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Attributes and Economic Impact of the Exhibitors at the Annual Ozark Empire Fair on the Local Economy

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**ATTRIBUTES AND ECONOMIC IMPACT OF THE EXHIBITORS AT THE
ANNUAL OZARK EMPIRE FAIR ON THE LOCAL ECONOMY**

A Master Thesis

Presented to

The Graduate College of
Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree
Master of Science, Agriculture

By

Raysha E. Tate

May 2018

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**ATTRIBUTES AND ECONOMIC IMPACT OF THE EXHIBITORS AT THE
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Agriculture

Missouri State University, May 2018

Master of Science

Raysha Tate

ABSTRACT

The main objective of this research is to evaluate the economic impacts of spending by the exhibitors during the 2016 Ozark Empire Fair. Surveys were collected from commercial and livestock exhibitors. Respondents reported the amount of money spent on various items including material and supplies, rental for the space within the fair, hotel, restaurant, shopping, and attractions outside the fair. SPSS and IMPLAN software were used to analyze and interpret the results. Impacts were measured in terms of total output and jobs (full-time equivalent) created. Livestock and commercial exhibitors generated a total economic output of \$854,386 and \$845,836, respectively. Similarly, 11 full-time-equivalent jobs each were created by the two groups of exhibitors. Results show that the number of days spent at the fair is both economically and statistically significant. Regardless of the type of exhibitor, additional days at the fair increases spending significantly. It is important therefore, to retain the exhibitors throughout the duration of the fair by modernizing the fair venues and adding attractions.

KEYWORDS: economic impact, fair, livestock exhibitors, commercial exhibitors, output effect, employment effect, multipliers

This abstract is approved as to form and content

Arbindra Rimal PhD
Chairperson, Advisory Committee
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In the interest of academic freedom and the principle of free speech, approval of this thesis indicates the format is acceptable and meets the academic criteria for the discipline as determined by the faculty that constitute the thesis committee. The content and views expressed in this thesis are those of the student-scholar and are not endorsed by Missouri State University, its Graduate College, or its employees.

ACKNOWLEDGEMENTS

I would like to thank the following people for their support during the course of my graduate studies. Dr. Arbindra Rimal for encouraging me to get my Master's Degree and taking me on as one of his grad students. Mrs. Nicole Busdieker-Jesse and Mrs. Christine Sudbrock for all the support and effort they put in to help make my thesis the best that it could be. My mother and father for always believing that I could do it even when I didn't think I could. My fellow students who helped collect surveys during the Ozark Empire Fair. As well as my friends and family who loved and supported me the entire way through.

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INTRODUCTION

Fairs have a significant role in local economies across the country. With more than 2,000 fairs held annually in North America (History of Fairs, 2018), we see that fairs can help generate jobs, create community buildings, and bring visitors to the area. Local fairs are a source of revenue not only for the organization that run them, but also for the local area (Seman, 2009) as well as exhibitors that sell goods and promote businesses held at their local fair grounds (Kim & Uysal, 2003).

Fairs have evolved over time. What was once used as a tool for survival and peace has transformed into a profitable industry that brings hundreds together to enjoy entertainment, exchange of goods and services, and develop of innovative ideas and technology (History of Fairs, 2018).

History of Fairs and Trade Shows

Fairs and trade shows have been a part of human culture for ages, with the basic idea of fairs dating back to when hunter-gathers would lay out their goods in exchange for other goods or good will of other tribes in the area (Beier, 2006). The first documented fairs can be traced back to the 12th and 13th century in European countries, starting in the Netherlands, France, Central and Northern Europe, and Italy (Beier, 2006). It was here, during religious holidays, where producers would display their goods to barter, trade, or sell in central locations while the festivities took place (History of Fairs, 2018). The fairs were trading centers for people to exchange goods and ideas, but in the 18th and 19th century, fairs began to evolve to encompass more.

It was this time fairs started to develop into modern day fairs. This is because of increased industrialization and improvement of traffic infrastructure during these two centuries (Beier, 2006). It was also during this period that fairs start to become popular in the United States (Kniffen, 1951). In 1811, Elkanah Watson established the first livestock competition, adding the agricultural aspect of fairs (History of Fairs, 2018). Elkanah Watson is known as father of U.S. agricultural fairs because of this addition, (History of Fairs, 2018). As fairs grew, the exhibitors began to see them as important distribution channels where they could sell products directly, showcase the company, work on public relations and image, and advertise for themselves (Beier, 2006). By 1912, fairs had become a staple to U.S. society (Kniffen, 1951).

Fairs and trade shows have been used as tools to strengthen the economy. During the depression era, President Franklin Roosevelt incorporated the use of fairs as a central part of his New Deal (Beier, 2006). Fairs are seen as a way to bring demand and supply together in a central location, lower transaction cost, serve as a neutral sales area, and a place to build networks for exhibitors, visitors, and the region. (Beier, 2006). The economic benefit does not stop with just those directly involved in the fairs. The secondary benefits are created when taxes are paid by incoming visitors as well as additional services being used by these visitors while in the local area of the fair (Beier, 2006). A lot of factors go into the creation of fair or trade show that make them attractive to visitors. It takes a certain kind of atmosphere for fair and trade shows to be successful. Successful fairs or trade shows have a number of determinants, with some of the most important being the presence of a market, ability to have recurring events, themes, quality of supply and demand, and the right type of visitors for exhibitors (Beier, 2006). Fairs

often incorporate these characteristics into their framework, which has led to their success in today's society (Beier, 2006).

Today's fairs in the U.S. are seen as a hybrid between social events and agriculture competitions, highlighting rural ideas of farm life, hard work and self-sufficiency (Hokanson & Kratz, 2009). Fairs have evolved over centuries to be what they are today. They are a vital boost to the economy during a recession as well as a staple during economic booms (Beier, 2006). Fairs have become a place to bring producers and consumer together and are a vital part of the U.S. society (History of Fairs, 2018).

Today's fairs can be a powerful marketing tool, they are an instrument to showcase new or special events or markets, and there are numerous benefits to exhibitors, visitors, organizers, service provider, local businesses and the local economy they are located in (Beier, 2006). With over 2,000 fairs held annually in North America (History of Fairs, 2018) it is safe to assume that fairs and exhibitions are an integrated part of the U.S. economy.

Ozark Empire Fairgrounds and Event Center

The Ozark Empire Fairgrounds and Events Center (OEFEC) previously known as Missouri Entertainment and Event Center (MEEC), is located in the north, central section of Springfield, Missouri. Facilities are centrally located with convenient access to freeways and the local airport. OEFEC is a multi-purpose complex with indoor and outdoor facilities used for a myriad of events including trade shows, car shows, seminars, horse shows, and livestock shows (Ozark Empire Fair History, 2016). It was established in Springfield, Missouri in 1937 with the intent to encourage advancements and

improvements in manufacturing, agriculture, horticulture, poultry, dairy, raising of livestock, and products of domestic industry (Ozark Empire Fair History, 2016). To achieve their goal, they maintain fairs and exhibitions for the exhibit of livestock, agricultural, horticultural, mineral, industrial, and mechanical products, and hold other events desirable for the amusement and pleasure of attendants while visiting the fairs and exhibitions (Ozark Empire Fair History, 2016).

The OEFEC is beneficial to its local economy as well as those who attend their numerous events throughout the year. Appendix A lists the 81 events that cover 224 event days hosted on the premise of OEFEC (Ozark Empire Fairgrounds and Event Center, 2016). The facilities attract more than half a million visitors. While October is the month with the largest number of events, the months of July and August bring in nearly a third of the year's visitors with the Ozark Empire Fair (OEF), which is held annually (Ozark Empire Fairgrounds and Event Center, 2016). This study focuses on the exhibitors of the 2016 Ozark Empire Fair and the impact of this event has on the local economy.

Ozark Empire Fair

The Ozark Empire Fair, is the single largest event held at OEFEC. It takes place during the last week of July to the end of the first week of August, lasting a full 10 days. It showcases various activities from a carnival, to agriculture competitions that include livestock, mechanics, horticulture, and agronomy.

The objective of this study is to examine the economic impact of the livestock exhibitors and commercial exhibitors who participated in the 2016 OEF and what effect their presence has on the Greene County economy. The study will examine the profile of

exhibitors, as well as evaluate the relationship between attendees and amount of money spent while at OEF.

LITERATURE REVIEW

Fairgrounds and exhibitions centers play a huge role in today's society. They provide huge benefits for those who participate in them as well as for the locals in the area (Bathelt & Spigel, 2012). The events help attract tourist to the area and bring in money not just for the operation itself, but also for other businesses in the local area. This type of impact benefits numerous of people throughout the local economy. When communities recognize the benefits that fairgrounds and exhibition centers bring to the area, greater initiative can be taken to help strengthen the events that take place.

The first section will a look at previous studies discussing the perceived benefits for community members and event organizers of events and attractions. The next section will include economic studies of current events, current event centers, and proposed event centers. The following sections will be covering additional information regarding the process of creating a quality economic impact study, specifically looking at data collection and the multiplier aspect, as well as the different types of economic impact models and their critiques will be included.

Perceived Benefits

It is often talked about how events or attractions benefit the economy, but what is frequently over looked is how the community perceive these events as well. When community members think of events in a positive light and being beneficial to them, they are more likely to support the events and want to help these events and attractions be successful. Without a community who believes in what is being done it may be difficult

to stay in business or continue having the events. This is a major factor in all types of industries but especially in the tourist and fair industry (Bowmann, et al., 2012).

