indirect	0	329 - 631	631 - 1,139	1,055 - 1,841
				Induced	0	263 - 543	488 - 1,006	754 - 1,556
Payne	Archery	570	$10,911 - 21,105	Direct	.2 - .4	4,087 - 8,192	6,354 - 12,874	10,911 - 21,105
				Indirect	0	662 - 1,220	1,227 - 2,257	1,988 - 3,637
				Induced	0	640 - 1,262	1,187 - 2,339	1,842 - 3,629

Table 9: Estimated Direct, Indirect, and Induced Contributions Attributed to Competitions Hosted by the State 4-H Office

County	Competition	Estimated Attendance	Total Expenditures	Effect	Jobs	Personal Income ($)	Total Value Added ($)	Output ($)
Canadian	Trap	732	$21,790 - 77,874	Direct	.4 - 1.6	9,458 - 36,709	14,968 - 59,365	13,308 - 40,927
				Indirect	0 - .1	1,396 - 3,553	2,565 - 6,573	4,458 - 11,325
				Induced	.1 - .2	2,461 - 9,106	4,408 - 16,312	7,320 - 27,091
Logan	Sporting Clays	386	$14,110 - 32,074	Direct	.3 - .7	6,177 - 15,066	9,743 - 24,187	8,563 - 16,964
				Indirect	0	875 - 1,477	1,622 - 2,770	2,816 - 4,777
				Induced	0-.1	1,599 - 3,744	2,864 - 6,707	4,756 -11,139
Oklahoma	Skeet	386	$16,431 - 40,729	Direct	.4 - .9	7,599 - 19,735	12,129 - 31,851	9,043 - 20,314
				Indirect	0	844 - 1,652	1,561 - 3,078	2,703 - 5,295
				Induced	0 - .1	1,911 -4,835	3,423 - 8,661	5,685 - 14,384
Oklahoma	Muzzleloader	386	$933 - 1,178	Direct	0	432 - 542	681 - 853	501 - 656
				Indirect	0	45 - 58	85 - 111	147 - 190
				Induced	0	108 - 136	194 - 244	322 - 405
Oklahoma	Smallbore .22	110	$6,643 - 11,426	Direct	.1 - .2	3,154 - 5,502	5,090 - 8,912	3,410 - 5,680
				Indirect	0	297 - 472	548 - 873	945 - 1,502
				Induced	0	780 - 1,350	1,397 - 2,418	2,320 - 4,016
Payne	Air	339	$9,316 - 18,724	Direct	.2 - .3	4,132 - 8,477	6,594 - 13,609	5,599 - 10,793
				Indirect	0	560 - 1,033	1,044 - 1,930	1,806 - 3,330
				Induced	0 - .1	1,067 - 2,161	1,912 - 3,872	3,173 - 6,429
Payne	Archery	589	$22,004 - 58,860	Direct	.4 - 1.1	10,095 - 28,498	16,106 - 45,908	12,563 - 27,271
				Indirect	0 - .1	1,113 - 2,184	2,098 - 4,149	3,613 - 7,113
				Induced	.1 - .2	2,539 - 6,965	4,547 - 12,478	7,552 - 20,718

Economic Contributions of Local Program Participation

Table 10 contains information on the economic contributions of families that participated in a local or regional 4-H Shooting Sports Project (Objective 2B). Regional analysis of Oklahoma's total effects included employment measures of 106 jobs associated with the 4-H Shooting Sports Project, residents personal income increasing by $3,340,502, while value added increased by $5,577,676 and the region's output consisted of $7,973,162. It should be noted that a range of values is not needed for these economic activity values because the data used to create estimates was based on a random sample.

Table 10: Contribution Analysis Direct, Indirect, and Induced Effects of Local Program Participation.

	Measures of Economic Activity			
Contribution	**Employment (Jobs)**	**Personal Income ($)**	**Value Added ($)**	**Output ($)**
Direct	83	2,407,366	3,860,229	5,094,499
Indirect	7	313,360	606,938	1,035,238
Induced	16	619,776	1,110,510	1,843,425

Characterizing Mixed-Mode Survey Respondents

The interpretation of data collected to address Objectives 2B and 3 is more straightforward. The sample achieved a less than ideal response rate (25%) when compared to other published studies, and it fell short of the anticipated 60% response rate (Table 6). Consequently, the resulting confidence intervals at a 95% confidence level had to be lowered from +/-5% to +/- 10%. It should be noted that although a 25% response rate is low, it is considered within the common response rates of research today (Kaplowitz, Hadlock, & Levine, 2004; Linder, Murphy, & Briers 2001).

In order to help support the representation of a sample (Table 11), an effort was made to ensure that the sample included diverse geographic and cultural characteristics of Oklahoma's population. Opportunities for youth to participate in the 4-H Shooting Sports Project occurs in 90% of Oklahoma counties. In other words, 69 of 77 counties in Oklahoma have active shooting sports programs. Responses from 49 different counties were received (71% coverage), including responses from all four Extension districts (Figure 3).

Table 11: Sample Size and Response Rate Addressing Local and Regional 4-H SS Project Involvement

Target Population	Incomplete Respondents	Ineligible Responses	Adjusted Sample Size	Total Usable	Total Unreachable	Response Rate (%)
600	35	24	541	133	408	24.6

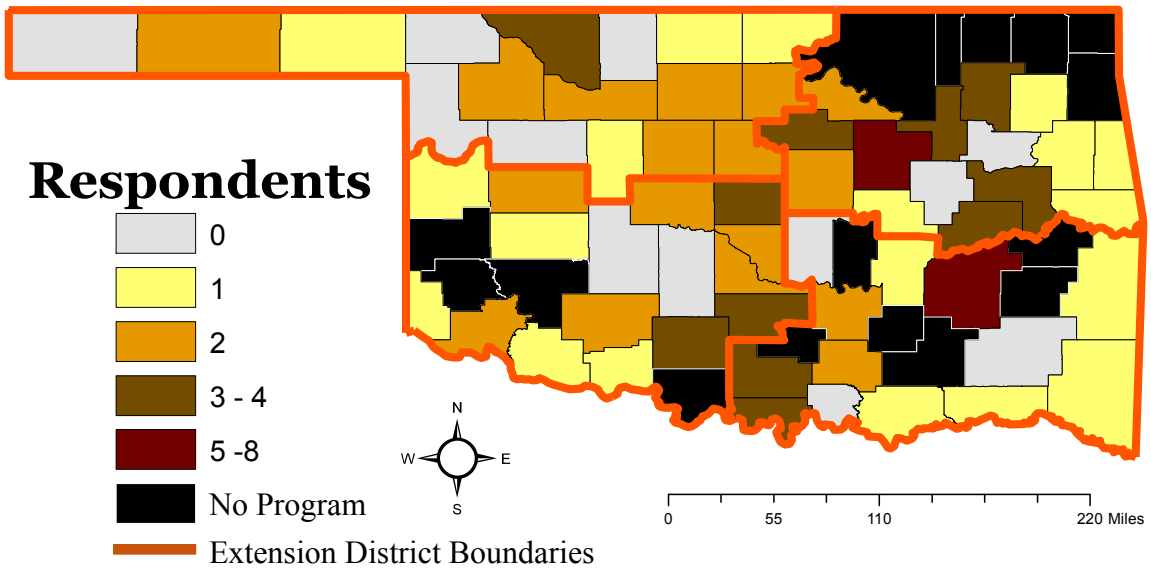

Figure 3: Respondent Location by Extension District

Figure 4 demonstrates respondent activity between April 2012 and April 2013. Monthly program participation of respondent families consistently fluctuated between 41% to 55% for the months of January (45%), February (45%), March (55%), May (50%), August (41%), September

(48%), November (52%), and December (43%). A low period of activity occurred for the months of June (24%) and July (21%) that is consistent with a period of reduced programming. In April, 73% of respondents participated in one or more shooting sports activities, indicating that spring is the period of the most activity for 4-H Shooting Sports members. An additional elevated period of participation occurred in October with 60% of respondents indicating they were involved in one or more shooting sports activities. Periods of activity and inactivity align to program characteristics. The majority of State 4-H Office hosted shotgun competitions take place between the months of August and November, while archery events and the potential for other rescheduled competitions take place in the spring. Local programs would be likely to hold practices in preparation of these event, along with participating in local and regional competitions during the spring and fall.

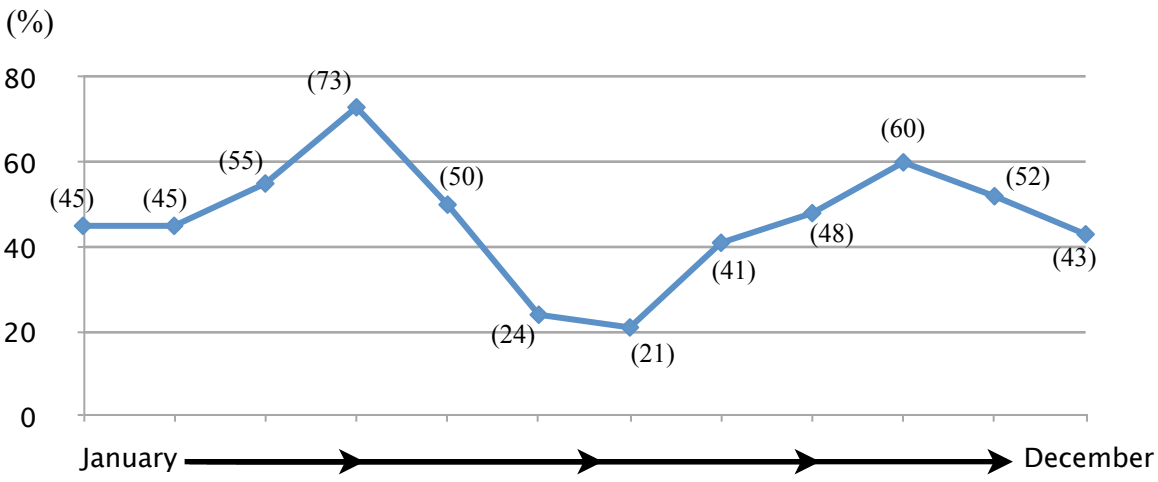

Figure 4: Respondent Participation by Month

Responses in relation to the number of children a family has participating in shooting sports can help with understanding several programmatic and respondent demographic characteristics. Table 12 suggests that the majority of families (65%) have only one child

participating in the Shooting Sports Project, while 29% of families have two children in the Project, and 6% of families have three children currently in the Project.

Table 12: Youth Participation Per 4-H Shooting Sports Family

Children in Shooting Sports (n=100)	f	%	Cumulative %
1	65	65.0	65.0
2	29	29.0	94.0
3	6	6.0	100.0

The average family size of respondent families was four people (48%). Beyond four person families, family size was separated to include three member families (19%), five member families (18%), two member families (8%), and six member families (5%). Both seven and eight member families each comprised 1% of the sample. When taking conclusions from Table 13 and the information presented in Table 12, it is interesting that the majority of families have four members (48%), yet most families only have one child participating in the Shooting Sports Project (65%). Future research should include describing the age and relationships of families to better understand the discrepancy between family size and potential non-participation by other youth family members.

Table 13: Respondent Family Size

Family Size (n=100)	f	%	Cumulative %
2	8	8.0	8.0
3	19	19.0	27.0
4	48	48.0	75.0
5	18	18.0	93.0
6	5	5.0	98.0
7	1	1.0	99.0
8	1	1.0	100.0

A family's economic status can help explain what economic classes the 4-H SS Project is available to, and how typical families think of their overall financial standing. Table 14

summarizes the respondents perceptions of their own status on an 11 point scale. Figures ranged from low economic status (0) to high economic status (10). All figures on the scale had at least one corresponding family, indicating the Shooting Sports Project attracts families from diverse economic backgrounds. Most families concentrated their responses around 6, indicating a slightly better economic status than other families in their immediate communities. One of the major concerns, from a programmatic standpoint, is whether or not to hold more frequent competitions or to focus resources on local programming. Affluent families often have the disposable income to support their child's recreational shooting ambitions. Alternatively if the costs of 4-H activities become too demanding, families with low economic statuses will potentially dissociate from the Project. These two opposing view points make administration of the Shooting Sports Project difficult but with the information from Table14, Oklahoma 4-H has a better understanding of the economic backgrounds of participating families.

