ECONOMIC IMPACT ANALYSIS

An Extension Community Economics Program

The Economic Impact of Minnesota Vikings Game Attendees: A Playoff Example

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This report is the result of collaboration between the University of Minnesota and Meet Minneapolis, a convention and visitors bureau. The University of Minnesota Extension Center for Community Vitality and Tourism Center provided researchers, input, and resources for the project. Primary researchers were David Nelson and Brigid Tuck of Community Vitality. Ingrid Schneider of the University of Minnesota Tourism Center provided feedback and comments on the survey and process. George Morse and William Lazarus of the Department of Applied Economics peer reviewed the report. Meet Minneapolis provided funding for the research.

Introduction

The Minnesota Vikings is a professional football team that plays on Mall of America Field in downtown Minneapolis. The Minnesota Vikings have played in Minnesota since 1961. They host eight regular season and two preseason home games per year in Minneapolis. The team can also host home games during the postseason. The Vikings have made 26 playoff game appearances since 1961.

A Minnesota Vikings home game draws attendees from the Twin Cities, outstate Minnesota, and from other states. As these attendees make their way to the game, they make expenditures for transportation, food, and lodging. These direct expenditures by game attendees generate secondary "ripples" throughout the economy as the businesses that serve them buy supplies and hire employees. Game attendees that reside outside of the Twin Cities metropolitan area are visitors, bringing "new" spending into the region. These visitor dollars would not necessarily have been spent in the region in the absence of the Minnesota Vikings team. Dollars spent by residents, or those living within the Twin Cities metropolitan area, do not represent "new" spending and therefore are not part of the economic impact of the team.

Meet Minneapolis, the official convention and visitors association of Minneapolis, contracted with the University of Minnesota to measure the economic impact of a Vikings home game. In particular, the Vikings home playoff game played on January 17th, 2010 versus the Dallas Cowboys was selected for analysis. University of Minnesota Extension completed this analysis via the Economic Impact Analysis program which provides a written report and public presentation and discussion of the analysis and results.

To conduct this analysis, the University of Minnesota used an input-output model known as IMPLAN. Input-output models trace the flow of dollars throughout an economy. Using these flows, it is possible to model how an initital change (such as increased spending by visitors) will affect the economy as a whole. IMPLAN has been widely adopted as an input-output model for these types of analyses. The economy used for this analysis is the Twin Cities seven-county metropolitan area.

The following report details how the analysis was performed and the analysis results. A ground-truthing survey was conducted to determine average expenditures by visitors attending the Vikings game. From there, an input-output model for the Twin Cities metro area was developed. Expenditures by visitors were entered into the model and the model reported the total economic impact, including the number of jobs, total sales, and labor income paid as a result of the visitors' spending.

Highlights of the Economic Impact of Minnesota Vikings Game Attendees: A Playoff Example Study

The following statements are summaries of the results of an analysis of the economic impact of Viking game attendees. They pertain to the January 17th, 2010 Vikings playoff game versus the Dallas Cowboys.

- The average visitor spent $230 while in the Twin Cities to attend the Vikings playoff game.
- The total economic impact of an individual playoff game visitor's spending is $359.
- There were 25,160 visitors (non-metro residents) in attendance of the playoff game.
- In total, visitors in the metro as a direct result of the Vikings game spent $5.8 million in restaurants, hotels, and retail stores and on transportation.
- Due to the $5.8 million of spending by Vikings visitors, overall sales (output) in the Twin Cities economy expanded by $9.1 million for the weekend.
- A total of 113 additional jobs were supported during the weekend because of spending by visitors attending the Vikings game.
- Total labor income in the Twin Cities increased by $3.6 million over the weekend as a result of Viking game visitor spending.

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Economic Impact

The purpose of this study is to determine the economic impact of spending by people attending a Minnesota Vikings home playoff game. The playoff game held in Minneapolis on January 17th, 2010 is the focus of this analysis. The Minnesota Vikings played the Dallas Cowboys in a Sunday game at 12 pm. The day following the game was Monday, January 18th which was the federal Martin Luther King Day holiday. The Minnesota Vikings defeated the Dallas Cowboys and advanced to the conference championship the following weekend.

The first step in determining the economic impact of game attendees is to derive an average spending profile. The spending profile will show how a typical game attendee expends his or her dollars while attending a game. Items in the spending profile include: dining, lodging, retail, transportation, parking, entertainment and miscellaneous spending.

To create a spending profile of game attendees, an invitation to an online survey was sent on Tuesday, January 19th, 2010. The survey invitation went to all 1,033 email addresses of non-metro residents that purchased game tickets via Ticketmaster. Two follow-up reminder messages were sent to encourage participation. Of the 1,033 emails sent, 47 did not go through due to email issues (bad addresses, full mailboxes, etc). Thus, the surveyed sample population was comprised of 986 individuals. A total of 172 individuals completed the online questionnaire for a 17 percent response rate.