Battle Harbour Canada, has become quite the tourist attraction for its opportunities for direct encounters with nature, history, and local culture (Ramos, Stoddart, & Chafe, 2016). This tourist area would not survive without the support of the community. In Battle Harbour, locals saw the tourist industry as a way to “share their culture and history with visitors” (Ramos et al., 2016, p.210). The support created by the community has allowed Battle Harbour to thrive as it brings new people in and create business for the local economy.

There are some events that are expected to have such a large impact both economically and socially that cities compete with each other to host. An example of this is a study for North American trade fairs. This study saw a large competition over who would host the North American trade fair the in the coming years. It was expected that the host would see a rise in their relations towards global markets, making them more visible to the international trading world, and help bring new visitors to their area (Bathelt & Spigel, 2012). Previous hosts saw that after the North American trade fair was over that other local trade fairs moved in to the area (Bathelt & Spigel, 2012). As these cities hosted the North American trade fair, they were then viewed as central points for other types of events (Bathelt & Spigel, 2012). Bathelt and Spigel found that these cities had grown socially as well as increasing in economic growth. Many cities compete to host in order to create the same benefits for their community (Bathelt & Spigel, 2012).

This mindset does not just apply to locals in the area. Those who help set up events get some type of gain from it whether they are a part of the community or travel

with an attraction. A study on festivals and events held in Commonwealth of Virginia found that the greatest social-economic impacts was “community cohesiveness economic benefits; social costs; and social incentives” (Kim & Uysal, 2003, p. 168). The positive perspective that the community and organizers have on festivals and events allows them to continue growing and expanding. Industries depend on the support of the community in order to be successful. (Bowmann, et al., 2012).

Unfortunately, the converse is also true. In 2011, the Bush School of Government and Public Service evaluated nine towns and counties that had received suggested developments in previous years. Some of these suggestions included building new facilities, hosting new events, or new strategies in an attempt to boost economic activity in those areas. The authors got in contact with community leaders and public officials of the area and asked questions about the proposed changes and what had happened since then (Bowmann, et al., 2012). The authors found that communities that successfully implemented the proposed changes did so due to “local cooperation, effective leaders, and community involvement” compared to the communities that did not succeed (Bowmann, et al., 2012, p. ix). Those that did not succeed did not work because lack of funds or lack of interest from the community (Bowmann, et al., 2012). If the community had supported the efforts made, they would have assisted in fund raising and assisted in making the events successful. This demonstrates that community support is a big factor when it comes to the prosperity of a business or an industry. Without it projects often struggle to be successful, if not fail all together.

Economic Impact Studies

Economic impact studies are a great tool that can be used to help researchers learn more about the effects an industry has on their local community. These studies can help acquire funds needed to build or expand existing projects. Furthermore, these studies can be used to help determine if there are issues that need to be addressed in an economy, as well as see how a potential proposal will affect the local area. Economic impact studies have been completed all over the United States and in multiple parts of the world.

Economic impacts can examine the impact of one location or event, or it can include multiple locations or events, depending on how the study is set up. Table 1 summarizes the results of economic impact reports included in this review with a description of the event, where it was located, number of sites used, and the impact created from these events and attractions.

Examples of economic impact studies for multiple locations include a study out of Illinois (Norr, 2015) and a study out of Oregon (Sorte, 2007). Both studies looked at how county fairs affect the economy on a local and state-wide level. Due to limited resources, the researchers used stratified random sampling techniques to choose fairs for data collection. Illinois divided the state into three regions and divided fairs into five categories based on attendance size (Norr, 2015). The author then randomly selected five fairs in each region with one fair from each size category. In total, 15 out of 104 fairs were selected. Visitors were then surveyed at each of the 15 locations (Norr, 2015). With a total of 4,653 surveys collected the author was able to determine the state-wide economic impact was \$90 million and that fairs supported 1,000 jobs (Norr, 2015). Oregon chose a different approach. The author divided fairs into three categories based

on their size, and then randomly chose one for each size category (Sorte, 2007). While Norr collected in-person surveys, Sorte collected the fairs' calendars, budget, information from five to ten community leaders about the local economy, and data from the Bureau of Economic Analysis and the Oregon Agricultural Information Network. With this information, Sorte (2007) was able to estimate that fairs generated "\$33,734,005 in output, \$19,852,686 in value-added income, and 649 full- and part-time jobs," (Sorte, 2007, p. 14). The sampling methods for both of the Illinois study and the Oregon study have their own strength and weaknesses. The Illinois study took more time and resources, but it was able to come up with a more accurate picture based on data collected from real participants in the survey, giving it a strong backing with the data used. The Oregon study, on the other hand focused on saving time and money. They therefore they did not collect surveys or conduct in-person interviews. Due to this form of data collection, there are concerns about the accuracy of the estimation. It is also important to note that the Illinois study collected information from multiple fairs in the same size category throughout the state, whereas the Oregon study had only three fairs studied. The number of total fairs in the state was not included in the Oregon study. This leads to concerns about the sample size of the study.

Another example of an impact study collecting data from multiple locations comes out of Kentucky (Maples, Sharp, Clark, Gerlaugh, & Gillespie, 2017). The economic impact study centers on how tourists coming to the Red River Gorge benefited the economy in the surrounding areas. The authors visited more than six different recreational climbing sites 16 times and collected data from the different climbing guide operations along the Red River Gorge (Maples et al., 2017). Maples et al. (2017)

conducted in-person surveys of visitors asking questions about expenditures in the following categories: lodging, food purchases at grocery stores, at gas stations, and at restaurants, car rentals, gasoline and oil purchases, general retail purchases, climbing gear purchases, climbing guide fees, personal care services, and amusement (. The researchers collected 727 surveys and with the data, the authors were able to determine that climbers visiting the area were able to add \$1.4 million in value to the area's economy (Maples et al., 2017). These visitors generated \$2.9 million in total economic output, which supported 41 full-time jobs in the area (Maples et al., 2017). This is a well-executed study that collected hundreds of surveys throughout multiple visits to the area. However, the biggest flaw was the accuracy of the estimated number of visitors that actually do visit the Red River Gorge throughout the year. With surveys collected only during the two biggest climbing seasons and only at popular climbing spots there is the potential misguided reorientations of victors from various demographic groups.

While economic impact studies can be done on a statewide level and across multiple locations, a majority of the time impact studies are conducted at one location to gauge how a certain event or events effect the area's economy. Some studies that look at specific location or fairgrounds include the Grady County Fairgrounds in Oklahoma (Shideler, Tegegne, Routh, & Ralstin, 2011), Walworth County Fair in Wisconsin (Kashian, et al., 2016), North Texas State Fairgrounds (Seman, 2009), and the Appalachian Agricultural Exposition Center in Virginia (Rephann, 2014).

The Walworth County study was used to measure the impact of the annual Walworth County Fair. The authors collected data via in-person surveys that were handed out during the fair. The 1,022 completed surveys were used to estimate the number of

attendees at the fair as well as to determine the economic impact the fair created for the county. The study determined that an economic impact generated sales impact totaling \$590,358 (Kashian, et al., 2016). The Fair created 13.6 jobs, as well as had an impact on total labor income of \$141,595 (Kashian, et al., 2016).

Grady County, on the other hand, examined all activities occurring between 2009 and 2010 and estimated the impact for each year. Data from both years were included to compensate for the 2010 recession. Due to limited time and resources, in-person surveys were not an option. Instead low, medium, and high expenditure brackets were created for both local and out of town visitors for the events. The researchers were able to determine that in both years the fairgrounds employed nine full-time equivalent employees. It was estimated that the impact of the fairgrounds' operation on labor was 13 jobs in the community in both 2009 and 2010 (Shideler et al., 2011). The labor income for those years were more than \$300,000 and more than \$370,000 respectively with a stimulated output by the fairgrounds of \$1.36 million and \$1.35 million (Shideler et al., 2011). Though the techniques used in the study over Grady County are plausible, the absence of a survey opens up the possibility of not properly estimating attendance or expenses of visitors at events throughout the year.

Often times, impact studies are done to estimate how future proposals will affect the economy. In both the Appalachian (Rephann, 2014) and North Texas (Seman, 2009) studies examined proposals to either expand or build event centers in the area, and the potential impact on the economy. In the Appalachian study, Wythe County, Virginia was considering creating an agricultural arena, so an economic impact study was conducted for a proposed multipurpose faculty including an arena (Rephann, 2014). The plan

purposed having three buildings expected to host around 71 events per year by the fifth year of operations. Using the IMPLAN model, they were able to estimate the impact created from the proposal. They estimated that the county would experience an economic impact of over \$4.32 million generated from construction, \$5.31 million from operations, and between \$8.20 and \$10.24 million from visitors (Rephann, 2014). It was determined that the total impact created from the proposed event center would be between \$18-\$20 million after the first five years of operations (Rephann, 2014).

While looking in the case of the North Texas State Fair and Rodeo the original facility was already in operation, but there was a proposed plan to expand. This economic impact study considered the additional economic activity created from the proposed building. It also was an opportunity to estimate if the addition of the new building would be too costly or too big of a venture for the North Texas State Fair and Rodeo. The University of North Texas tackled this project by looking into the impact of the facility and the impact the proposed changes would make. Using an IMPLAN model, the researcher used the information collected from surveys passed out during the 2008 North Texas State Fair and Rodeo (Seman, 2009). It helped give insight on visitors from outside the Denton area, their spending habits, and how long they stayed (Seman, 2009). It was determined the Fairground's operation resulted in a direct economic impact on Denton County of around \$4.1 million per year, with \$5.6 million in total economic activity without the expansion (Seman, 2009). Seman estimated the additional building would generate an additional \$7.8 million in economic activity Denton County would experience a \$13.4 million impact in total economic activity. With Denton County as a central hub for agriculture events in this section of the state, the addition of an exposition

center to the fairgrounds makes an attractive proposal for the North Texas State Fair and Rodeo.