Table 14: Self Perceived Family Economic Status

Self Perceived Economic Status (n=100)	f	%	Cumulative %
0	1	1.0	1.0
1	2	3.0	4.0
2	4	4.0	8.0
3	5	8.0	16.0
4	11	11.0	27.0
5	12	12.0	39.0
6	24	24.0	63.0
7	19	19.0	82.0
8	12	12.0	94.0
9	5	5.0	99.0
10	1	1.0	100.0

4-H includes the Shooting Sports Project within the Environmental Education and Natural Science area of programming. Respondents were asked if their families had joined any additional areas of programming after joining the Shooting Sports Project (Table 15). Administrators initially believed that youth interested in environmental education and natural sciences would join similar programs. Contrary to what was expected, most youth chose to

participate in complementary areas of programing (e.g. plants and animals, personal development and leadership, and citizenship and civic engagement), rather than additional environmental education and natural science projects. Although many families did join additional areas of programing, the vast majority (59%) of respondents said that they had not join any additional programs after joining the Shooting Sports Project.

Table 15: Additional 4-H Programming Areas Joined

Additional Programs Joined	f
Citizenship and Civic Engagement	17
Communicative and Expressive Arts	10
Consumer and Family Sciences	6
Environmental Education and Natural Sciences	7
Health and Lifestyle Education	7
Personal Development and Leadership	17
Plants and Animals	23
Science an Technology	7
No Additional Programming Joined	59

Tables 16, 17, and 18 describe characteristics of a family's oldest child in 4-H Shooting Sports. Youth between the ages of 9 through 18 are eligible for participation in the project, however because the time period of this study extends for a one year period, data was collected for participants between the ages of 8 to 19 (Table 16). The distribution of responses appeared bimodal, initially peaking at 12 years old with 19% of respondents and then again peaking around 16 years of age with 13% of respondents. Considering Oklahoma's traditional school system of elementary aged students (5-10 year olds), Junior high aged students (11-13 year olds), and high school aged students (14 - 17 year olds), the 4-H Shooting Sports Project is most popular with junior high students. One plausible cause for the bimodal distribution is that when entering high school students become engaged in Future Farmers of America (FFA) activities causing the sharp decline between the ages of 13 and 14 years of age.

Table 16: Age of Oldest 4-H Member

Age (n=100)	f	%	Cumulative %
8	1	1.0	1.0
9	8	8.0	9.0
10	14	14.0	23.0
11	12	12.0	35.0
12	19	19.0	54.0
13	16	16.0	70.0
14	7	7.0	77.0
15	6	6.0	83.0
16	13	13.0	96.0
17	4	4.0	100.0
18	0	0	100.0
19	0	0	100.0

Gender of the oldest child in respondent families is described in Table 17. Shooting Sports participation is a male dominated activity (69%), however female participation (31%) makes up a significant portion of the sample. In recent years archery disciplines both in community clubs and in school programs have provided an environment where many new, young, females can participate in the 4-H Shooting Sports Project.

Table 17: Gender of Oldest 4-H Member

Gender (n=100)	f	%	Cumulative %
Male	69	69.0	69.0
Female	31	31.0	100.0

Information on the number of years the respondent family's oldest child has been active in the 4-H Shooting Sports Project can be examined in Table 18. Looking at the table one can conclude that many 4-H participants have not been active in the project for an extended number of years. Over 60% of respondent's oldest children have been active in the project for two years or less, indicating a recent upswing in program enrollment.

Table 18: Number of Years Enrolled by Oldest 4-H Member

Years Enrolled (n=100)	f	%	Cumulative %
1	28	28.0	28.0
2	32	32.0	60.0
3	9	9.0	69.0
4	10	10.0	79.0
5	9	9.0	88.0
6	3	3.0	91.0
7	3	3.0	94.0
8	3	3.0	97.0
9	1	1.0	98.0
10	1	1.0	99.0
11	0	0	99.0
12	0	0	99.0
13	0	0	99.0
14	1	1.0	100.0

Correlational Relationships

Demographics information is important to collect for two reasons: (1) it helps characterize the sample, such as in tables 10 through 18, and (2) measured controls (i.e. age, gender, months of activity, years enrolled, economic status, family size, kids in shooting sports) need to be incorporated into correlational research to align with previous research and theoretical foundations as suggested by Field (2009). In order to address Objective 3 the following correlations (Table 19 - 21) have been used to help understand the 4-H Shooting Sports Project. A determination of the strength of relationships is based on Davis conventions (Davis, 1971), which classifies coefficient ranges into negligible (.01-.09), low(.10 - .29), moderate (.30 -.49), substantial (.50 - .69), and very strong (.70 or higher). Significant relationships are designated at the .05 (*) and .01 (**) significance level.

Table 19 shows the relationships between a family's typical expenses related to local and regional shooting sports participation, the family's shooting sports expenses during the month of April (data collection month), and the different expense categories that aggregate to a family's typical spending. A positive substantial relationship exists between a family's typical spending

and their spending during the month of April. This is an important relationship to establish because of recall bias inherent with a question on typical monthly spending. Looking at the strength of relationships between typical spending and expense categories, very strong relationships existed with gasoline expenses (.848**) and restaurants (.808**) categories, substantial relationships included registration (.690**), and sporting goods (.513**) categories, and moderate relationships existed for recreation (.403**), large retail purchases (.488**), apparel (.489**), and grocery (.419**) categories. These findings are consistent with Lee (1993), who found that purchases of gasoline, restaurants, and shopping and entertainment accounted for 85% of recreational boaters total trip expenditures. Very strong and substantial relationships of certain expense categories suggest that regardless of the type of recreational activities a family is participating in (e.g. shooting sports, boating), there are certain inherent costs (e.g. gasoline, restaurants, sporting goods).

Table 19: Expense Category Relationships

Expense Relationships		**Spearman's Rho (R_s)**
Typical SS Family Expenses	April SS Family Expenses	.673**
	Gasoline	.848**
	Restaurants	.808**
	Registration	.690**
	Sporting Goods	.513**
	Apparel	.489**
	Large Retail Purchases	.488**
	Groceries	.419**
	Recreation	.403**

In an effort to better understand the social support systems of the 4-H Shooting Sports Project, families were asked about how often male and female role models were involved with their children at shooting sport activities (Table 20). Measures of parental and non-parental influence were taken for both male and female role models. Non-parental male role models (.861**) had a stronger relationship to overall male influence than fathers (.649**), but mothers (.840**) had a stronger relationship to overall female influence than non-parental female role

models (.563**). It is evident from this correlational outcome that both parental and non-parental relationships are important in achieving program success. These conclusions aligns with other research (McNeil, 2010; Clary, & Rhodes, 2006; Chen, Greenberger, Farruggia, Bush, & Dong, 2003) on social dimensions being an important necessity of the youth development process.

Specifically in regards to importance of male influences at the .01 level of significance, Shooting Sports coaches shared a very strong relationship with overall male influences, while father figures (.649**) were included in substantial relationships. Male influence relationship of low strength at the .01 and .05 significance levels included grandfather (.276**), male extended family members (.212*), and male family friends (.256*). No relationship was found to be significant between older brothers above the age of 18 and male influences.

The relationship between mothers and overall female influence figured prominently. A Spearman's correlation of .840 was found to be significant at the .01 level of significance. No substantial relationships existed for other female role models, but a moderate relationships was present for female extended family members (.398**) and low strength relationships existed for grandmothers (.271**), female family friends (.223*), and female shooting sports coaches (. 299**) at the .01 and .05 significance levels.

Table 20: Influence Relationships

Influential Male Relationships		Spearman's Rho (R_s)
Male Influences	Non-Parental (Male)	.861**
	4-H Shooting Coach (Male)	.684**
	Father	.649**
	Grandfather	.276**
	Family Friend (Male)	.256*
	Extended Family Member (Male)	.212*
	Older Brother (18+)	.063
Female Influences	Mother	.840**
	Non-Parental (Female)	.563**
	Extended Family Member (Female)	.398**
	4-H Shooting Coach (Female)	.299**
	Grandmother	.271**
	Family Friend (Female)	.223*
	Older Sister (18+)	.063

Table 21 looks at the relationships between different family characteristics and expense categories. Variables that share a relationship with restaurant expenses at the .01 level of significance included Male Influences (.280**), Female Influence (.441**), Local Competitions (.321**), State Competitions (.350**), and Months of Activity (.402**), while Years Enrolled (.242*) and Additional Programs Joined (.254*) proved significant at the .05 level. Variables with relationships to Registration Expenses included Female Influences (.357**), Years Enrolled (.229*), Local (.305*), State (.249*), and National Competitions (.199*), Months of Activity (.243*), and Additional Programs Joined (.211*). Variables that proved to have a relationship with Large Retailers included Kids in Shooting Sports (.265**), Number of Disciplines (.199*), National Competitions (.258**), and Months of Activity (.257**), indicating little strength in the the relationship. Grocery Expenses shared a relationship that included measures of Club Size (-.243*), Female Influence (.237*), Number of Disciplines (.214*), National Competitions (.327**), and Months of Activity (.273**), again indicating little strength in the relationship. Gasoline expenses had a moderate relationships with Male (.390**) and Female (.344**) influences, Local Competitions (.349**) , and Months of Activity (.387**), in addition to having a low strength relationship with State Competition characteristics (.238*). No relationships were established

between variables and Recreation, Clothing, and Sporting Goods expense categories, suggesting these purchases are hard to predict and that spending on these expenses is purely situational.

Table 21: Correlations Between Variables

	Expense Category								
Variable	Restaurants	Registration	Recreation	Large Retail	Apparel	Groceries	Gasoline	Sporting Goods	Total Expenses
Age of Oldest	0.140	0.181	-0.015	-0.056	-0.187	-0.094	0.165	0.043	0.138
Gender of Oldest	-0.175	-0.159	-0.034	-0.171	-0.145	-0.126	-0.156	-0.013	-0.167
Years Enrolled	.242*	.229*	-0.004	-0.055	-0.117	-0.055	0.036	0.146	0.142
Club Membership Size	0.017	-0.036	-0.041	-0.068	0.004	-.243*	-0.017	0.034	0.004
Distance to Local OCES	0.092	-0.014	-0.009	0.067	0.026	0.030	0.009	0.174	0.061
Distance to State OCES	-0.127	-0.098	0.046	-0.037	-0.059	-0.084	-0.051	-0.015	-0.116
Family Size	0.022	-0.100	0.015	0.073	0.109	-0.141	-0.025	0.094	0.020
Number of Kids	0.062	0.023	0.075	.265**	0.044	0.036	0.020	0.007	0.067
Number of Disciplines	0.048	0.090	-0.049	.199*	0.024	.214*	0.115	0.029	0.124
Economic Status	0.016	0.011	-0.126	-0.002	-0.020	-0.009	-0.172	-0.059	-0.026
Male Influence	.280**	0.175	0.106	0.124	0.188	0.189	.390**	0.066	.336**
Female Influence	.441**	.357**	0.080	0.138	0.122	.237*	.344**	-0.021	.412**
Local Competitions	.321**	.305*	0.147	0.139	0.034	0.135	.349**	-0.020	.316**
State Competitions	.350**	.249*	-0.060	0.073	0.006	0.003	.238*	-0.174	.242*
National Competitions	0.122	.199*	0.178	.258**	0.140	.327**	0.151	0.011	0.149
Months Active	.402**	.243*	0.114	.257**	0.181	.273**	.387**	0.031	.430**

CHAPTER V

CONCLUSIONS & RECOMMENDATIONS

Final Thoughts

In this final chapter, an overview of the study is provided to help readers recall information discussed in previous chapters. Summary findings are presented that include insights into the initial three research objectives. Finally, programmatic insights and recommendations have been provided so that administrators are provided needed information to align the Shooting Sports Project with the future direction of 4-H.