The insight given by economic impact studies can be extremely beneficial when determining how important a business may be to the area, as well as how a new proposal may affect the area. As previously stated in this section, an economic impact study can be tailored to the specific project and encompass many areas or a select location. Regardless of the specifics, economic impact studies give valuable information about crucial their subjects.

Data Collection

The collection of data is a key factor for any economic impact study. The data collected is used to estimate the impact of the selected event. In order to produce a feasible economic impact, the following steps must be taken: define the study are, identify the industry, and collect or estimate direct impacts, including employment, sales, and output, which is often collected by a survey instrument and financial accounts (Morgan & Condliffe, 2016).

One must ensure that the sample size is large enough to provide the desired level of precision and confidence, while also taking into consideration that there will be times throughout the event when it is peak and off peak. One should plan to collect data multiple times throughout the event during busy and non-busy hours. These time schedules attract different visitors with different characteristics (Hodur & Leistritz, 2016). Collecting multiple samples throughout a variety of times will ensure representation from different types of groups (Hodur & Leistritz, 2016).

Properly collecting data is crucial for economic impact studies (Morgan & Condliffe, 2016). In order to collect important information effectively, a survey instrument must be created. Effective surveys compile a visitor profile, assess the impact of the event or convention center activities on area businesses, and gather evidence of the positive or negative non-economic impacts. Surveys should include questions involving, socioeconomic status and demographics, event activity, and estimates of daily expenditures both inside and outside the event (Morgan & Condliffe, 2016). Surveys that include these factors typically achieve excellent results (Morgan & Condliffe, 2016). The data collected can play a major role in how results are interpreted (Hodur & Leistriz, 2016).

Multipliers

Economic multipliers can be defined as “the numerical relationship between an original change in economic activity and the ultimate change in activity that results as the money is spent and re-spent through various sectors of the economy” (Morgan & Condliffe, 2016, p. 88). There are many types of multipliers, some of the most common ones evaluates the effect of employment, income, and output multipliers. The first multiplier often used to look at employment is full-time equivalent employment (F.T.E), which is generated by each change in one F.T.E. in an export sector of the economy (Morgan & Condliffe, 2016). The household income multiplier measures the change of household income throughout the local economy, and the output multiplier is used for the change in sales generated through the local economy (Morgan & Condliffe, 2016).

Multipliers are used to help determine the direct and secondary effects created from the events held in the area (Morgan & Condliffe, 2016). The direct effect can be defined as the economic impact occurring from “new money” being spent in the area from non-local attendees of an event, while the secondary effect is created from the spending and recirculation of the initial expenditure (Hodur & Leistriz, 2016, p. 71). Direct effects include money spent at the event or outside the event in the local area. Secondary effect can be split into two categories, the indirect and induced effect. Indirect effects are considered to be the changes associated with the “successive rounds of recirculating the initial spectator’s expenditures” (Morgan & Condliffe, 2016, p. 89). While induced effects are the “changes caused by employees of impacted businesses spending some of their salaries and wages in other local businesses” (Morgan & Condliffe, 2016, p. 89). The sum of both the direct and secondary impact is the total impact that an event or event center has on an economy (Morgan & Condliffe, 2016). While both direct and secondary impacts are important, the number for total impact is what is used as supporting evidence of a business’s or event’s impact on the local area.

Multipliers help establish the effect that events have on a community. Without them, an estimation cannot be established. There are two types of multipliers that can be used for economic impact studies to calculate total effect. These multipliers are Type I and Type II. Morgan and Condliffe (2016) give us the equation for Type I and Type II multiplier. The equation for Type I multiplier can be seen in Equation 1, Equation 2 displays the equation for a Type II multiplier.

$$\text{Type I} = (\text{Direct Effects} + \text{Indirect Effects}) / \text{Direct Effects} \quad (1)$$

$$\text{Type II} = (\text{Direct Effects} + \text{Indirect Effects} + \text{Induced Effects}) / \text{Direct Effects} \quad (2)$$

Type II multipliers are most often used since they show a bigger impact because they include induced effects unlike Type I multipliers (Morgan & Condliffe, 2016).

Figure 1 shows an illustration of Type II multipliers and its effect on the economy.

Multipliers help establish the effect that events have on a community. Without them, an estimation cannot be established.

Methods of Economic Impact Models

An economic impact analysis can be defined as a methodology for evaluating the impact of a project, program, or policy on the economy of a specific region (Soens, 2018). There are several types of economic impact models that can be used. Some of the most popular models include the input-output (IO) models, which describe the relationship between different industries in economic sectors comparing the spending patterns to total sales to determine the direct and secondary effect (Kumar & Hussian, 2014).

Another popular model is the Keynesian model, which focuses on tourist destinations (Kumar & Hussian, 2014). The export base model, which examines basic industries that produce for markets outside the region, another model to consider is the non-basic model, which is used for local markets and to determine how money is redistributed (Kumar & Hussian, 2014). Additional models include the computable general equilibrium (CGE) model that uses the multiplier effect, in contrast to the Ad hoc model which is based on a combination of Keynesian and IO-model theories and focuses on the tourist industry (Kumar & Hussian, 2014).

The last model to discuss is the money generation model, which measures the impact of tourist spending in the local area while visiting an attraction or event (Kumar & Hussian, 2014). Many of these models have the same basic goal, which is to accomplish the following three-basic tasks

1. estimate the change in the number and types of tourists to the region;
2. estimate average levels of spending of tourists on the local area; and
3. apply the change in spending to a regional economic model or set of multipliers to determine the secondary effects (Stynes, 1999).

Regardless of which specific model is used, most studies follow Equation 3 given to us by Stynes (1999) when looking at visitor impacts:

$$\text{Economic Impact} = \text{Number of Tourist} * \text{Average Spending/visitor} * \text{Multiplier} \quad (3)$$

This equation is used for most visitor-based impact studies. Though most economic impact studies are conducted to determine the effect of visitors on the area, there are other reasons why an economic impact study may be conducted. The three types of impact studies often used are

1. impact on the economy resulting from facility construction;
2. impact of the facility event operations; and
3. impact of the expenditures related to event attendance and participation (Hodur & Leistriz, 2016).

These areas of impact study can be done separately or combined together based on preferences of those conducting the impact study.

Each model has been created to fit different situations based on location and the specifics of the research. Regardless of what method is use, impact models allow for insight into how an event or attraction impact the local economy.

Criticism of Methods

There are flaws when it comes to any method used to estimate an economic impact. For starters, most data collection is based on the memory and estimates of the respondents reporting their spending pattern, which is often called the recall method (Hodur & Leistriz, 2016). It assumes that the visitors are accurately recalling or estimating their expenditures, which may not be accurate (Hodur & Leistriz, 2016). There can be errors caused by “faulty memory, inability to generalize, or the desire to make a good impression” (Morgan & Condliffe, 2016, p. 87).

Depending on the type of event, there may or may not be issues with estimating attendance. When tickets are sold, issues may arise from estimating attendance are minimum, but when there is open access, estimating attendance can become a challenge. Methods for estimating attendance for non-ticketed events can include using participant’s surveys or on-site interviews (Hodur & Leistriz, 2016). In the study of the Oregon’s County Fairs, an accurate estimation was needed for the non-ticket fair, so researchers recorded license plates on vehicles at the studied fairs to get an estimate of local and out of town guests (Sorte, 2007).

Some argue that current models use unrealistic assumptions that overestimate the positive influences while ignoring the negative influences (Kumar & Hussian, 2014), which leads to misleading results. There is also the argument of error stemming from investigator bias, misuse of multipliers, and improper specification of the study area (Hodur & Leistriz, 2016). An example of how bias can affect results of an impact study can be seen in the Springfest case, even though the data collected was viable and good data. When the researcher who collected the original data presented unfavorable results, a

second analyst was hired. The new researcher then manipulated and skewed the same data to present favorable results to the event board, in order for them to get approval on a budget expansion (Crompton, Lee, & Shuster, 2001). This is an example how manipulations can be an issue in interpreting results.

Often times impact studies are only conducted for one year. While it does give an idea of how an industry impacts the economy, there are those who say this is only a snapshot of the actual impact it may have. A great argument for taking data over multiple years can be seen from an impact study that took place in Mauritius from 1979-2010. One of the objectives was to find if promotion had an effect on the number of tourists that visited. It was determined that “tourism promotion efforts” (Seetanah & Sannassee, 2015, p. 204) had a positive effect on tourist arrivals, but it was only discovered by looking at the long-run (Seetanah & Sannassee, 2015). In the short-run, an effect could not be determined. By incorporating longitudinal studies into economic impact research, a better picture can be formed of how the business is actually doing. Economic impact studies can give insight as to the effect on the surrounding economy, but it does not indicate if the subject is even profitable or feasible (Hughes, 2003). Having longitudinal studies can allow insight as to whether the business is profitable because of growth throughout the years (Hughes, 2003).

Further, economic impact studies do not take into consideration if the industry is a necessity. In some areas like Mauritius (Seetanah & Sannassee, 2015) a large portion of the economy is centered on creating tourist destinations. However, making tourism the main factor in an economy can be dangerous. Often times tourist destinations are viewed as luxury items. In the Mauritius example, when income elasticity was factored in for the

tourist sector it was determined that consumers were price sensitive (Seetanah & Sannasee, 2015). This can be difficult in times of recession as incomes decrease and people look to cut spending on luxury goods. If persistent over a long period this could cause a business to close.