Purpose of the Study

The reasoning behind conducting an economic activity study of the 4-H Shooting Sports Project is to help identify the impact of "tourism" in certain counties, gauge overall spending within Oklahoma, and help identify underlying patterns in the demographic, behavioral, and recreational relationships of participating families.

Research Objectives

The following research objects outline what was thought to be necessary in understanding the lack of information regarding the 4-H Shooting Sports Project:

1. Estimate the economic impact of travel parties that attended shooting sports competitions hosted by the OCES State 4-H Office.

2. Estimate the total economic contribution of families that participated in the OCES Shooting Sports Project by:
    A) Estimating the economic contribution of travel parties that attended competitions hosted by the OCES State 4-H Office.
    B) Estimating the economic contribution of families that participated in local and regional OCES Shooting Sports activities.
3. Identify the significant relationships between demographic, behavioral, and recreational variables.

Methods

Instrument Development:

During the study, two instruments were used to collect data. Both instruments followed suggestions made by Dillman in *Internet, mail, and mixed mode surveys: The Tailored Design Methods* (2009) and utilizing questions from previous research (Wilton & Nickerson, 2006; Crompton & Lee, 2000; Long & Perdue, 1990). The questionnaire that addressed objectives 1 and 2A was limited in length, consisting of a two sided half sheet of paper. While the second questionnaire used for Objectives 2B and 3 utilized the large iconic green clover that is identifiable to most 4-H members on the cover, and three subsequent pages of demographic, behavioral, and recreational questions.

Questionnaire Administration:

Administration of the first survey took place throughout the study period and was physically distributed at actual shooting sports events as suggested by Wilton and Nickerson (2006). Potential respondents were intercepted at the registration both at events and were asked to voluntarily complete the questionnaire. All data was collected in accordance with IRB policy of willing consent. The data collection process lasted from initial distribution of the survey, until

immediately following an awards ceremony recognizing club member accomplishments, roughly a one day period of time. The second questionnaire was mailed in April of 2013 to families that were identified as being currently enrolled in the 4-H Shooting Sports Project. The surveying period lasted one month and included additional contact mailings by both internet and mail to encourage participation (Dillman, 2009).

Data Analysis:

Two primary tools were used to analyze information collected during the study. IMPLAN was used to analyze information from both the first and second questionnaires in order to provide both economic impact and economic contribution estimates. SPSS identified the significant demographic, behavioral, and recreational relationships through correlation analysis. The number of respondents was dependent on individual events. In total, 264 responses were used in the analysis of Objective 1, 282 responses were employed in the analysis of Objective 2, and a 100 response sample, geographically representative of the OCES districts was used in the analysis of Objective 3.

Conclusive Findings

Economic Impacts:

Table 22 indicates the economic impact values seen in counties where the Oklahoma State 4-H Office hosted competitions during the 2012 - 2013 Shooting Sports season. Overall, Canadian County saw between .2 and .3 additional jobs created, though these are most likely part time positions added to the community. Potentially this can be interpreted as one or several individuals being able to avoid unemployment or the addition of part time positions. The personal income for the aggregated population of Canadian County increased between $2,637 and $6,673. Value added within the county increased between $4,397 and $11,398, while the regions output ranged from $10,531 to $22,605 in additional economic activity. Economic impact values are

relatively similar between Canadian County and counties where multiple events were held during the 2012 - 2013 shooting sports season. This indicates that the trap competition (1) draws many visitors from across the state of Oklahoma into the county, and (2) individuals coming to this event make purchases within the county leading to a high degree of support for Canadian County's local economy.

Logan County was the least influenced region by the State 4-H Office's decision to utilize a shooting sports facility located within the county. Employment within the county saw a slight increase between .1 and .2 jobs, suggesting that additional shifts were made available to those currently employed or who were at risk of losing employment. Logan County residents collectively acquired between $1,982 and $3,659 in personal income. The value added within the county achieved between $3,116 and $5,863 in economic activity. Output within Logan county ranged between $7,443 and $12,629, indicating that business directly sold an increased number of goods or services because of the sporting clays competition held within the county. The economic impact derived from hosting a 4-H Shooting Sports competition is evident in Logan county, however limited participation in the sporting clays event restricted activity within the region.

Oklahoma County hosted three shooting sports competitions including the state smallbore .22, muzzleloader, and skeet competitions. Oklahoma County and Canadian County have similar economic impact figures. However, one would expect Oklahoma County to have a better developed economy due to the industrialized and urban characteristics of the county. This should in turn let economic activity circulate for a longer period of time, increasing the economic impact in the region. The following economic activity figures suggest that something has affected activity within the region, i.e production leakages, non-local purchases by shooting sports travel parties, or an economy with few industries related to 4-H Shooting Sports travel party purchases. Employment in the region increased by .2 to .3 jobs, while personal income of the collective residents of Oklahoma County increased between $4,303 and $7,995. Value added in the production of goods or services within the region increased between $6,951 and $13,072. When considering the output of economic activity within Oklahoma County, between $12,758 and

$22,623 in additional sales were attributed to hosting OCES State 4-H shooting competitions within the region.

Table 22 shows the interesting case of how the OCES State 4-H Office's choice of where to hold events can economically benefit a certain counties within the state. Higher attendance at the archery and air rifle/pistol competitions than other shooting sorts events undoubtedly helped create a large economic impact within Payne County. Employment measures for Payne County varied between .4 and .7 Jobs. Personal income for the aggregated population of Payne County increased between $7,688 and $15,475. The value added in the region increased between $12,482 and $25,269, while the increased output ranged between $21,992 and $41,866. Two possible explanations account for the high economic impact in Payne county: (1) The region has a uniquely developed economic profile that retains economic activity attributed to state hosted 4-H Shooting Sports competitions, or (2) attendants chose to spend money within Payne County more preferentially than any other county where competitions were held.

The economic impacts seen for all counties where the State 4-H Office hosted shooting sports competitions have been summarized in Table 22 under the "Total" row. Aggregated economic measures show increases in jobs (.8 - 1.5), personal income ($16,500 - $33,586,) value added ($26,767 - $55,248), and output ($52,405 - $99,161) for Objective 1. Referencing Crompton and Lee's (2000) *Table 3 of Economic Impacts of 16 Festivals and spectator Events* (p. 121), these economic measures are similar to other events mentioned and are realistic for relatively small, single day events.

Table 22: Impacts Analysis Total Effects

	Measures of Economic Activity			
County	**Employment (Jobs)**	**Personal Income ($)**	**Value Added ($)**	**Output ($)**
Canadian	.2 - .3	2,637 - 6,673	4,396 - 11,398	10,531 - 22,605
Logan	.1 - .2	1,982 - 3,659	3,116 - 5,863	7,443 - 12,629
Oklahoma	.2- .3	4,303 - 7,995	6,951 - 13,072	12,758 - 22,632
Payne	.4 - .7	7,578 - 15,258	12,304 - 24,914	21,673 - 41,294
Total	.8 - 1.5	16,500 - 33,586	26,767 - 55,248	52,405 -99,161

Three prominent hypotheses exist as to why local spending during the archery competition held in Payne County was so much higher than any other event: (1) The archery competition was the only event focused on archery sports. It is plausible that archery travel parties have greater participation costs than other disciplines; (2) Time of year could potentially influence travel party spending. Since the archery competition is held in early January, post holiday season sales could affect a travel party's decision to purchase goods and services within the county where the competition was being held; (3) Oklahoma State University is in close proximity to the archery event, travel parties could have come to Payne County to attend the competition but may have taken the opportunity to participate in other university sponsored events in the area. Further research will be needed to determine why this spending is greater than other events.

Some have advocated instead of holding single day competitions in different locations around the state to instead develop a multi-day shoot fixated in a single central county. Based on the evidence from this study, Oklahoma County would be the ideal location for hosting this event. Table 23 provides the hypothetical model given the same amount of spending took place in each county where shooting sports competitions were held. The table suggests that moving all state hosted shooting competitions to Oklahoma County ($14,503 - 31,562) would be the most effective in regards to personal income for residents of the region, followed by Payne ($16,313 - 34,368), Canadian (14,503 - 31,562), and finally Logan (14,086 - 29,961) Counties. This programmatic alteration could result in any number of spending and program participation changes by 4-H travel parties. Additional reasons to switch to a multi day competition include the notion that the longer you can keep non-residents in a local region the economic impact of the region increases exponentially; single day events have relatively small economic impacts because non-locals spend a limited amount of time within the region (Crompton & Lee, 2000). In order for 4-H to claim it is using government provided resources most effectively, 4-H may have to begin holding longer, multi day, State 4-H Office hosted competitions.

Table 23: Hypothetical Impacts Analysis Total Effects

	Measures of Economic Activity			
County	**Employment (Jobs)**	**Personal Income ($)**	**Value Added ($)**	**Output ($)**
Canadian	.8 - 1.5	14,503 - 31,562	24,197 - 52,952	48,542 - 96,338
Logan	.8 - 1.6	14,086 - 29,961	22,935 - 49,413	47,340 - 94,626
Oklahoma	.8 - 1.5	20,198 - 41,535	32,552 - 67,747	59,472 - 116,627
Payne	.8 - 1.5	16,313 - 34,368	26,129 - 55,903	50,446 - 100,643

Economic Contributions:

Table 24 contains information on the economic contributions of travel parties that attended select competitions hosted by the State 4-H Office. Statewide contributions differed from within county impacts because contributions are inclusive of all spending within the state for each 4-H Shooting Sports competitions. The trap competition and archery competitions stimulated the largest contribution. Two groupings of competitions then followed by their disciplines. Shotgun competitions, including Sporting clay and skeet shooting events brought about the next highest contributions followed by, smallbore .22 and air rifle/pistol competitions. The muzzleloader event trailed all others competitions by a wide margin, with only $586 to $736 in personal income being attributed to the competition. This evidence suggests that economic contributions may largely be influenced by the number of people participating in each competition rather than increased per person spending. In other words larger competitions have larger economic contributions. If this hypotheses were true, referencing Table 24 and taking estimated event population into account, following the trap competition the archery competition (570 people) would subsequently have the next greatest personal income contribution, followed by the skeet competition (355 people), air rifle and pistol competition (315 people), sporting clays competition (115 people), smallbore .22 rifle / pistol competition (110 people), and finally the muzzleloader competition (20 people). In general this hypotheses holds true except in regards to sporting clays event. Some unknown reason caused travel parties at the sporting clays competition to spend a significant amount of money ($20,300) in the state when compared to the

air rifle / pistol competition ($11,700) travel parties. This discrepancy may simply be caused by the differences in the inherent costs of participating in these two different types of shooting, however those answers are not addressed in this study.

Objective 2A sought to determine the economic contributions for state shooting sports competitions hosted by the State 4-H Office during the 2012 -2013 study period. Referencing the "Totals" row in Table 24, we see that economic activity measures include increased number of jobs (2.2 - 5.8), personal income ($56,585 - 153,206) value added ($93,482 - 254,779), and output ($100,610 - 240,637). These economic figures provide the baseline for all other future work concerned with the effective use of state resources to provide culminating competitions hosted by the State 4-H Office.