It is also often overlooked that in developing countries only a small portion of people benefit from the tourist industry and that an economic impact study does not capture the full picture. The term “tourism for the poor” (Marin, 2015, p. 162) has been used to describe instances where tourism is left to groups whose focus is on financial gain for themselves (Marin, 2015). When this happens, money is not reinvested back into the community and actually increases the poverty level in the country by increasing living prices (Marin, 2015).

Though every model has downfalls the key is being able to choose the model or models that will work best for the study being conducted and being aware of the areas that often have issues arise and handling these issues as they occur.

In this study, the IO model was chosen along with a Type II multiplier to examine the impacts of the exhibitors at the 2016 OEF on the Greene County economy. IMPLAN3 software was used which allows researchers to identify all industries that are impacted by OEF. Type II multipliers were used in order to see the full effect generated by the OEF.

MATERIALS AND METHODS

Several stages were incorporated into the process of determining the economic impact of the exhibitors at the OEF, the first being getting IRB approval for the research using human subjects. Due to the nature of the research with anonymous participation and non-invasive questions the research was approved and exempted from further review as long as the study did not change. The letter of approval can be found in Appendix B. The next step in the process was developing the survey instruments. This part of the study will focus on participants who indicated they were exhibitors at the 2016 OEF. Exhibitors were divided into two categories, livestock exhibitors and commercial exhibitors. Livestock exhibitors attended the fair to compete in competition for varied species of livestock. Commercial exhibitors were participants at the fair for various other reasons, including selling products/services and advertising for business purposes.

The purpose of this study was to determine direct, indirect, and induced effects created from new money injected into the local economy by exhibitors who were participating in the OEF through commercial sales and livestock shows. The direct effects were determined to be the percentage of the expenditures that stay within the local economy. Indirect effects resulted from the recirculation of the original expenditures by the business that received payment for product or services created. The induced effects are the impacts that occurs from the employees of the business that received payment from the firms through payroll and wages that recirculate within the local economy.

This section will discuss the attributes of the survey instruments, the process of data collection, and the data analysis. These factors of data collection are major

contributors to a well-executed regression analysis and economic impact study (Morgan & Condliffe, 2016).

Survey Instrument and Collection

Surveys were distributed and collected by workers, hired specifically for this study, during the 10 days of the 2016 OEF, from July 28 to August 6. Participants were asked if they would be interested in taking a survey being conducted by the OEFEC and Missouri State University. They were informed the survey was completely anonymous and the questions were based on their spending habits while at OEF. Survey distributors were instructed to collect only one survey per household. There were 276 surveys were collected, including 186 from livestock exhibitors and 90 from commercial exhibitors. According to OEF, there were 400 livestock exhibitors registered at the 2016 OEF. With 186 surveys completed the return rate was 46.5%. The 400 registered livestock exhibitors do not take into account the number of households with multiple exhibitors. When taken into consideration this would indicated a higher return rate of surveys for livestock exhibitors. Of the 186 registered commercial exhibitors, 90 returned the survey for a response rate of 48.4 %.

Exhibitors were given one of two surveys based on if they were a “livestock exhibitor” or fell into the category of “commercial exhibitor” (see Appendix C and Appendix D). Surveys were completely anonymous, were between 24-25 questions long, and took approximately 5 minutes to complete. Once completed participants received a \$5.00 food voucher to redeem at participating concessionaries located within the fairgrounds.

The survey instrument included various questions inquiring about the size of group while at the OEF, why they were attending OEF, if they were from the Springfield area, and the participant's spending habits while inside OEF. If the participant indicated they were not from the Springfield area, they were instructed to complete the section indicating the distance traveled to get to OEF as well as a section that recorded on their expenditures outside OEF, but still within the Greene County area during the time they were attending the 2016 OEF. Lastly, the survey included questions relating to participants demographics.

Data Analysis

Once the collection process was completed surveys were numbered and entered into an Excel spreadsheet which was then used to calculate descriptive statistics including the mean, median, maximum, and minimum values for each question. By entering the data into Excel, errors were more easily caught and changed before transferring data over into Statistical Package for Social Sciences (SPSS) statistic software.

Due to of the nature of the survey, the majority of the answers were in numerical form. Answers to the questions that were not already in numerical form were coded to be in numerical form before it was entered into the spread sheet. For questions regarding group size, distance traveled, days at OEF, and expenditure, values were answered in numerical form and were entered as is. Non-numerical questions were presented in multiple-choice form and then coded into numerical form based on selected answers. Race was entered as 1 for white and 0 for non-white. For gender, 1 was entered for female and 0 was entered for male. Household income was presented as a multiple-choice

item asking participants to indicate which range included their income; the midpoint of those ranges was used in the regression formula. Spending was attributed to closest North American Industry Classification System (NAICS) sectors. The sectors were used to identified how and where exhibitors spent their money. The data was then entered into IMPLAN3 programing software to determine the direct, indirect, and induced effects.

RESULTS

This section will discuss the results of the surveys collected during the 2016 Ozark Empire Fair. The results are divided into two sections, analysis of the participants who filled out the survey and analysis of economic impact on the local economy.

The analysis of the participants examines attributes of the exhibitors through the answers provided by participants in the survey. The differences between the livestock exhibitors and commercial exhibitors were explored. The analysis of the economic impact will look at how OEF stimulates the local economy.

Participants Information

During the 2016 OEF, 186 livestock exhibitors participated in the survey. Of the 186 visitors 71% lived outside the Springfield area. From their responses, it was determined that the median age range was between 40-49 years of age and 61% were female. Nearly 98% of participants were white. Median household income range was between \$50 to \$75 thousand. The majority of participants (60%) reported that agriculture was their main occupation. Approximately 80% of participants reported they did not expect to sell livestock at the 2016 OEF, but 10% of participants reported they expected sales generated from being at OEF to be less than \$5,000, while 5% of participants expected sales to be greater than \$5,000. Table 2 shows the results of expected sales of livestock exhibitors from the OEF.

Among the 90 commercial exhibitors who completed the survey, 36.7% of was from outside the Springfield area. Approximately, 33.2% commercial exhibitors indicated

that their annual sales were more than \$100,000, 29.9% indicated their annual sales to be \$15,001 to \$100,000, 17.8% exhibitors reported their annual sales to be under \$15,000, and 18.9% did not reported their annual sales. It was determined that more than 87% of participants were Caucasian, and that the median age range was between 30 to 39 years old. Approximately 52% of respondents were female. Table 3 summarizes the revenue commercial exhibitors were expecting while at OEF. Nearly 60% of participants indicated they were expecting less than \$10,000 to be generated in sales, but more than 27% indicated they were expecting \$10,001 to \$50,000 to be generated in sales from OEF. 2.20% indicated that their expect sales was between \$50,001 - \$100,000. Approximately 3.33% of respondents were expecting sales greater than \$10,0000 in revenue from OEF. When determining their satisfaction of their time spent at OEF, 20% responded that they were either satisfied or very satisfied with their success of their business activities while at the OEF. Commercial exhibitors at OEF fell into many categories. Table 4 reports the business commercial exhibitors identified as their line of business while at the OEF. Just over half of those who responded to the survey were classified as exhibitors selling their business's products at the OEF or fell into the category of other.

Regression Results

Regression analysis was conducted to identify the variables that had a significant influence on the spending patterns of the exhibitors. It is known that the exhibitors at the OEF have an effect on economy, but by taking a closer look and see what variables have a greater impact when compared to others. Table 5 includes a description of the variables

includes in the analysis and descriptive statistic. Their regression models were estimated using ordinary least squared (OLS) method. Table 5 also lists their abbreviations for the regression equations developed for livestock and commercial exhibitors. Table 6 reports the model summary for each model, while Table 7-9 show the regression coefficients for each independent variable for livestock exhibitors, commercial exhibitors, and combined statistics for livestock and commercial exhibitors.

Equation 4 is the estimated regression equation developed for livestock exhibitors

$$f(x) = 82.668 + 68.113\text{GROUP} + 0.071\text{DIST} + 204.018\text{DAYS} - 12.602\text{AGE} - 129.009\text{GEND} + 0.006\text{INC} + 32.941\text{RACE} \quad (4)$$

at the OEF. Equation 4 has an adjusted R^2 of 0.239 and a standard error of the estimate of approximately 857.09. The variables in Equation 4 were GROUP indicating the group size of the participant's party, DIST used to represent the distance the participant drove, DAYS was days spent at OEF, AGE was used to indicate the age range of the participant, GEND was gender of the participant, INC indicated the range of yearly income of the participants business or household, and the last variable RACE was to identify if a person indicated if their race was white or another ethnicity. The four variables with the largest statistical significance for livestock exhibitors include household income, days spent in the Springfield area, age, and group size. The variable with the most significant impact is days spent at OEF, with a coefficient of 204.018 and a level of statistical significance on the 1% level. This indicates that an extra one day spent at OEF translates into \$204.02

more in spending. When compared with commercial exhibitors both similarities and differences can be noted.

The average expenditures in each category were multiplied by the number livestock exhibitors attending OEF to simulate total expenditures. The estimated expenditures were classified into categories using NAICS. Those classification and can be found in Table 10. As summarized in Table 11 it is estimated livestock exhibitors spend nearly \$700,000 in the Springfield area while attending the OEF. It was indicated from the results of the survey that the four largest group of expenditures for livestock exhibitors at the OEF included stall/entry fee, material and supplies, local labor, and fuel.