Table 24: Contribution Analysis Total Effects of Competitions

	Measures of Economic Activity			
Shooting Competition	**Employment (Jobs)**	**Personal Income ($)**	**Value Added ($)**	**Output ($)**
Trap	.5 - 1.9	13315 - 49,368	21,941 - 82,250	25,085 - 79,343
Sporting Clays	.4 - .8	8,651 - 20,287	14,228 - 33,664	16,135 - 32,880
Skeet	.4 -1.0	10,354 - 26,222.3	17,114 - 43,589	17,431 - 39,993
Muzzleloader	0	585 - 736	960 - 1,207	970 - 1,251
Smallbore .22	.2 - .3	4,230 - 7,323.7	7,035 - 12,203	6,675 - 11,198
Air	.2 - .4	5,759 - 11,670.8	9,549 - 19,411	10,578 - 20,551
Archery	.5 - 1.3	13,746 - 37,647	22,751 - 62,534	23,728 - 55,103
Total	2.2 - 5.8	56,585 - 153,206	93,482 - 254,779	100,610 - 240,637

Economic contribution estimates are perhaps the best way for 4-H to measure long-term growth of the Shooting Sports Project. Table 24 shares the total effects of economic contributions from state hosted competitions (Objective 2A), while Table 25 shares contributions from local/ regional participating families (Objective 2B). Economic contributions associated with local and regional participation in the Shooting Sports Project indicated that between 108 and 111 jobs were created, residents of the state received $3.4 to 3.5 million in personal income, businesses

saw between $5.7 to 5.8 million in value added to products or services, and overall output in the state ranged from $8.1 to 8.2 million (Objective 2). These effects clearly demonstrate that the money spent by 4-H families supports the state's economy and recirculates between businesses within the state. It should also indicate to program administrators that although State 4-H Office hosted competitions have become the culminating experience for many 4-Her's involved in the Shooting Sports Project, from an economic standpoint strong support of local program initiatives should not be underestimated.

Table 25: Contribution Analysis Total Effects

	Measures of Economic Activity			
Contribution	**Employment (Jobs)**	**Personal Income ($)**	**Value Added ($)**	**Output ($)**
Competitions	2.2 - 5.8	56,585 - 153,206	93,482 - 254,779	100,610 - 240,637
Local/Regional	105.6	3,340,502.0	5,577,676.3	7,973,161.7
Total	108 - 111	$3.4 - 3.5 M	$5.7 -5.8 M	$8.1 - 8.2 M

Demographic, behavioral, and recreational relationships:

Looking at the strength of relationships between individual spending categories and total spending by travel parties, gasoline (.848**) followed by restaurants (.808**) were the two most impactful expense categories. Lee's 1993 study on recreational boating expenditures found similar results, stating, "Considering all observation, positive and zero expenditures, the largest spending item is boat fuel, followed evenly by restaurant and groceries" (p.662). Unlike Lee's study, grocery expenses (.419**) did not share as strong of a relationship with total expenses as registration, sporting goods, apparel, or large retail expenses. In an effort to help alleviate some of the financial burden limiting certain segments of the population from participating, program administrators need to encourage more local opportunities and operate the program with a minimum amount of required travel.

Shooting Sports is one of the few 4-H project areas that has access to a substantial number of male volunteers. Non-parental male role models (.861** Table 20) are the most

important influence for youth involved in the project, often spending the most time with youth at both local activities and shooting competitions. This is an important element considering McNeill (2010) considers non-parental adults to play an important role in youth development. Going so far as to suggest 4-H practitioners put forth an effort to recruit non-parents, spend time training these volunteers, and both support and encourage these new volunteers (McNeill, 2010). The influence mothers (.840** Table 20) have in being present with their children at Shooting Sports activities was the single most important female influence. This suggests that although non-parental role models are important, family members need to directly encourage and be present with 4-H members at Shooting Sports activities.

No unexpected variables showed strong relationships with total spending. Variables that demonstrated how active members were including, months of activity and additional programs joined, were the ones that expressed significant relationships. Spending may simply be functionally related to how invested a family is in a specific recreational activity. As expected, youth that attended State 4-H Office hosted shooting sports competitions (and even more so local competitions) typically spent more money. This further supports that it is essential to have strong local programs that engage youth in order for families to attend centrally located State 4-H Office hosted competitions. The presence of both male and female role models lead to the engagement of youth in the 4-H Shooting Sports Project, hence in order for large economic activity measures to be created the Shooting Sports project needs to be supported both by parents of club members and by volunteers.

Programatic Insights and Recommendations

1. Returned questionnaires suggest several competitions had surprisingly low cost to participate in them, such as the muzzleloader competition hosted by the State 4-H Office. This is surprising considering when one thinks about the amount of equipment necessary to use a blackpowder firearm. One reason that not all expenses of participating in the 4-H

Shooting Sports Project were captured include that club members had to make purchases on competition trips and little information was gathered on the amount of stocked supplies 4-H families purchase prior to attending 4-H sponsored competitions, suggesting the possibility that many of the competitors had previously purchased equipment.

2. Overall, travel parties that spent time in Payne County made more purchases within the county than while spending time in any other location around the state. From strictly an economic perspective it makes sense for Payne County to advocate hosting as many shooting sports competitions within the county as is possible because of the increased business seen in the region associated with shooting sports activities. Regardless of where the 4-H State Office decides to hold 4-H Shooting Sports competitions, money is spent within the state translating into economic activity. It is important for 4-H to educate and share how certain projects are a mere sidestep for financial resources on their way back to circulating in Oklahoma's economy.

3. It has been clearly documented through numerous economic activity studies that the longer non-residents stay within an area more economic activity is generate by their purchases.Transitioning away from single day state competitions into multi day activities provides an incentive for local areas to host state competitions, limits the financial burdens of gasoline expenses, and allows additional time for state resources to help coordinate local educational activities. However, local program participants make up the vast majority of the Shooting Sports Project's economic contribution to state, indicating the important role 4-Her's that strictly participate in local activities play in the stimulation of Oklahoma's economy..

4. Both non-parental and parental resources play significant roles in ensuring that youth are successful when participating in the 4-H Shooting Sports Project. Program administrators

must find local volunteers that are accepting of the educational and psychological principles 4-H is built on, while encouraging parents to become active in their child's development.

5. Questionnaire respondents indicated that most families had only been in the program for one or two years. However there are several plausible explanations as to the cause of this situation. Alternative thoughts include: (A) the relatively short time period in project familiarity suggests there is a high turnover in program participation with only a segment of the population continuing to shoot for many years, (B) recent increases in project enrollment has been stimulated as a rallying point for families of political conservatism, and or (C) speaking specifically to the increased female segment in program participation, perhaps Hollywood's recently portrayal of strong, female, action characters (E.g. Katniss Everdeen in *The Hunger Games*, and Beatrice 'Tris' Prior in *Divergent*) has caused increased interest among young women in shooting sports activities. Additional research outside of this study is needed to help identify gender issues within shooting sports as a recreational past time.

6. When 4-H club members are of high school age many of them stop participating in 4-H and continue with their local FFA programs or alternative activities. This switch is evident in Table 16 and is hypothesized as the cause behind the shift in Shooting Sports Project participation between 13 and 14 years of age. 4-H needs to be more proactive in retaining club members that will have limited opportunities with traditional high school extracurricular activities. 4-H needs to do a better job of rebranding the organization to engage high school students and demonstrate that the 4-H Shooting Sports Project stands out among other recreational shooting organizations.

7. Table 15 suggests that the vast majority of 4-H club members are simply not involved in that many 4-H projects. This fact should be of concern to program administrators considering one of Dewey's core principles was to help learners identify broad subject matters of interest. 4-H program administrators and local personnel need to consider the importance of this issue and make sure that what 4-H is providing is not just an opportunity for a young person to show up and participate in shooting. The draw of the Shooting Sports Project needs to do more for 4-H and club members by not only providing youth the opportunity to develop skills in shooting, but lead them on a path of social, physical, and mental stimulation in an environment that will help them eventually become contributing members of society.

Final Statements

In order for Cooperative Extension Services to continue offering services to youth across the state, 4-H needs to increase its documentation of the economic influence of projects (Harder & Lamm, 2009). The 4-H Shooting Sports Project is one such project that contributes significantly to both county and state economies through the purchases of active families. Perviously outlined, Canadian, Logan, Oklahoma, and Payne counties see economic benefit from hosting state shooting events sponsored by the State 4-H Office. As a benchmark study, 4-H Youth Development can use this study to gauge future Shooting Sports Project growth and use the information identified within this study to help families overcome the barriers to project involvement.

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APPENDIX A1

Oklahoma 4H Shooting Sports State Event Impact Survey - Party attending the $\underline{\text{Please fill in shooting discipline event above}}$

1. Where is your party from? (zip code- please print legibly): ----------▶ _____

2. How long did it take your party to travel to today's event? (in minutes 60 minutes = 1 hour): _____ minutes

3. The 4H event is the primary reason my party and I are in this area today? (circle one): **Correct** or **Wrong**

4. Please describe the members of your party (the # of people you traveled to the event with)

   A._____ Immediate family (Include yourself, 4H participant(s) and if applicable spouse and other children)

   B._____ Extended family (Who have a youth competing in today's event,*Include the youth participating)

   C._____ Other extended family (Extended family without a youth competing that have traveled to the event with you, this includes grandparents and other family relatives)

   D._____ Family friends (People attending today's event to primarily watch your youth compete)

	1	2	3	4	5
5. How satisfied are you with the event? (circle one)	very dissatisfied	dissatisfied	neutral	satisfied	very satisfied

6. What do you find to be the biggest challenge to your child or clubs, shooting sports members?

PLEASE ANSWER THE QUESTIONS ON THE BACK OF THIS SHEET / TURN IN TO DYLAN KIRK OR KEVIN AT THIS EVENT*

Oklahoma 4H Shooting Sports State Event Impact Survey - Party attending the $\underline{\text{Please fill in shooting discipline event above}}$

1. Where is your party from? (zip code- please print legibly): ----------▶ _____

2. How long did it take your party to travel to today's event? (in minutes 60 minutes = 1 hour): _____ minutes

3. The 4H event is the primary reason my party and I are in this area today? (circle one): **Correct** or **Wrong**

4. Please describe the members of your party (the # of people you traveled to the event with)

   A._____ Immediate family (Include yourself, 4H participant(s) and if applicable spouse and other children)

   B._____ Extended family (Who have a youth competing in today's event,*Include the youth participating)

   C._____ Other extended family (Extended family without a youth competing that have traveled to the event with you, this includes grandparents and other family relatives)

   D._____ Family friends (People attending today's event to primarily watch your youth compete)

	1	2	3	4	5
5. How satisfied are you with the event? (circle one)	very dissatisfied	dissatisfied	neutral	satisfied	very satisfied

6. What do you find to be the biggest challenge to your child or clubs, shooting sports members?

PLEASE ANSWER THE QUESTIONS ON THE BACK OF THIS SHEET / TURN IN TO DYLAN KIRK OR KEVIN AT THIS EVENT*

7. Indicate the number of people in your party that these expenses reflect (provide a legible #):_____

8. Please estimate your party's expenditures for today's event?
*Remember expenses should be estimated for your entire trip, both to and from the event. Additionally, please provide a percentage of where you made purchases.
In event co. + In home co. + In other co. = 100% for questions a-j