Equation 5 represents the estimated regression equation for the spending patterns

$$f(x) = 753.913 - 40.653\text{GROUP} + 0.692\text{DIST} + 440.960\text{DAYS} + 35.864\text{AGE} - 1950.634\text{GEND} + 0.024\text{INC} - 589.747\text{RACE} \quad (5)$$

of commercial exhibitors at OEF. Equation 5 has an adjusted R^2 of 0.37 and a standard error of the estimate of approximately 3086.95. The variables in Equation 5 are GROUP indicating the group size of the participant's party, DIST used to represent the distance the participant drove, DAYS is days spent at OEF, AGE was used to indicate the age range of the participant, GEND was gender of the participant, INC indicated the range of yearly income of the participants business or household, and the last variable RACE was to identify if a person indicated if their race was white or another ethnicity. The most statistical significant variables include business income, days spent in the Springfield area for OEF, and gender. Just like livestock exhibitors days spent in the area while at OEF is

has the most significant at the 10% level with a coefficient of 440.96. Therefore, we find that an additional day spent in the area translates to an increase in spending of \$440.96 in the local area while at OEF.

Next, a look at commercial exhibitors expected expenses while at the fair. Table 12 summarizes the reported expenses of commercial exhibitors. The three categories that commercial exhibitors indicated were their biggest expenses included local labor expenses, fair space, and retail and commercial expenditures. Assuming the number of commercial exhibitors is the same throughout the entire fair period and each of them follow the similar spending patterns we are able to estimate total expense of all commercial exhibitors by multiplying the average expenditures with the number of commercial exhibitors. Total expenditures for commercial exhibitors are reported in Table 13. The estimated expenditures were classified into categories using NAICS. Those classification for commercial exhibitors and can be found in Table 14. For the 2016 OEF, commercial exhibitors spent an estimated total amount of \$640,335 within Greene County area.

When the two sets of data are compared, a distinction can be found between livestock exhibitors and commercial exhibitors. The regression formula for the combined stats is in Equation 6. Equation 6 has an adjusted R^2 of 0.563 and a standard error of the

$$f(x) = 1673.913 - 1292070ID + 14.438GROUP + 0.464DIST + 314.679DAYS - 21.514AGE - 382.869GEND + 0.012INC - 497.619RACE \quad (6)$$

estimate of approximately 1548.36 All previous variables were in Equation 4 and 5 are used in Equation 6. An additional variable was created and added to identify livestock visitors from commercial exhibitors. The additional variable created was ID, which was used to distinguished between livestock exhibitors and commercial exhibitors in the regression formula. A value of 1 indicated a livestock exhibitor and a value of 0 indicated a commercial exhibitor. The ID code had a coefficient of -1292.070 and was significant at 5%. With this information, it can be concluded that livestock exhibitors had a different spending pattern compared to commercial exhibitors and spent about \$1292.07 less than commercial exhibitors in the Greene County area while attending the OEF. This could be contributed to the fact that the cost to run a commercial booth for a business is higher than for a family who is showing livestock while at the fair.

Without OEFEC hosting OEF these exhibitors would not have the opportunity to affect the economy. In order to host OEF, OEFEC has to purchase equipment, pay bills, and make various other expenditures that helps support the economy on its own. The direct spending of OEFEC is for OEF is summarized in Table 15. The expenditures for OEF alone adds an additional stimulate of \$6 million in the Greene County economy (Ozark Empire Fair, 2016). With the adjustment for payroll expenses of OEFEC for OEF generates an estimated \$23.5 million in spending in the local economy (Ozark Empire Fair, 2016). The total expenditures created from the OEF and OEFEC operations spending totals to be \$8,007,877 (Ozark Empire Fair, 2016).

Economic Impact Results

The selected area of study was Greene County Missouri. This is because OEFEC is centrally located within the county with an area of approximately 25-mile radius. Greene County is home to approximately 288,072 people and the largest industries are healthcare and social assistance, retail trade, management, education, and food and service. (Greene County, MO, 2018). The impacts generated from exhibitors at the OEF benefit thousands of people in Greene County. All impacts were calculated using the IMPLAN3 model programming.

With estimated total expenditures and spending of livestock exhibitors being \$692,181 the retention rate of expenditures that stayed in Greene County by livestock exhibitors was .79. This means that 79% of the expenditure of livestock exhibitors at the OEF remained in the county, while 21% leaked out due to factors such as companies paying their headquarters. The livestock exhibitors generated a direct impact of \$545,602 which can be found in Table 16. The secondary impact generated by the recirculating of livestock exhibitors' money summed up to be \$309,324. Of that \$309,324, \$162,428 of that was the recirculating of exhibitors' expenditures by the businesses, called the indirect impact and the remaining \$146,895 was the induced effect caused by recirculating the new money by employees of the businesses. In total the livestock exhibitors at the OEF generated a total effect of \$854,386, had a multiplier of 1.57. The multiplier is used to determine how often the money from the direct impact is recirculated in the economy. The total impact generated from livestock exhibitors created 11.2 FTE jobs in the Greene County area according to IMPLAN3 programming. Sectors impacted by livestock exhibitors can be found in Table 17, with the three biggest sectors impacted being other

amusement and recreation industries, cattle ranching and farming, and food services and drinking places. Livestock exhibitors at the OEF created 4.8 jobs in the other amusement and recreation industries, 1.8 jobs in cattle ranching and farming, and 1.3 jobs in food and services and drinking places. The effect of exhibitors at the OEF continues to grow when commercial exhibitors' impact is calculated.

The direct, indirect, induced, and total effect for commercial exhibitors can be found in Table 18 Total expenditures for the commercial exhibitors were estimated to be \$910,279 and the retention rate was 0.57. Meaning 57% of the expenditures of commercial exhibitors stayed in the local economy causing a direct effect of \$525,501. The indirect effect generated was equal to \$150,999 and induced effect came to \$169,336. This combination of the indirect and induced effect creates a total secondary effect of \$320,335. The total effect generated from commercial exhibitors while attending the OEF was \$845,836 according to the IMPLAN3 programing. Hence a multiplier of 1.60 for commercial exhibitors. A number of industries were impacted due to the spending by the commercial exhibitors as listed in Table 19. Commercial exhibitors created the biggest effect in other amusement and recreation industries, retail stores-general merchandise, and hotels and motels, including casino hotels. The commercial exhibitors were able to create 11.1 FTE jobs in the Greene County area. Of those jobs, 5.9 were generated in in the other amusement and recreation industries, 2.2 jobs created retail stores-general merchandise, and 0.4 within the hotels and motels, including casino hotels.

DISCUSSION

The results of the Exhibitors of the 2016 Ozark Empire Fair can be interpreted many ways. Through a comparison between the participants information of the two sets of exhibitors it can be noted that livestock exhibitors have a higher age range compared to the commercial exhibitors. A hypothesized reason for this could be that many livestock exhibitors are family with school age kids who participate in showing livestock through 4-H or FFA. Parents would choose to fill out surveys for the household giving us an age range a median age range between 40-49 assuming most have children in the mid 20's early 30's.

When looking at the regression analysis the most significant variable in terms of impact variable for both livestock and commercial exhibitor was days at the fair. For livestock one more day at the fair equaled an additional \$204.02 spent in the area. For commercial exhibitors an additional day meant \$440.960 was spent by the exhibitors. It was found that this factor's statistical significance for livestock was on at a 1% level while the commercial statistical significance was at a 10% level. This could be due to the fact that commercial exhibitors are more likely to be staying for the whole fair while livestock exhibitors are only staying until their shows are finished. This becomes valuable knowledge in for organizers of fairs because they have the opportunity to design their event to keep exhibitors returning through ticket promotions, carryover activates, and various other planning strategies.

When looking at the economic impact of both livestock and commercial exhibitors, livestock generated a larger impact on Green County, even though they spent

less within the local area than commercial exhibitors. This could be due to the fact that livestock exhibitors have a higher retention rate with almost 80% when compared to the 50% for commercial exhibitors. This means that more of the expenditures from the livestock exhibitors remained in the Green County economy when compared to the expenditures of commercial exhibitors. A hypothesis of why this occurs could be that commercial exhibitors are paying more to commercial businesses for supplies related to their booth at the fair versus livestock exhibitors that may have chosen to purchase more items through the fair and local businesses.

There are limitations to this study. Economic impact studies use estimation and memory of participants. We must rely on the participants to give an accurate value, but it can easily be incorrect. Participants may wish to make a positive impression on the person giving the survey, have the inability to generalize, or and even faulty memory of expenses. Another limitation we face is the fact that we do not know of any follow up expenditures from local businesses. The recirculation is based on estimates from computer programing. Not having the ability to do follow up expenditures of local business can cause either an under or over estimation of the secondary effects.

CONCLUSION

The Ozark Empire Fair plays a major role in the Greene County economy. Hundreds of exhibitors travel from all across Missouri and across the country to Springfield to participate in the OEF. This event contributes greatly to the local economy by creating jobs and adding money to the local area. The study identified important attributes of exhibitors who participated in the fair and estimated the magnitude of economic impact due to the spending by exhibitors.

The analysis shows that OEF is a great way to attract young exhibitors who will stay in the Springfield area for several days while they attend this event and add new money into the economy. Hosting events where commercial exhibitors can display their goods, connect with the public, and advertise for their business is beneficial to Greene County. OEF brings in numerous livestock and commercial exhibitors that have a significant effect on the local economy.