	Totals ($)	Event County		Home County		Other County	
a. **Lodging / Hotels**: $_____ *fill in above* Per night, for _____ *fill in above* night	$_____	%	+	%	+	%	= 100%
b. **Restaurant food and drinks** (includes fast food and sit down restaurants)	$_____	%	+	%	+	%	= 100%
c. **Registration and admission fees for the event**	$_____	%	+	%	+	%	= 100%
d. **Cost of other recreation and amusement** (admissions fees, movie tickets, etc)	$_____	%	+	%	+	%	= 100%
e. **Items purchased from large retailers** (think big box: Wal-Mart, Target, etc.)	$_____	%	+	%	+	%	= 100%
*Items **NOT** purchased from big retailer* please use above line if purchases *for any of the followin questions was done at a large retailer as described above*	$_____	%	+	%	+	%	= 100%
f. **Clothing and clothing apparel** (event t-shirts, jackets, etc.)	$_____	%	+	%	+	%	= 100%
g. **Groceries** (food from store)	$_____	%	+	%	+	%	= 100%
h. **Gasoline stations** (cost to fill your vehicle and purchases)	$_____	%	+	%	+	%	= 100%
i. **Sporting goods** (clays, ammunition, firearms, targets, etc.)	$_____	%	+	%	+	%	= 100%
j. **Other expenses** (please describe)_____	$_____	%	+	%	+	%	= 100%

Thank you for completing this survey. If you have questions or concerns please contact Dylan Kirk at Dylan.J.kirk@okstate.edu

7. Indicate the number of people in your party that these expenses reflect (provide a legible #):_____

8. Please estimate your party's expenditures for today's event?
*Remember expenses should be estimated for your entire trip, both to and from the event. Additionally, please provide a percentage of where you made purchases.
In event co. + In home co. + In other co. = 100% for questions a-j

	Totals ($)	Event County		Home County		Other County	
a. **Lodging / Hotels**: $_____ *fill in above* Per night, for _____ *fill in above* night	$_____	%	+	%	+	%	= 100%
b. **Restaurant food and drinks** (includes fast food and sit down restaurants)	$_____	%	+	%	+	%	= 100%
c. **Registration and admission fees for the event**	$_____	%	+	%	+	%	= 100%
d. **Cost of other recreation and amusement** (admissions fees, movie tickets, etc)	$_____	%	+	%	+	%	= 100%
e. **Items purchased from large retailers** (think big box: Wal-Mart, Target, etc.)	$_____	%	+	%	+	%	= 100%
*Items **NOT** purchased from big retailer* please use above line if purchases *for any of the followin questions was done at a large retailer as described above*	$_____	%	+	%	+	%	= 100%
f. **Clothing and clothing apparel** (event t-shirts, jackets, etc.)	$_____	%	+	%	+	%	= 100%
g. **Groceries** (food from store)	$_____	%	+	%	+	%	= 100%
h. **Gasoline stations** (cost to fill your vehicle and purchases)	$_____	%	+	%	+	%	= 100%
i. **Sporting goods** (clays, ammunition, firearms, targets, etc.)	$_____	%	+	%	+	%	= 100%
j. **Other expenses** (please describe)_____	$_____	%	+	%	+	%	= 100%

Thank you for completing this survey. If you have questions or concerns please contact Dylan Kirk at Dylan.J.kirk@okstate.edu

APPENDIX A2

OKLAHOMA 4-H'S SHOOTING SPORTS SURVEY

If you have any questions or concerns about this survey please contact Dylan Kirk at dylan.j.kirk@okstate.edu or at (405) 744-8269. You can also consult your local county educator or 4h-ok-ssproject.org. Respondent prize winners will be drawn in July and notified.

EXPENSE CATEGORY	DESCRIPTION
Restaurants food/drinks	Both fast-food and sit-down restaurants expenses should be included in this column. (Examples of restaurants can include, but are not limited to McDonalds, Taco Bell, Pizza Hut, Eskimo Joe's, Texas Roadhouse, etc.)
Registration fees	Examples of registration fees can include, but are not limited to (district shoots, activity fees, cost of certifications, etc.)
Other Recreation	Examples of other recreation can include, but are not limited (to going to movies, bowling, golfing, amusement parks, museums, etc.)
Large retailers *See Verticle text*	Think of stores that sell lots of different types of items (Food, electronics, clothing, etc). Stores may include (Wal-Mart, Target, Costco, Kmart, etc.)
Clothing	Items may include (shooting sports team t-shirts, any apparel, all family member shopping during trips, etc.) from retailers such as (Kohl's, JC penney, Dillard's, Macy's, etc.)
Groceries	Examples of groceries stores include (Food Pyramid, Aldi, IGA, Buy for Less, etc.), items you may purchase for events are (sandwiches, drinks, snacks, etc.)
Gas	Roundtrip expense for your family's gasoline.(Examples of gasoline retailers may include, but are not limited to shell, Mobile, BP, Conoco, Kum & Go, etc.)
Sporting goods	Examples of sporting goods retailers include but are not limited to (Bass Pro Shops, Academy, Dick's, etc.) Items you may purchase for activities may include: (ammunition, firearm and bow maintenance, equipment costs, etc.)

*if purchases of **clothing, groceries**, or **sporting goods** are made from large retailers they should be included in your large retailer expenses.

Question 1:

Please fill in ***each*** expense box below using the table at the top of the page as a reference. Approximate dollar amounts for all of your ***local and regional*** spending on trips with the primary purpose of attending any 4-H Shooting Sports activity. (Remember DO NOT INCLUDE expenses for attending state competitions.)

	Restaurant food/drinks	Registration fees	Other recreation	Large retailers	Clothing	Groceries	Gas	Sporting goods
Example	$45	$20	$20	$87	$100	$50	$76	$34
Month of April								
**Answer here -->	$	$	$	$	$	$	$	$
A Typical Month								
**Answer here -->	$	$	$	$	$	$	$	$

Question 2:

Select all of your child(ren)'s ***male*** influences that use 4-H Shooting Sports as a way to engage in their development?(Check all that apply and provide the number (#) of activities each influence has attended with your child in the month of April.

Influences	Write the number(#) of activities each influence has attended with your child(ren) in April.
☐ Father	
☐ Older Brother (Over 18 years old)	
☐ Grandfather	
☐ Other Extended Family Member	
☐ Family Friends (**Do NOT** include shooting sports coaches)	
☐ Shooting Sports Coaches	

Question 3:

Select all of your child(ren)'s ***female*** influences that use 4-H Shooting Sports as a way to engage in their development?(Check all that apply and provide the number (#) of activities each influence has attended with your child in the month of April.

Influences	Write the number(#) of activities each influence has attended with your child(ren) in April.
☐ Mother	
☐ Older Sister (Over 18 years old)	
☐ Grandmother	
☐ Other Extended Family Member	
☐ Family Friends (**Do NOT** include shooting sports coaches)	
☐ Shooting Sports Coaches	

Question 4:My child(ren) is active in *ANY* 4-H Shooting Sports activities this season (April 22, 2012 -- April 22, 2013) during the months of...(check boxes) Additionally, select your child(ren)'s level of involvement for the month. (Fill in circle)

	Below Average	Average	Above Average		Below Average	Average	Above Average
☐ January	○	○	○	☐ July	○	○	○
☐ February	○	○	○	☐ August	○	○	○
☐ March	○	○	○	☐ September	○	○	○
☐ April	○	○	○	☐ October	○	○	○
☐ May	○	○	○	☐ November	○	○	○
☐ June	○	○	○	☐ December	○	○	○

Question 5:

My child(ren) participates [attends any 4-H Shooting Sports activities] in the following 4-H shooting disciplines this season (April 22, 2013--April 22, 2012)... (Check all that apply)

☐ Air Rifle / Pistol
☐ Archery Sports
☐ Shotgun Sports
☐ Small Bore .22 Rifle / Pistol
☐ Muzzleloader Rifles

Question 6:

For shooting disciplines checked in *Question 5*, select all local/regional events your child(ren) attended this season (April 22, 2013--April 22, 2012)... (Check all that apply).

Rifle / Pistol Events

☐ SOUTHWEST DISTRICT - Jackson County- Air Rifle/Pistol on 12.01.2012
☐ NORTHEAST DISTRICT - Wagoner County- Air Rifle on 11.10.2012
☐ SOUTHEAST DISTRICT - McAlister County- Air Rifle/Archery on 04.12.2012
☐ NORTHWEST DISTRICT - Woodward County- Air rifle/Archery #1 on 10.27.2012
☐ NORTHWEST DISTRICT - Woodward County- Air rifle/Archery #2 on 11.10.2012
☐ NORTHWEST DISTRICT - Noble County- Air rifle/Archery #3 on 12.01.2012
☐ NORTHWEST DISTRICT - Blaine County- Air rifle/Archery #4 on 12.08.2012
☐ Custer County - Air Rifle/Pistol on 11.10.2012
☐ Roger Mills County - Air Rifle/Pistol on 11.17.2012
☐ Other _____
If "other" please write in event in box provided

Shotgun Sports Events

☐ SOUTHEAST DISTRICT - Pontotoc County- Shotgun on 05.05.2012
☐ NORTHWEST DISTRICT - Garfield County- Shotgun (Trap) on 05.12.2012
☐ NORTHWEST DISTRICT - Garfield County- Shotgun (Trap) on 09.07.2012
☐ Tillman County - Shotgun (Trap/Skeet) on 10.06.2012
☐ Other _____
If "other" please write in event in box provided

Archery Sports Events

☐ SOUTHEAST DISTRICT- McAlister County- Air Rifle/Archery on 04.12.2012
☐ NORTHWEST DISTRICT- Woodward County- Air rifle/Archery #1 on 10.27.2012
☐ NORTHWEST DISTRICT- Woodward County- Air rifle/Archery #2 on 11.10.2012
☐ NORTHWEST DISTRICT- Noble County- Air rifle/Archery #3 on 12.01.2012
☐ NORTHWEST DISTRICT- Blaine County- Air rifle/Archery #4 on 12.08.2012
☐ Blaine County- Archery on 01.05.2013
☐ Noble County- Outdoor Archery on 03.25.2013
☐ Other _____
If "other" please write in event in box provided

Question 7:
How many of your children are currently participants in 4-H Shooting Sports? (Fill in the circle)

1 2 3 4 5 5+

Question 8:
How many people are in your immediate family (spouse if applicable, and kids) including yourself?(Fill in the circle)

2 3 4 5 6 7 7+

Question 9:
How is your family's income when compared to other families that live in your county? (Fill in the circle)

1 2 3 4 5 6 7 8 9 10

We're on a budget but we get by ⟷ About the same as other families ⟷ Better off than most families

Question 10:
Has your child(ren) become involved in any additional 4-H program areas because of their 4-H Shooting Sports involvement? (Check all that apply)

- ☐ Citizenship / Civic Education
- ☐ Environmental Education and Earth Science
- ☐ Plants and Animals
- ☐ Communication and Expressive Arts
- ☐ Health / Lifestyle Education
- ☐ Science and Technology
- ☐ Consumer / Family Science
- ☐ Personal Development and Leadership
- ☐ MY CHILD HAS NOT JOINED ANY ADDITIONAL PROJECTS

Question 11:
Is your child(ren) involved in any other Environmental Education and Earth Science projects? (Check all that apply)

- ☐ Environmental Stewardship
- ☐ Energy
- ☐ Adventure / Challenge
- ☐ Geology and Materials
- ☐ Forestry
- ☐ Waste Management
- ☐ Weather and Climate
- ☐ Range Science
- ☐ Habitat
- ☐ Soils and Soil Conservation
- ☐ Wildlife and Fisheries
- ☐ WHEP
- ☐ Water
- ☐ Outdoor Education / Recreation

Question 12:
If you have any additional comments about this project or Oklahoma's 4-H Shooting Sports program, please provide them in the space below.

THANK YOU!

Please place this survey into the stamped return envelope along with any additional records or documents you have associated with this project; Make sure your family's name DOES NOT appear on any records.

APPENDIX A3

OKLAHOMA COOPERATIVE EXTENSION SERVICE
Division of Agricultural Sciences and Natural Resources
4-H Youth Development Program
205 4-H Youth Development Bldg, Stillwater, OK 74078-6063
(405) 744-5390 (405) 744-6522- fax

Parents and Guardians,

It is our pleasure to be asking for your assistance helping Oklahoma's 4-H Youth Development service conduct this survey. Your family, out of all enrolled 4-H Shooting Sports families has been selected to represent your county in helping us evaluate several dimensions of 4-H Shooting Sports. As a reward for being selected to participate in this study, your family has been entered into a drawing for multiple prizes totaling over $1000 in sporting good donations and gift cards.

WHAT TO EXPECT:

Those with Internet Access:
Type the website URL below into your web browser. Use the five digit activation code below to complete this survey as soon as possible. This code is only used to confirm you are in fact a family we have selected to hear from, and can ***NOT*** be used to identify your family's survey responses. This entire process should take about 15 minutes to complete.

WEBSITE URL: http://4h-ok-ssproject.org/survey-2

FIVE DIGIT ACTIVATION CODE:
48061

*We can send this link to you via email if you prefer, please contact us to do so.

Those without Internet Access:
In approximately one week you will be receiving a similar mailing to this one. The contents of this mailing will include a hard copy version of the internet survey located at the URL above. Please complete, and return it using the included prepaid business envelope included in that mailing.

We recommend that this survey be completed with both parents or guardians present, or by the family member that oversees the majority of the youth's 4-H Shooting Sports involvement. Additionally, if you have internet access please complete the online version. Try to be as accurate as possible with your answers, and do your best to complete all of the sections contained within the survey. We hope the results from this study will aid us in better serving the needs of families similar to yours.

Sincerely,

Dylan Kirk
dylan.j.kirk@okstate.edu
M.S Graduate Candidate

PARTICIPANT INFORMATION OKLAHOMA STATE UNIVERSITY

Purpose:

1. To describe the costs associated with participation in local and regional shooting sports projects coordinated by Oklahoma's 4-H Youth Development.

2. Examine the relationships key to youth participation in 4-H Shooting Sports.

3. Identify if a relationship exists between 4-H Shooting Sports and 4-Her's joining other program and project areas.

4. Identify 4-H Shooting Sports families preferences in regards to program changes provided in a second optional (highly recommend) survey.

What to Expect: Most of you should be aware of this project already either through personal contacts, your 4-H educator, your 4-H newsletter or www.4h-ok-ssproject.org. You can expect to receive several pieces of mail from us including:

1. This mailing (Introductory letter / Participant letter & online survey instruction). If you have internet access, please go to the web address and complete this survey as soon as possible. We additionally recommended you complete the brief (6 question) survey on potential 4-H Shooting Sports program changes available at the end of the first survey.
2. A hard copy version of the online survey (Hard copy survey and survey return instructions). To be completed by those families without, or without reliable internet access.
3. A follow up thank you postcard

In both survey versions participants should complete each question before moving on to the next. In total it should take you about ***fifteen minutes*** to complete either version of this survey (please only compete one version).

Risks: There are no risks associated with this project greater than those of everyday life.

Benefits: Although perhaps non-beneficial, parents will gain the knowledge of how much money they spend on being part of 4-H's Shooting Sports project at the local and regional level. Additionally, parents have the opportunity to reflect on the other influential people in their child's lives that aid in their development.

Compensation: Several donations have been made to the Oklahoma 4-H Foundation in order for this survey to offer prizes in the form of gift cards and other physical merchandise to random survey respondents. All donation winners will be notified in July.

Your Rights and Confidentiality:
Your participation in this research is voluntary. There is no penalty for refusal to participate.

Confidentiality: All information about your family will be maintained by 4-H, kept confidential and will not be released. All surveys will have identification numbers, and your family **will not be directly identifiable**. All data collected in this study will be stored by aggregation above an individuals level of identification. Family names and survey identifiers will not be related on electronic formats. A physical table relating key features will be destroyed as soon as the surveying period has expired.

Participation: By completing either version of this survey you are indicating that you freely and voluntarily agree to participate in this study and that you are at least 18 years of age. It is also recommended that you keep this letter for your records as acknowledgment of your rights.

Contacts: You may contact the researchers with the addresses and phone numbers below should you desire to discuss your participation in the study and/or request information.

Dylan Kirk (Principle Investigator)
B.S, M.S Candidate
Phone: (405) 744-8269
dylan.j.kirk@okstate.edu *Preferred

Kevin Allen
B.S, M.S, Ph.D.
Phone: (405) 744-8269
kevin.allen@okstate.edu

If you have questions about your rights as a research volunteer, you may contact Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu

APPENDIX A4

4-H Educators, Shooting Sports Coaches, and Shooting Sports Enthusiasts,

As many of you are aware we have been conducting surveys at state shooting competitions this year in order to collect information used to determine the economic impacts 4-H shooting sports. This has been a successful portion of my graduate work; however I lack information about the costs families face while participating in local and regional 4-H Shooting Sports activities. In order to reflect the total economic impacts of shooting sports families and determine some of the influences that have led youth to this recreational activity, we have developed a survey that is being sent to active shooting sports families. It is very well possible that either your family or families in your county will receive a similar mailing to the one attached.

What you can do to help:

1. Let families in your county know, through email, Facebook pages, Twitter accounts, and newsletters they may be receiving a mailing from Dylan Kirk via postal service or over the internet asking them to complete a survey about their family's shooting sports involvement.

2. Remind families that their responses greatly help us justify why Shooting Sports is an important project area for youth to be able to participate in.

3. Ask families to complete the survey as soon as possible so we can determine which families do not have internet access and require a mailed survey version.

4. Remind families that every family's response is important. Their responses may not just be reflecting their family, but they may be representing all the families in an entire county or club.

Finally, I would like to thank all of you for helping coordinate this effort. It is my pleasure to have been able to observe and work on a project related to 4-H. I hope that the data collected will help us ensure the traditional support and future growth of the 4-H Shooting Sports Project in the State of Oklahoma.

Dylan J. Kirk

OKLAHOMA COOPERATIVE EXTENSION SERVICE
Division of Agricultural Sciences and Natural Resources
4-H Youth Development Program
205 4-H Youth Development Bldg, Stillwater, OK 74078-6063
(405) 744-5390 (405) 744-6522- fax

Parents and Guardians,

You are receiving this letter because our records indicate your child is enrolled in 4-H's Shooting Sports Project. If this is not the case, we would appreciate you contacting us by email or phone. This is the second mailing you should be receiving from Oklahoma's 4-H Youth Development service asking for your assistance with this study. Your family, out of all enrolled 4-H Shooting Sports families has been selected to represent your county in helping us evaluate several dimensions of 4-H Shooting Sports. As compensation for being selected to participate in this study, your family has been entered into a drawing for multiple prizes totaling over $1000 in sporting good donations and gift cards. Additionally, included in this mailing is a 4-H pencil to show our appreciation for your efforts.

WHAT TO EXPECT:

Those without Internet Access:
Please complete the enclosed survey, making sure to complete every question. The findings collected in this study will be presented as a total figure and your Individual family's responses will **NOT** be identifiable. Our main goal for this project requires detailed answers for questions 1-3. Try to do your best when completing these questions. The data from questions 1-3 will help us determine what sort of economic benefit takes place in many of the local economies around the state, as well as help us identify the required social support youth need to become engaged in shooting sports. After completing the survey, please return it to us using the pre-stamped return envelope. We would appreciate your family returning this survey as soon as possible so we do not waste time and money sending you additional mailings.

Those with Internet Access:
Type the website URL: http://4h-ok-ssproject.org/survey-2 into your web browser. Use the access code below to complete the survey.

We recommend that this survey be completed with both parents or guardians present, or by the family member that oversees the majority of the youth's 4-H Shooting Sports involvement. Additionally, if you have internet access please complete the online version. Try to be as accurate as possible with your answers, and do your best to complete all of the sections contained within the survey. We hope the results from this study will aid us in better serving the needs of families similar to yours.

Sincerely,

Dylan Kirk
Oklahoma State University
Graduate Researcher

PARTICIPANT INFORMATION OKLAHOMA STATE UNIVERSITY

Purpose:

1. To describe the costs associated with participation in local and regional shooting sports projects coordinated by Oklahoma's 4-H Youth Development.

2. Examine the relationships key to youth participation in 4-H Shooting Sports.

3. Identify if a relationship exists between 4-H Shooting Sports and 4-Her's joining other program and project areas.

4. Identify 4-H Shooting Sports families preferences in regards to program changes provided in a second optional (highly recommend) survey.

What to Expect: Most of you should be aware of this project already either through personal contacts, your 4-H educator, your 4-H newsletter or www.4h-ok-ssproject.org. You can expect to receive several pieces of mail from us including:

1. A hard copy version of the online survey (Hard copy survey and survey return instructions). To be completed by those families without, or without reliable internet access.
2. A follow up thank you postcard

In both survey versions participants should complete each question before moving on to the next. In total it should take you about ***fifteen minutes*** to complete either version of this survey (please only compete one version).

Risks: There are no risks associated with this project greater than those of everyday life.

Benefits: Although perhaps non-beneficial, parents will gain the knowledge of how much money they spend on being part of 4-H's Shooting Sports project at the local and regional level. Additionally, parents have the opportunity to reflect on the other influential people in their child's life that aid in their development.

Compensation: Several donations have been made to the Oklahoma 4-H Foundation in order for this survey to offer prizes in the form of gift cards and other physical merchandise to random survey respondents. All donation winners will be notified in July.

Your Rights and Confidentiality:
Your participation in this research is voluntary. There is no penalty for refusal to participate.

Confidentiality: All information about your family will be maintained by 4-H, kept confidential and will not be released. All surveys will have identification numbers, and your family **will not be directly identifiable**. All data collected in this study will be stored by aggregation above an individuals level of identification. Family names and survey identifiers will not be related on electronic formats. A physical table relating key features will be destroyed as soon as the surveying period has expired.

Participation: By completing either version of this survey you are indicating that you freely and voluntarily agree to participate in this study and that you are at least 18 years of age. It is also recommended that you keep this letter for your records as acknowledgment of your rights.

Contacts: You may contact the researchers with the addresses and phone numbers below should you desire to discuss your participation in the study and/or request information.

Dylan Kirk (Principle Investigator)
B.S, M.S Candidate
Phone: (405) 744-8269
dylan.j.kirk@okstate.edu *Preferred

Kevin Allen
B.S, M.S, Ph.D.
Phone: (405) 744-8269
kevin.allen@okstate.edu

If you have questions about your rights as a research volunteer, you may contact Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu

APPENDIX A6

Hello,

Please complete the following survey relating to 4-H Shooting Sports. We recommend using (Mozilla Firefox, Internet Explorer, or safari) web browsers and computers with monitors larger than 15". Your family's responses will **NOT** be identifiable and the results from this survey will greatly benefit our understanding of the required costs associated with the program.