Livestock exhibitors generate a total economic impact of \$854,386.18 and 11.2 jobs, while the commercial exhibitors' total economic impact was \$845,836.84 and created 11.1 jobs. With the continual occurrence of the OEF bringing in exhibitors from all across the national, Greene County, Missouri will continue to see large economic gains from the exhibitors coming to Greene County each year.

Not only can this research be used to by the community leaders in Greene County and the organizers at OEFEC it can also be used for other fairs and events. With this research it was determined that days at the fair had a significant impact both economically and statistically. Though the impact and spending habits will be different

depending on location the fact that an additional day leads to additional spending of significant amounts by the exhibitor regardless of the location or event. Other fairs and event centers can use this to create their own deals, give exhibitors more opportunity to show, or any other strategy that may be used to keep exhibitors in the area.

Economic impact studies are a useful tool. They can help gain support for a business, event, or an attraction in or coming to the area. It gives the community an insight on how the local area would be without the business and how it benefits the community. Impact studies help secure funds for upcoming projects and gain support for continued growth, these studies are not limited to just fairs, they can be done for anything that brings visitors into the area and generates new money within the economy. Economic Impact studies can be used to help show the significance of agriculture in local communities by showing how their business not only effects their business has for themselves but as well as the effect their business has on others in the local economy.

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Table 1: Results of Economic Impact Studies Included in Literature Review

Project Title	Description	# of Locations	Economic Impact & Jobs Created
Economic Impact of Illinois Agricultural Fairs	A look at local agricultural fair throughout Illinois to help determine how fairs impact the economy on a state level	15	\$90,000,000 1,000 jobs
Oregon County Fairs: An Economic Impact Analysis	The economic impact study of a small, medium, & large fair help to determine how area fairs effect the state economy	3	\$19,852,686 649 jobs
Climbing Out of Poverty: The Economic Impact of Rock Climbing in & Around Eastern Kentucky's Red River Gorge	Impact studies at climbing locations along the Red River	6+	\$2,900,000 41 jobs
Walworth County Fair: An Economic Impact Analysis	A look into the Walworth County Fair determined how the fair effected the local economy	1	\$6,318,449 77.3 jobs
The Economic Impact of Grady County Fairgrounds on the Economy of Grady County, Oklahoma	The Oklahoma State University Extension office sponsored the study of how events at the Grady County Fairgrounds effected the local economy in both 2009 and 2010	1	2009: \$2,434,640 - \$6399,659 36-95 jobs 2010: \$2,451,134 - \$6,441,656 35-93 jobs
Appalachian Agricultural Exposition Center Economic Impact Study	Researchers take a look into how the proposal of a new Exposition Center would affected the economy of the area both during the construction and in the first five years	1	\$18,000,000 - \$20,000,000 48-77 jobs
North Texas State Fair & Rodeo: The Economic Impact of Existing Activities & Preliminary Feasibility Assessment for New Fairgrounds & Expo Centers	A study conducted over an existing facility wishing to expand	1	Denton County: \$13,407,910 144.7 jobs City of Denton: \$7,353,785 78 jobs

Table 2: Expected Revenue of Livestock Exhibitors from Sales at the Ozark Empire Fair

Sale Amount	Response Rate
No Sale	80%
Less than \$5,000	10%
Greater than \$5,000	5%
N/A	5%

Table 3: Commercial Exhibitors' Estimated Revenue from Sales at the 2016 Ozark Empire Fair

Sale Amount	Response Rate
Less than \$10,000	61.10%
\$10,001 - \$50,000	22.20%
\$50,001 - \$100,000	2.20%
Greater than \$100,000	3.33%

Table 4: Types of Commercial Exhibitor Participating in the Fair Survey

Types	Number	Percentage
Food concessionaires	11	12.30
Merchandize concessionaries	13	14.60
Supplier or service vendor	7	7.90
Commercial exhibitors making sales at the Fair	26	29.20
Commercial exhibitors not making sales at the Fair	15	16.90
Other	21	23.60

Table 5: Descriptive Statistics of Variables Used in Regression Formula of Combined Livestock and Commercial Exhibitors

Variable	Description	Mean	Minimum	Maximum
ID	ID code used to distinguish livestock exhibitor from commercial exhibitor: 1 if livestock 0 if commercial	0.6739	0.00	1.00
GROUP	Size of group while at the Fair	4.9309	1.00	82.00
DIST	Distance from home location/business location to the Fair	69.6287	0.00	2100.00
DAYS	Number of days spent in Springfield for the Fair of out of town participants	5.0599	1.00	18.00
AGE	Age of participant	41.9451	17.00	60.00
GEND	Gender of participant: 1 if female, 0 if male	0.5824	0.00	1.00
INC	Household/Business yearly income	86708.9844	7500.00	200000.00
RACE	Race of participant 1 if white, 0 if nonwhite	0.9487	0.00	1.00
TOTEXP	Total expenses for participants both inside and outside the Fair while exhibitors attended the Fair (dependent variable)	1497.0554	0.00	17900.00

Table 6: Regression Results of Livestock Exhibitors

Variable	Estimated Coefficient (β)	Standard Error	T-stat	Significance
Constant	82.668	62849	0.133	0.894
GROUP	68.113	32.851	2.073	0.040
DIST	0.071	0.373	0.190	0.850
DAYS	204.018	59.019	3.457	0.001
AGE	-12.602	5.801	-2.172	0.032
GEND	-129.009	158.234	-0.815	0.417
INC	0.006	0.002	3.616	0.000
RACE	32.941	510.727	0.064	0.949

Table 7: Regression Results of Commercial Exhibitors

Variable	Estimated Coefficient (β)	Standard Error	T-stat	Significance
Constant	753.913	3008.555	0.251	0.805
GROUP	-40.653	124.269	-0.327	0.747
DIST	0.692	2.438	0.284	0.779
DAYS	440.960	232.286	1.898	0.072
AGE	35.864	46.713	-0.768	0.452
GEND	-1950.634	1311.257	-1.488	0.152
INC	0.024	0.008	2.894	0.009
RACE	-589.747	2068.970	-0.285	0.779

Table 8: Regression Results of Combined Livestock Exhibitors and Commercial Exhibitors

Variable	Estimated Coefficient (β)	Standard Error	T-stat	Significance
Constant	1673.319	1034.765	1.617	0.108
ID	-1292.070	594.315	-2.174	0.031
GROUP	14.438	40.689	0.355	0.723
DIST	0.464	0.573	0.811	0.419
DAYS	314.679	73.443	4.285	0.000
AGE	-21.514	9.255	-2.325	0.021
GEND	-382.869	256.143	-1.495	0.137
INC	0.012	0.002	5.187	0.000
RACE	-497.619	665.197	-0.748	0.456

Table 9: Summary of Livestock Exhibitors NAICS Codes

Local Expenditure Items	Classification	Code
Material and Supplies (e.g. feed, nutrition, bedding, and grooming)	Cattle Ranching and Farming	11
Fuel and Other Transportation	Retail Stores – Gasoline Stations	326
Retail and Other Expenditures	Retail Stores – General Merchandise	329
Rental (e.g. trailer)	Retail Stores – Miscellaneous	330
Equipment and Repair (e.g. feed, nutrition, bedding, and grooming)	Retail Stores – Miscellaneous	330
Stall/Entry	Other Amusement and Recreation	410
Local Labor Expense	Other Amusement and Recreation	410
Tickets, Food, and Entertainments at the Fair	Other Amusement and Recreation	410
Lodging Outside the Fair	Hotels and Motels, Including Casino Hotels	411
Food and Drinks Outside the Fair	Food Services and Drinking Places	413

Table 10: Estimated Total Expenditures by Livestock Exhibitors at the 2016 Ozark Empire Fair

Local Expenditure Items	Amount (\$)
Material and Supplies (e.g. feed, nutrition, bedding, and grooming)	\$98,738
Fuel and Other Transportation	\$94,931
Equipment and Repair (e.g. feed, nutrition, bedding, and grooming)	\$47,904
Stall/Entry	\$110,554
Rental (e.g. trailer)	\$12,010
Local Labor Expense	\$72,381
Tickets, Food, and Entertainments at the Fair	\$85,560
Food and Drinks Outside the Fair	\$63,185
Lodging Outside the Fair	\$60,854
Retail and Other Expenditures	\$46,064
TOTAL	\$910,279

Table 11: Summary of Commercial Exhibitors' Reported Expenditures

Local Expenditures	Total	Average per Survey	Average per Night
Supplies	\$52,030	\$572	\$57
Fuel and Other Transportation	\$17,825	\$196	\$20
Equipment and Repair	\$8,504	\$93	\$9
Fair Space	\$76,825	\$844	\$84
Rental	\$4,328	\$48	\$5
Local Labor Expenses	\$119,778	\$1,316	\$132
Lodging and Food Outside of Fair	\$43,138	\$186	\$19
Retail and other Expenditures	\$73,710	\$288	\$47

Table 12: Estimated Total Expenditures by Commercial Exhibitors at the 2016 Ozark Empire Fair

Description	Amount (\$)
Supplies	\$88,051
Fuel and Other Transportation	\$30,165
Equipment and Repair	\$14,392
Fair Space	\$130,012
Rental	\$7,324
Lodging and Food Outside	\$42,950
Retail and Other Expenditures	\$124,740
Goods and Services	\$269,944
Local Labor	\$202,701
TOTAL	\$966,464

Table 13: Summary of Commercial Exhibitors NAICS Codes

Local Expenditure Items	Classification	Code
Fuel and Other Transportation	Retail Stores – Gasoline Stations	326
Supplies	Retail Stores – General Merchandise	329
Retail and Other Expenditures	Retail Stores – General Merchandise	329
Goods and Services	Retail Stores – General Merchandise	329
Rental	Retail Stores – Miscellaneous	330
Equipment and Repair	Retail Stores – Miscellaneous	330
Fair Space	Other Amusement and Recreation	410
Local Labor Expense	Other Amusement and Recreation	410
Lodging Outside the Fair	Hotels and Motels, Including Casino	411
	Hotels	

Table 14: Total Direct Spending in the Economy for the Ozark Empire Fair by the Ozark Empire Fairgrounds and Event Center Operating

Events	Total Local Expenditures
Ozark Empire Fair Spending	\$5,698,707
OEFEC Operating Expense	\$2,505,664
(Adjustments)	(\$196,494)
TOTAL	\$8,007,877

Table 15: Economic Impact of Livestock Exhibitors

Impact Type	Employment	Labor Income	Output
Direct Effect	8.9	\$158,739.13	\$545,062.10
Indirect Effect	1.2	\$54,158.52	\$162,428.72
Induced Effect	1.1	\$47,012.99	\$146,895.37
TOTAL EFFECT	11.2	\$259,910.64	\$854,386.18

Table 16: Top 10 Industry Impact of Livestock Exhibitors

Industry	Total Impact	Jobs Created
Other Amusement and Recreation Industries	\$268,655.49	4.8
Cattle Ranch and Farming	\$100,638.97	1.8
Food Services and Drinking Places	\$77,034.57	1.3
Hotels and Motels, including Casino Hotels	\$61,039.19	0.5
Real Estate Establishments	\$35,661.94	0.2
Retail Store – Miscellaneous	\$28,272.82	0.5
Monetary Authorities and Depository Credit	\$19,454.80	0.1
Imputed Rental Activity for Owner-Occupied Dwellings	\$17,950.99	0.0
Retail Store-General Merchandise	\$15,673.76	0.2
Retail Store – Gasoline Stations	\$14,911.45	0.1

Table 17: Economic Impact of Commercial Exhibitors

Impact Type	Employment	Labor Income	Output
Direct Effect	8.7	\$195,504.21	\$525,501.07
Indirect Effect	1.2	\$52,066.04	\$150,99.38
Induced Effect	1.3	\$54,201.75	\$169,336.39
TOTAL EFFECT	11.1	\$301,772.00	\$845,836.84

Table 18: Top 10 Industry Impact of Commercial Exhibitors

Industry	Total Impact	Jobs Created
Other Amusement and Recreation Industries	\$332,896.59	5.9
Retail Store-General Merchandise	\$139,045.49	2.2
Hotels and Motels, including Casino Hotels	\$43,139.74	0.4
Real Estate Establishments	\$36,547.89	0.2
Imputed Rental Activity for Owner-Occupied Dwellings	\$20,626.49	0.0
Monetary Authorities and Depository Credit	\$15,845.64	0.0
Food Services and Drinking Places	\$14,674.95	0.2
Insurance Carriers	\$14,166.86	0.0
Private Hospitals	\$13,276.36	0.1
Telecommunications	\$12,801.58	0.0

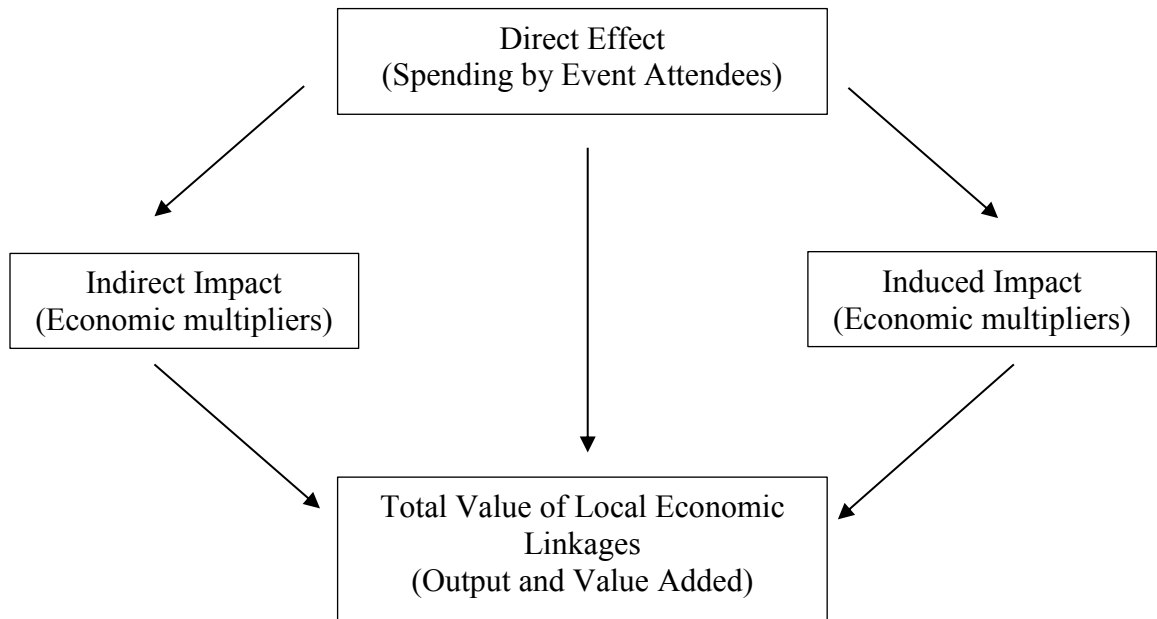


Figure 1: Illustration of Type II Multiplier (Rimal, 2018)

APPENDICES

Appendix A: Description of Event and Attendance 2016

Date	Event	Estimated Attendance
Jan. 8-9	Nitro Arenacross Tour	2,800
Jan. 15-17	7 th Annual Boat, Sport and Travel Show	3,600
Jan. 23-24	RK Gun Show	4,800
Jan. 30-31	TPC-Greater Spfd Garage Sale	11,800
Feb. 2	Safety Summit	80
Feb. 5	Beer Wine Cheese and Chocolate Festival Paris Dinner	280
Feb. 6	Beer Wine Cheese and Chocolate Festival	1,326
Feb. 9	Journagen	180
Feb. 13-14	Auto Swap Meet	4,600
Feb. 19-20	Ultimate Indoor Enduro	2,430
Feb. 20	KGBX Women's Show	8,956
Feb. 26-27	Bull Blast	2,534
Feb. 26-28	Lawn & Garden Show	8,400
Mar. 4	Football	1,286
Mar. 4-6	RV Mega Show	2,408
Mar. 11-13	Indoor Winter Nationals	2,150
Mar. 14-15	RK Gun Show	4,200
Mar. 18-19	Ozark Empire Fair PRCA Pro Rodeo	3,789
Mar. 18-20	Ozark Spring Roundup	14,100
Mar. 24-26	Trading Hands Kids Sale	4,200
Mar. 31	Mercy Employee Dinner	1,274
April 2	Corndog Kickoff	720
April 8-10	Show Me Gourd	1,400
April 9	Southwest Office on Aging	2,600
April 16	Safe and Sound	12,600
April 19	Porsche Club	85
April 22-23	Rock n Ribs Barbeque Festival	41,000
April 26- May 1	Friends of the Library	3,600
April 27- May 1	Spyderfest	3,700
April 30	AARP Shredding Event	1,050
May 2-3	Vermeer	80
May 7	Convoy of Hope Community Event	11,000
May 11-12	NSBA Attendance Party	2,080
May 13-14	Antique Show	650
May 13-14	Indian Artifact Show	800
May 18-21	Scholastic Book Sale	660
May 20	Iafe	40
May 21-22	RK Gun Show	3,900
May 25	Garden Brothers Circus	2,400
May 27-29	National Street Rods	16,520
June 3-4	HAWHA Spring Classic	200
June 4-5	Barn Hunt	200
June 8-10	Campers on Mission	1,200

Appendix A continued: Description of Event and Attendance 2016

June 10-12	Missouri Limousin Field Day	600
June 11	Conco	600
June 19-20	SW MO Dairy Goat Show	220
June 20-21	Outlaw National Monster Truck	5,600
June 25-26	RK Prepper Show	2,600
June 26-July 1	Charolais Jr. Nationals	650
July 4	Freedom Fest	18,100
July 7-9	Mid-American Fox Trotter Show	900
July 16	Springfield Contractors Pig Roast	1,080
July 21-23	Gold Buckle Gala	726
July 28-Aug. 6	OZARK EMPIRE FAIR	154,000
Aug. 11	MSPE Ozark Chapter 74 th Annual Shrimp Feed	1,120
Aug. 11-13	National Breeders Cup	810
Aug. 13	Springfield Bird and All Pets Show	250
Aug. 13-14	RK Gun Show	4,250
Aug. 19-21	Ozark Antique Auto Club Swap Meet	42,000
Aug. 26-28	4-H Back to School Blast Horse Show	1,070
Aug. 27	Cattle Barons Ball	1,150
Sept. 1-3	Trading Hands Kids Sale	3,240
Sept. 8-10	Ozark Piecemaker 2016 Quilt Show	1,000
Sept. 10-11	Extreme Cowboy Races	300
Sept. 11	SWMO Meat Goat Producers Production Sale	280
Sept. 16-18	RV Mega Show	1,650
Sept. 24-25	TPC – Street Machine Nationals	17,500
Sept. 29-30	Seven Day Advance	220
Oct. 1-Nov. 6	Hammons Walnut Hulling	4,028
Oct 2	Ozark Porsche	80
Oct. 7-9	Ozark Fall Farmfest	68,000
Oct. 10	Parson	360
Oct. 15-16	RK Gun Show	5,200
Oct. 18	Somo	90
Oct. 20-23	AKC Dog Obedience	425
Oct. 21-23	HAWHA Fall Classic	200
Oct. 21-22	IAFE National Judging	89
Oct. 22-23	Antique Festival of the Ozarks	6,845
Oct. 22-23	Ozark Coin Club Show	840
Oct. 25-30	Friends of the Library	3,200
Oct. 29	Springfield Bird and All Pet Show	350
Oct 29	Baconfest	790
Nov. 4-6	2 Friends and Junk	8,632
Nov. 5-6	National Antique Pull	400
Nov. 10-13	OKC Ozark Mountain Classic Dog Show	3,240
Nov. 30-Dec.3	Scholastic Book Sale	642
Dec. 1-4	Nativity Scene Play	2,400
Dec. 3-4	RK Gun Show	4,800
Dec. 8-11	MOCGA Safety Summit	1,680
Dec. 17	Crosslines Christmas Toys and Food Giveaway	4,400
All Events		565,485