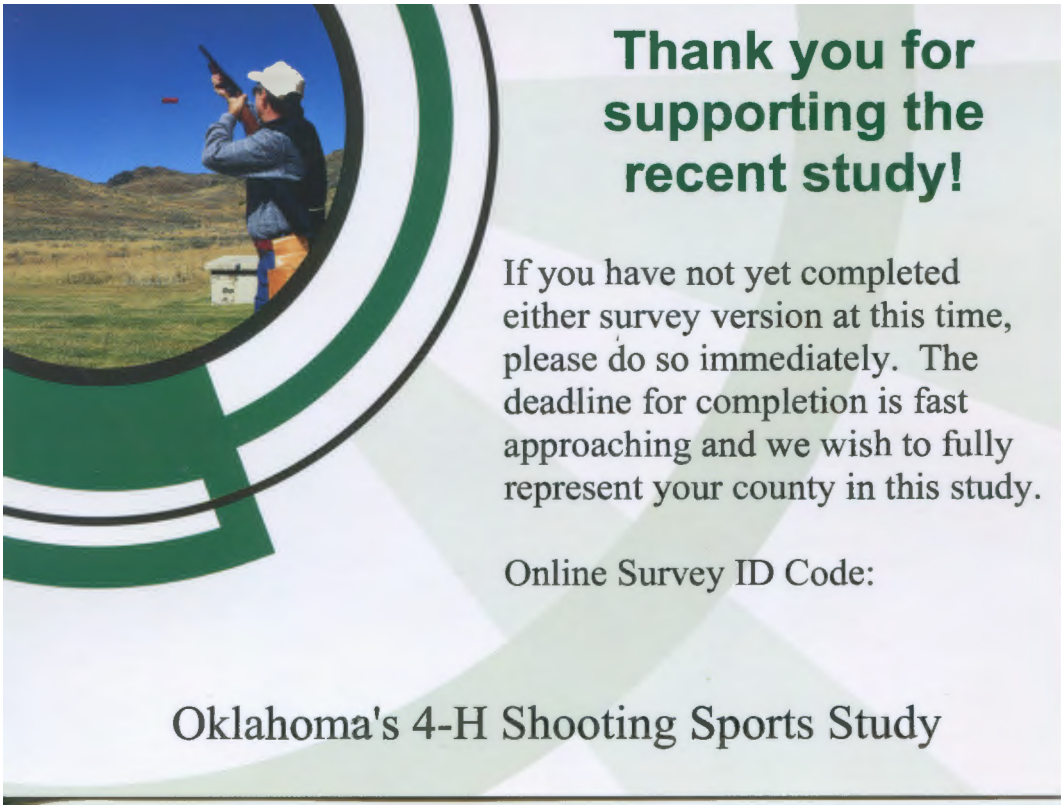
https://okstatecasnr.qualtrics.com

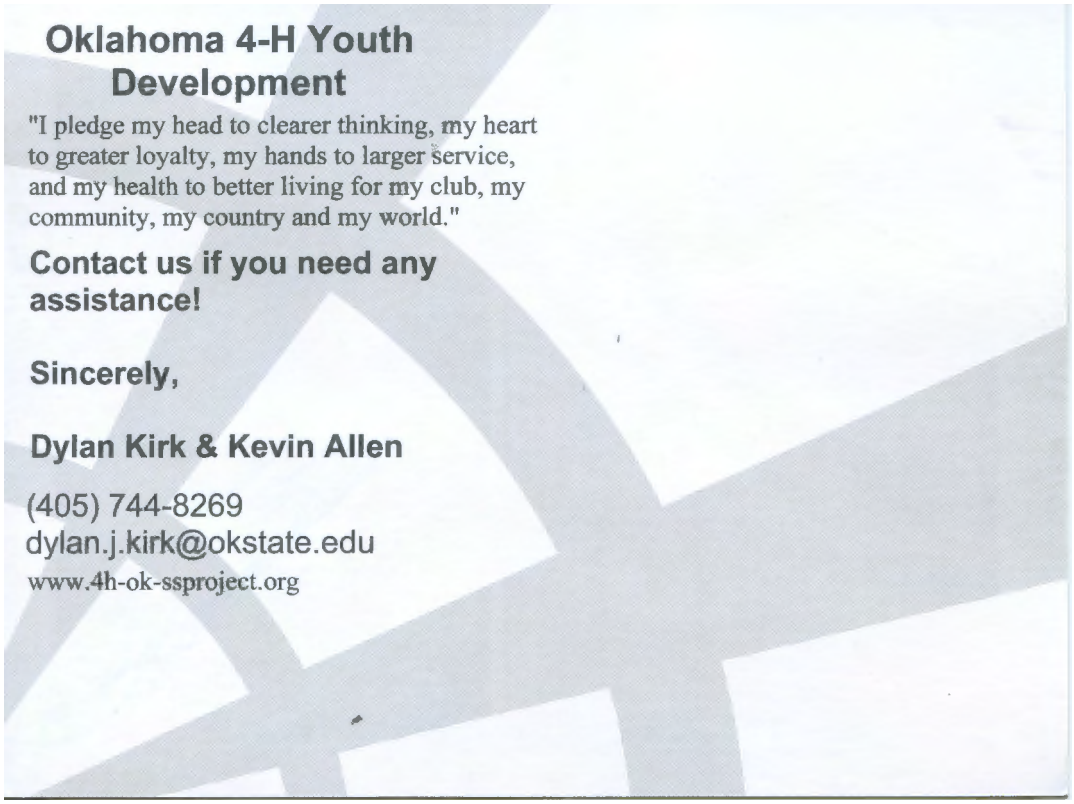
If you are not currently active in 4-H, or the Shooting Sports Program please let us know so we can update our records.

Thank you again and please check www.4h-ok-ssproject.org for future findings and publications related to this project.

Dylan J. Kirk
NREM Extension Graduate Researcher
Oklahoma State University

APPENDIX A7


Thank you for supporting the recent study!
If you have not yet completed either survey version at this time, please do so immediately. The deadline for completion is fast approaching and we wish to fully represent your county in this study.
Online Survey ID Code:
Oklahoma's 4-H Shooting Sports Study


Oklahoma 4-H Youth Development
"I pledge my head to clearer thinking, my heart to greater loyalty, my hands to larger service, and my health to better living for my club, my community, my country and my world."
Contact us if you need any assistance!
Sincerely,
Dylan Kirk & Kevin Allen
(405) 744-8269
dylan.j.kirk@okstate.edu
www.4h-ok-ssproject.org

Oklahoma State University Institutional Review Board

Request for Determination of Non-Human Subject or Non-Research

can reasonably expect that no observation or recording is taking place, and information which has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made public (for example, a medical record). Private information must be individually identifiable (i.e., the identity of the subject is or may be ascertained by the investigator or associated with the information) in order for obtaining the information to constitute research involving human subjects.

A. Does the research involve obtaining information about living individuals?
☐ No ☒ Yes
If no, then research does not involve human subjects, no other information is required.
If yes, proceed to the following questions.

All of the following must be "no" to qualify as "non-human subject":

B. Does the study involve intervention or interaction with a "human subject"?
☐ No ☒ Yes

C. Does the study involve access to identifiable private information?
☒ No ☐ Yes

D. Are data/specimens received by the Investigator with identifiable private information?
☒ No ☐ Yes

E. Are the data/specimen(s) coded such that a link exists that could allow the data/specimen(s) to be re-identified?
☒ No ☐ Yes
If "Yes," is there a written agreement that prohibits the PI and his/her staff access to the link?
☐ No ☐ Yes

6. **Signatures**

Signature of PI _____ **Date** 11/20/12

Signature of Faculty Advisor (If PI is a student) _____ **Date** 11/20/12

☒ Based on the information provided, the OSU-Stillwater IRB has determined that this project **does not** qualify as human subject research as defined in 45 CFR 46.102(d) and (f) and **is not subject to oversight by the OSU IRB.**

☐ Based on the information provided, the OSU-Stillwater IRB has determined that this research **does** qualify as human subject research and **submission of an application for review by the IRB is required.**

Shelia R. Kennison
Dr. Shelia Kennison, IRB Chair

11/19/12
Date

Revision Date: 04/2006 5 of 5

REC'D URC
NOV 19 2012

Oklahoma State University Institutional Review Board

Request for Determination of Non-Human Subject or Non-Research

Federal regulations and OSU policy require IRB review of all research involving human subjects. Some categories of research are difficult to discern as to whether they qualify as human subject research. Therefore, the IRB has established policies and procedures to assist in this determination.

1. Principal Investigator Information

First Name: Dylan	Middle Initial: J	Last Name: Kirk
Department/Division: Natural Resource Ecology and Management		College: Ag Science and Natural Resources
Campus Address: 040A Ag Hall		Zip+4: N/A
Campus Phone: (847) 636 2718	Fax: N/A	Email: Dylan.J.Kirk@okstate.edu
Complete if PI does not have campus address:		
Address:		City:
State:	Zip:	Phone:

2. Faculty Advisor (complete if PI is a student, resident, or fellow) ☐ **NA**

Faculty Advisor's name: Kevin P. Allen	Title: Assistant Professor NREM / State 4H Specialist
Department/Division: Natural Resource Ecology and Management	College: Ag Science and Natural Resources
Campus Address: 303H Ag Hall	Zip+4: N/A
Campus Phone: (405) 744-8269 Fax:	Email: Kevin.allen@okstate.edu

3. Study Information:

A. Title

The Economic Impacts of 4H Shooting Sports Events

B. Give a brief summary of the project. (See instructions for guidance)

The purpose of the research is to help evaluate 4H Shooting Sport events economic impact on local and statewide economies. At this point we are hoping to use a survey to ask information related to a party's (NOT INDIVIDUALS) retail, hospitality and transportation spending while traveling to 4H sponsored shooting events. The main focus of this project includes determining what is the economic benefit to the county in which the event is being held, and if there is a benefit to the parties county of origin. It additionally looks to evaluate the parties' opinions and satisfaction with extension services at the event.

In our interpretation of the IRB classification of "Research" we feel we do not meet this classification based on section B. The results and conclusions of this project will not be generalizable in the sense that it is a course evaluation, and there is no intention to make comparison to other courses. We plan on using this data to construct a geographic information system (GIS) model that shows the potential costs per capita of traveling to a shooting sports event based on party expenses for the 77 counties in Oklahoma. The data collected will not be

generalizable and is only reflective of Oklahoma's 4H Shooting Sports program. However we would like the ability to publish the completed GIS Model, measurement tool, and methodological process we used, so other state shooting sports programs have the ability to use a similar data collection protocol. Additionally we feel that our intent is to gather information about the event rather than a specific individual person. The only identifiable information on the survey is a location zip code which reflects the party's area of origin.

Expenditure data collected in the project will never be presented in its raw form and instead the economic analysis software IMPLAN by MIG will be used to transfer the raw data into information reflective of Oklahoma's economy. The information that is projected out of the IMPLAN software is the actual figures that will be using to construct the GIS model not figures directly from the survey.

Attached is a copy of the survey we plan to use.

C. Describe the subject population/type of data/specimens to be studied. (See instructions for guidance)

The population of subjects that will be studied are parties of people attending a 4H shooting sports event. The size of these parties will vary between two to fifteen people. In total we have the potential to receive responses from a maximum of 800 parties out of 1600 parties contacted. Adults above the age of twenty one will be completing these surveys to reflect a group of people's expenses.

The type of data that we are interested in are expense figures of a party of people who have traveled to a specific shooting sports event. We are also interested in opinions of the party about how to make our program better and challenges they face in their community.

This survey will be distributed by providing each county a number of surveys reflective of the number of registered participants for that event. It will be explained that we are collecting data on the expenses associated with what it costs parties to travel to state 4H shooting sports events and that participation is voluntary. Collection of surveys will take place by parties placing surveys into a sealable manila envelope in which we will maintain at the event. This data will be sealed and stored in the basement of Ag Hall 040A in a locked room. The data will be stored until all events have concluded and the data can be input into the IMPLAN software.

4. Determination of "Research".

45 CFR 46.102(d): *Research* means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy whether or not they are conducted or supported under a program which is considered research for other purposes.