Appendix B: Human Subject IRB Approval

From: irb@missouristate.edu [mailto:irb@missouristate.edu]
Sent: Monday, July 25, 2016 8:20 AM
To: Rimal, Arbindra
Subject: IRB-FY2017-47 - Initial: Exempt



To:
Arbindra Rimal
Agriculture - SPFD Campus

Date: Jul 25, 2016 6:19 AM PDT

RE: Notice of IRB Exemption
Study #: IRB-FY2017-47
Study Title: Economic Impacts of Empire Fairgrounds and Event Center on the Local Economy

This submission has been reviewed by the Missouri State University Institutional Review Board (IRB) and was determined to be exempt from further review.

Investigator's Responsibilities:

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented. Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB.

This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), 45 CFR 164 (HIPAA), 21 CFR 50 & 56 (FDA), and 40 CFR 26 (EPA), where applicable.

Researchers Associated with this Project:
PI: Arbindra Rimal
Co-PI:
Primary Contact: Arbindra Rimal
Other Investigators: Raysha Tate

Appendix C: Livestock Exhibitor Survey



FAIR LIVESTOCK EXHIBITOR SURVEY

Thank you for taking time to participate in this survey from the Ozark Empire Fairgrounds and Event Center (OEFE) and Missouri State University. We are gathering data to better understand the economic impacts of events at OEFE on the local economy. *Your participation is voluntary. All responses are anonymous and confidential. It should take less than 5 minutes to complete. If you have any concerns, please contact arbindrarimal@missouristate.edu or Aaron Owen at 417-833 2660*

1. Including yourself, how many people (family, employee, etc.) are with you at this year's livestock exhibition at Ozark Empire Fair? _____
2. Do you live in Springfield area? Yes ___ No. If yes, go to 6 through 12 and 17 through 24.
3. If No, what is your home county and State?
County _____ State _____
4. About how far is your home/business from Ozark Empire Fairgrounds in miles? _____
5. How many days do you plan to stay in the Springfield area for the fair? _____ (enter number of days)

Approximately about how much money do you plan to spend for the following items related to **livestock exhibition activities at the fair**? Please round responses to the nearest \$5 (i.e., \$5, \$10, \$15, etc.).

6. Material and Supplies (e.g., feed, nutrition, bedding, and grooming) \$ _____
7. Fuel and other transportation costs (e.g., depreciation of truck, etc.) \$ _____
8. Equipment and Repair (e.g., grooming chutes, halters, tacks, etc.) \$ _____
9. Fee for the space at the fairgrounds \$ _____
10. Rental (Other than space at the fairgrounds) (e.g., trailer) \$ _____
11. Wages, salaries, and benefit to the laborers \$ _____
12. Event tickets, food, entertainment, crafts, etc. for you and your family? \$ _____

How much money do you plan to spend on each category described below, **OUTSIDE of the fairgrounds** during your visit? Please round responses to the nearest \$5 (i.e., \$15, \$20, \$35, etc.)

13. Food and drink (restaurants, bars, clubs, etc.) \$ _____
14. Lodging (hotel, motels, camping, etc.) \$ _____
15. Retail stores (grocery stores, hardware stores, department stores, big box stores, etc.) \$ _____

16. Other attractions in the Springfield area (classical music Cavern, etc.) \$ _____

17. Have we missed any major spending?(if yes) Could you describe your other spending? _____
\$ _____

18. Did you or do you expect to sell any livestock during this year's fair?
Yes _____ No _____

19. If Yes, what is the estimated dollar sales?
a. Less than \$5,000
b. \$5,000 - \$9,999
c. \$10,000 - \$19,999
d. \$20,000 - \$29,999
e. \$30,000 - \$39,999
f. \$40,000 and above

For questions 20 to 24, circle the response that best describes you.

20. What is your age?
a. Under 18 b. 18-25 c. 26-29
d. 30-39 e. 40-49 f. 50-59
g. Over 60
21. What is your gender?
a. Male b. Female
22. What is your household/business income annually?
a. Less than \$15,000
b. \$15,000 - \$24,999
c. \$25,000 - \$34,999
d. \$35,000 - \$49,999
e. \$50,000 - \$74,999
f. \$75,000 - \$99,999
g. \$100,000 - \$149,999
h. \$150,000 or more
23. What industry best describes your occupation?
a. Agriculture
b. Construction
c. Manufacturing
d. Finance/Insurance/Real Estate
e. Professional/Business
f. Education
g. Government
h. Other: _____
24. What is your race?
a. White b. Black or African American
c. American Indian d. Asian
e. Hispanic or Latino f. Mixed race
g. Other: _____

Appendix D: Commercial Exhibitor Survey



OTHER FAIR EXHIBITORS AND CONCESSIONAIRES SURVEY

Thank you for taking time to participate in this survey from the Ozark Empire Fair grounds and Event Center (OEFE) and Missouri State University. We are gathering data to better understand the economic impacts of events at OEFE on the local economy. *Your participation is voluntary. All responses are anonymous and confidential. It should take less than 5 minutes to complete. If you have any concerns, please contact arbindrarimal@missouristate.edu or Aaron Owen at 417-833 2660*

1. Including yourself, how many people (family, employee, etc.) are with you at this year's fair? _____

2. Is your business located in Springfield area?
 _____ Yes _____ No. If yes, go to 6 through 12 and 17 through 25.

3. If No, what county and state your business located at?
 County _____ State _____

4. About how far is your business from Ozark Empire Fairgrounds in miles? _____

5. How many days do you plan to stay in the Springfield area for the fair? _____ (enter number of days)

Approximately about how much money do you plan to spend for the following items related to **exhibition activities at the fair**? Please round responses to the nearest \$5 (i.e., \$5, \$10, \$15, etc.).

6. Material and Supplies
 \$ _____

7. Fuel and other transportation costs (e.g., depreciation of truck, etc.) \$ _____

8. Equipment and Repair
 \$ _____

9. Fee for the space at the fairgrounds \$ _____

10. Rental (Other than space at the fairgrounds)
 \$ _____

11. Wages, salaries, and benefit to the laborers
 \$ _____

12. Event tickets, food, entertainment, crafts, etc. for you and your family \$ _____

How much money do you plan to spend on each category described below, **OUTSIDE of the fairgrounds** during your visit? Please round responses to the nearest \$5 (i.e., \$5, \$10, \$15, etc.).

13. Food and drink (restaurants, bars, clubs, etc.)
 \$ _____

14. Lodging (hotel, motels, camping, etc.)
 \$ _____

15. Retail stores (grocery stores, hardware stores, department stores, big box stores, etc.)
 \$ _____

16. Other attractions in the Springfield area (like Historic Cavern, etc.) \$ _____

17. Have we missed any major spending?(if yes) Could you describe your other spending? _____
 \$ _____

18. What is the approximate dollars sales you are expecting in this year's fair?

a. Less than \$5,000	b. \$5,000 - \$9,999
c. \$10,000 - \$19,999	d. \$20,000 - \$29,999
e. \$30,000 - \$39,999	f. \$40,000 - \$59,999
g. \$60,000 to \$79,999	h. \$80,000 to \$99,999
i. \$100,000 and above	

19. Was the primary purpose of the fair activities to generate business leads and/or get information to your market?
 _____ Yes _____ No

20. How satisfied are you with the success of your business activities at the fair this year?

_____ Very satisfied	_____ Somewhat satisfied
_____ Neutral	_____ Somewhat unsatisfied
_____ Very unsatisfied	

21. Which of the following describes your line of business at the fair?

- a. Food concessionaire
- b. Merchandise concessionaire
- c. Supplier or service vendor
- d. Commercial exhibitor making sales at the fair
- e. Commercial exhibitor not making sales at the fair
- f. Other (describe) _____

22. What is your business income annually?

a. Less than \$15,000	b. \$15,000 - \$24,999
c. \$25,000 - \$34,999	d. \$35,000 - \$49,999
e. \$50,000 - \$74,999	f. \$75,000 - \$99,999
g. \$100,000 - \$149,999	h. \$150,000 or more

For questions 23 to 25, circle the response that best describes you.

23. What is your age?

a. Under 18	b. 18-25	c. 26-29
d. 30-39	e. 40-49	f. 50-59
g. Over 60		

24. What is your gender?
 a. Male b. Female

25. What is your race?

a. White	b. Black or African American
c. American Indian	d. Asian
e. Hispanic or Latino	f. Mixed race
g. Other: _____	