One of the following must be "no" to qualify as "non-research":

A. Will the data/specimen(s) be obtained in a systematic manner?
☐ No ☒ Yes

B. Will the intent of the data/specimen collection be for the purpose of contributing to generalizable knowledge (the results (or conclusions) of the activity are intended to be extended beyond a single individual or an internal program, e.g., publications or presentations)?
☒ No ☐ Yes

5. Determination of "Human Subject".

45 CFR 46.102(f): *Human subject* means a living individual about whom an investigator (whether professional or student) conducting research obtains: (1) data through intervention or interaction with the individual or (2) identifiable private information. Intervention includes both physical procedures by which data are gathered (for example venipuncture) and manipulations of the subject or the subject's environment that are performed for research purposes. Interaction includes communication or interpersonal contact between investigator and subject. Private information includes information about behavior that occurs in a context in which an individual

Oklahoma State University Institutional Review Board

Date:	Friday, March 29, 2013
IRB Application No	AG1321
Proposal Title:	Oklahoma 4-H's Shooting Sports Survey
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 3/28/2014

Principal Investigator(s):

Dylan Kirk
008C Ag Hall
Stillwater, OK 74078

Kevin Allen
008C Ag Hall
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI, advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Cordell North (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Shelia K. Kennison

Shelia Kennison, Chair
Institutional Review Board

Table 6: Average Travel Party Expenses Within the County Attributed to State 4-H State Office Hosted Competitions

	Expense Categories ($)										
Competition	Lodging & Hotels	Restaurants	Registration	Recreation	Large Retail	Apparel	Groceries	Gasoline	Sporting Goods	Other Expenses	Total
Air	100	53	10	10	18	0	27	69	32	10	327
Archery	86	54	10	68	25	61	14	39	207	187	750
Trap	97	44	20	41	30	0	33	74	37	0	376
Muzzleloader	0	9	15	0	0	0	0	0	0	0	24
Sporting Clays	79	52	25	25	84	1	11	11	28	50	366
Skeet	128	35	20	23	69	25	8	44	67	22	440
Smallbore .22	97	45	15	25	80	28	5	30	50	0	374

Table 7: Average Travel Party Expenses Within the State of Oklahoma Attributed to State 4-H State Office Hosted Competitions

	Expense Categories ($)										
Competition	**Lodging & Hotels**	**Restaurants**	**Registration**	**Recreation**	**Large Retail**	**Apparel**	**Groceries**	**Gasoline**	**Sporting Goods**	**Other Expenses**	**Total**
Archery	34	43	20	9	81	8	22	54	109	3	384
skeet	45	40	10	11	52	16	13	64	119	4	375
Trap	18	56	20	12	24	20	11	51	92	27	329
Smallbore .22	23	34	15	4	26	6	6	51	146	6	317
Sporting Clays	16	44	25	5	26	9	6	54	113	1	299
Air	31	58	10	0	18	13	18	77	12	3	241
Muzzleloader	0	44	15	12	15	0	0	66	53	0	205

Table 8: Estimated Direct, Indirect, and Induced Impacts Attributed to Competitions Hosted by the State 4-H Office

County	Competition	Estimated Attendance	Total Expenditures	Effect	Jobs	Personal Income ($)	Total Value Added ($)	Output ($)
Canadian	Trap	684	$7,515 - 16,591	Direct	2 - .3	1,719 - 4,765	2,588 - 7,735	7,515 - 16,591
				Indirect	0	631 - 1,185	1,239 - 2,230	2,120 - 3,756
				Induced	0	287 - 723	569 - 1,434	896 - 2,259
Logan	Sporting Clays	115	$5,518 - 9,494	Direct	.1 -.2	1,438 - 2,742	2,039 - 4,073	5,518 - 9,494
				Indirect	0	348 - 557	692 - 1,082	1,293 - 1,972
				Induced	0	196 - 361	385 - 709	633 - 1,164
Oklahoma	Skeet	355	$5,632 - 10,788	Direct	.1 - .2	1,879 - 3,904	2,826 - 6,069	5,632 - 10,788
				Indirect	0	772 - 1,290	1,367 - 2,287	2,290 - 3,782
				Induced	0	548 - 1,066	962 - 1,869	1,534 - 2,982
Oklahoma	Muzzleloader	20	$99 - 104	Direct	0	25 - 26	32 -34	99 - 104
				Indirect	0	18 -19	33	56 -57
				Induced	0	9 -10	16 - 17	25 -27
Oklahoma	Smallbore .22	110	$1,894 - 3,010	Direct	0	623 - 1,021	963 - 1,602	1,894 - 3,010
				Indirect	0	249 - 374	439 - 660	727 - 1,085
				Induced	0	179 - 286	314 - 501	501 - 799
Payne	Air	316	$5123 - 9,526	Direct	.1 - .2	1,597 - 3,411	2,416 - 5,300	5,123 - 9,526
				Indirect	0	329 - 631	631 - 1,139	1,055 - 1,841
				Induced	0	263 - 543	488 - 1,006	754 - 1,556
Payne	Archery	570	$10,911 - 21,105	Direct	.2 - .4	4,087 - 8,192	6,354 - 12,874	10,911 - 21,105
				Indirect	0	662 - 1,220	1,227 - 2,257	1,988 - 3,637
				Induced	0	640 - 1,262	1,187 - 2,339	1,842 - 3,629

Table 9: Estimated Direct, Indirect, and Induced Contributions Attributed to Competitions Hosted by the State 4-H Office

County	Competition	Estimated Attendance	Total Expenditures	Effect	Jobs	Personal Income ($)	Total Value Added ($)	Output ($)
Canadian	Trap	732	$21,790 - 77,874	Direct	.4 - 1.6	9,458 - 36,709	14,968 - 59,365	13,308 - 40,927
				Indirect	0 - .1	1,396 - 3,553	2,565 - 6,573	4,458 - 11,325
				Induced	.1 - .2	2,461 - 9,106	4,408 - 16,312	7,320 - 27,091
Logan	Sporting Clays	386	$14,110 - 32,074	Direct	.3 - .7	6,177 - 15,066	9,743 - 24,187	8,563 - 16,964
				Indirect	0	875 - 1,477	1,622 - 2,770	2,816 - 4,777
				Induced	0-.1	1,599 - 3,744	2,864 - 6,707	4,756 -11,139
Oklahoma	Skeet	386	$16,431 - 40,729	Direct	.4 - .9	7,599 - 19,735	12,129 - 31,851	9,043 - 20,314
				Indirect	0	844 - 1,652	1,561 - 3,078	2,703 - 5,295
				Induced	0 - .1	1,911 -4,835	3,423 - 8,661	5,685 - 14,384
Oklahoma	Muzzleloader	386	$933 - 1,178	Direct	0	432 - 542	681 - 853	501 - 656
				Indirect	0	45 - 58	85 - 111	147 - 190
				Induced	0	108 - 136	194 - 244	322 - 405
Oklahoma	Smallbore .22	110	$6,643 - 11,426	Direct	.1 - .2	3,154 - 5,502	5,090 - 8,912	3,410 - 5,680
				Indirect	0	297 - 472	548 - 873	945 - 1,502
				Induced	0	780 - 1,350	1,397 - 2,418	2,320 - 4,016
Payne	Air	339	$9,316 - 18,724	Direct	.2 - .3	4,132 - 8,477	6,594 - 13,609	5,599 - 10,793
				Indirect	0	560 - 1,033	1,044 - 1,930	1,806 - 3,330
				Induced	0 - .1	1,067 - 2,161	1,912 - 3,872	3,173 - 6,429
Payne	Archery	589	$22,004 - 58,860	Direct	.4 - 1.1	10,095 - 28,498	16,106 - 45,908	12,563 - 27,271
				Indirect	0 - .1	1,113 - 2,184	2,098 - 4,149	3,613 - 7,113
				Induced	.1 - .2	2,539 - 6,965	4,547 - 12,478	7,552 - 20,718

Table 21: Correlations Between Variables

	Expense Category								
Variable	Restaurants	Registration	Recreation	Large Retail	Apparel	Groceries	Gasoline	Sporting Goods	Total Expenses
Age of Oldest	0.140	0.181	-0.015	-0.056	-0.187	-0.094	0.165	0.043	0.138
Gender of Oldest	-0.175	-0.159	-0.034	-0.171	-0.145	-0.126	-0.156	-0.013	-0.167
Years Enrolled	.242*	.229*	-0.004	-0.055	-0.117	-0.055	0.036	0.146	0.142
Club Membership Size	0.017	-0.036	-0.041	-0.068	0.004	-.243*	-0.017	0.034	0.004
Distance to Local OCES	0.092	-0.014	-0.009	0.067	0.026	0.030	0.009	0.174	0.061
Distance to State OCES	-0.127	-0.098	0.046	-0.037	-0.059	-0.084	-0.051	-0.015	-0.116
Family Size	0.022	-0.100	0.015	0.073	0.109	-0.141	-0.025	0.094	0.020
Number of Kids	0.062	0.023	0.075	.265**	0.044	0.036	0.020	0.007	0.067
Number of Disciplines	0.048	0.090	-0.049	.199*	0.024	.214*	0.115	0.029	0.124
Economic Status	0.016	0.011	-0.126	-0.002	-0.020	-0.009	-0.172	-0.059	-0.026
Male Influence	.280**	0.175	0.106	0.124	0.188	0.189	.390**	0.066	.336**
Female Influence	.441**	.357**	0.080	0.138	0.122	.237*	.344**	-0.021	.412**
Local Competitions	.321**	.305*	0.147	0.139	0.034	0.135	.349**	-0.020	.316**
State Competitions	.350**	.249*	-0.060	0.073	0.006	0.003	.238*	-0.174	.242*
National Competitions	0.122	.199*	0.178	.258**	0.140	.327**	0.151	0.011	0.149
Months Active	.402**	.243*	0.114	.257**	0.181	.273**	.387**	0.031	.430**

APPENDIX D

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Distance to State Extension Office	.062	100	.200*	.979	100	.113
Distance to County Extension Office	.111	100	.004	.929	100	.000
Membership Club Size	.145	100	.000	.881	100	.000
Years Enrolled	.265	100	.000	.786	100	.000
Age	.129	100	.000	.947	100	.001
Shooting_Discipline	.319	100	.000	.751	100	.000
Self_Percieved_Econ_Status	.174	100	.000	.958	100	.003
Family_Size	.250	100	.000	.891	100	.000
Kids_in_SS	.401	100	.000	.662	100	.000
Additional_Programs	.335	100	.000	.659	100	.000
NationalShoot	.537	100	.000	.123	100	.000
StateShoot	.442	100	.000	.515	100	.000
LocalShoot	.281	100	.000	.629	100	.000
TypicalTotalExpenses	.281	100	.000	.555	100	.000
AprilTotalExpenses	.307	100	.000	.433	100	.000

APPENDIX E

VITA

Dylan James Kirk

Candidate for the Degree of

Master of Science

Thesis: SELECT ASPECTS OF ECONOMIC ACTIVITY RELATED TO THE OKLAHOMA 4-H YOUTH DEVELOPMENT SHOOTING SPORTS PROJECT

Major Field: Natural Resource Extension & Outreach

Education:

Completed the requirements of Master of Science in Natural Resource Ecology and Management at Oklahoma State University, Stillwater, Oklahoma in July 2014.

Completed the requirements of Bachelor of Science in Biology, and Natural Resource Management at the University of Wisconsin Stevens Point, Stevens Point, Wisconsin in May 2010.

Experience:

August 2012 - July 2014	Graduate Research Assistant, Natural Resource Ecology & Management Department, OSU, Stillwater, OK.
March 2012 - August 2012	Forest Nursery Technician, Division of Forestry, Iowa Department of Natural Resources, Ames, IA.
February 2011 - November 2011	Stewardship Technician, Stewardship Crew, Aldo Leopold Foundation, Baraboo, WI.
May 2010 - December 2010	Prairie/River Management Technician, Restoration Crew, Chicago Botanic Gardens, Glencoe, IL.
Academic Year: 2007 - 2010	Natural Resource Stockroom Student Manager, College of Natural Resources, UWSP, Stevens Point, WI.
June 2009 - August 2009	Habitat Restoration Intern, Restoration Crew, Audubon Society, Madison, WI.

Professional Memberships:

Association of Natural Resource Extension Professionals
National Association of Extension 4-H Agents
Xi Sigma Pi Natural Resource Honor Society