The purpose of the survey was to gather information on the amount of money spent by game day attendees in the Twin Cities metro area. Survey participants were asked to report how many tickets they purchased, how many people from their household they traveled with, and how many people they traveled with attended the game. They were also asked to report how much their household spent on restaurants, hotels and lodging, retail items, transportation, parking, and entertainment during their stay in the Twin Cities, excluding Vikings tickets and items purchase inside the venue. The survey questions are available in the appendix.

Metro residents that purchased tickets were not surveyed and are not included in this analysis. Economic impacts are generated by the infusion of new money into an economy. Only spending by visitors constitutes new spending. Spending by residents simply represents a recycling of money that already existed in the economy. It does not indicate any economic growth, but rather a transfer of resources within the economy. It is highly likely that money not spent on tickets to a Vikings game would be spent on some other entertainment activity within the region.[1]

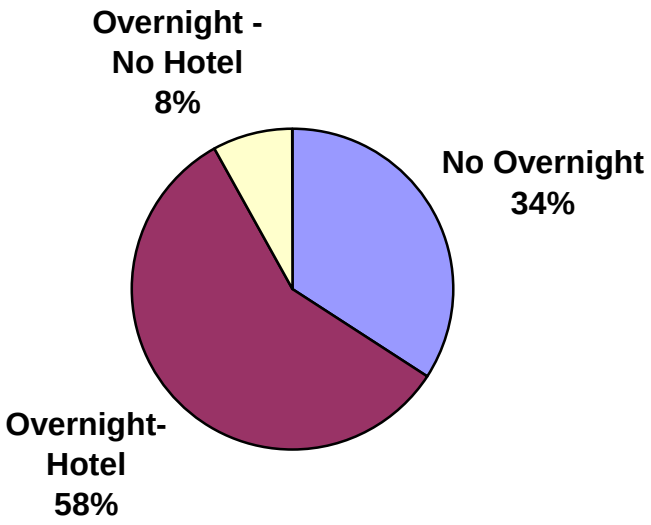
[1] For more on the role of tourists and residents in economic impact studies, the reader may wish to consult "Economic Impact Studies: Instruments for Political Shenanigans?" by John Crompton. A full citation is available in appendix 2.

Expenditures for tickets to the game and for purchases inside the venue were also not included in this analysis. Revenues from ticket sales and sales within the venue accrue as a result of the team and the facility itself. The economic impact of those activities would be attributable to the team and to the facility. They are included in other economic impact studies that have been conducted on behalf of the Vikings organization. In order for this analysis to be fairly considered and compared with those studies, this study focused on activities outside of the venue.

The 172 survey responses were cleaned and analyzed. Survey respondents that indicated they did not attend the game or indicated that the game was not the primary reason for the trip were removed. The average response and the standard deviation were calculated. Responses that were plus or minus three times the standard deviation were removed as outliers. When one respondent had two or more outliers, that respondent's entire response was removed.

Following this procedure, 161 responses were available for analysis. On average, the respondents purchased 2.8 tickets. The respondents also indicated that on average, 2.1 people from their household traveled to the Twin Cities and 2.0 people from their household attended the game. 106, or two-thirds, of the respondents stayed overnight in the metro. Of these, 83 stayed in a hotel. The average length of stay was 1.6 nights.

Figure 1: Did you Overnight in the Metro?



From the 161 responses, an average expenditure per person, or spending profile, was calculated. These averages are shown in Table 1. Since survey participants were asked to report on spending for all members of their household in the travel party, the average expenditure per person includes a measure of the additional spending by household members that did not attend the game. Since the average number of people traveling to the metro from the household is 2.1 and the average number of people from the household attending the game is 2.0, on average, these averages account for 0.1 extra people. These people would not have been in the metro if not for the game (a question was asked to clarify this), so their spending is attributable to the Vikings playoff game.

Table 1: Average Expenditure Per Visiting Game Attendee: Vikings Playoff Game of January 17, 2010

Expenditure Categories	Average Expenditure
Restaurants	$59.90
Lodging	$57.20
Retail	$47.90
Entertainment	$28.60
Transportation	$26.10
Parking	$8.40
Other	$2.50
Total	$230.60

*Estimates by University of Minnesota Extension Center for Community Vitality using survey results.

There are two ways to examine the economic impact of Vikings game attendees and this report will explore both of them. First, one can study the economic impact of a single visitor who attended the game. While this does not show the overall economic impact of the game, it does show the value of a single person attending the game. Second, one can study the economic impact of spending by all the visiting game attendees. This will show the overall economic impact of the game.

Economic Impact of a Single Playoff Game Attendee

The average visitor spent $230 while in town to attend the playoff game on January 17th, 2010, as detailed in Table 1 (excluding Vikings tickets and purchases inside the venue). Of this, a significant portion was spent on retail items and on gasoline purchases.[2] Retail and gas purchases must be margined in the impact analysis. The process of margining involves assigning a dollar value to all the individual components of a retail sale. When a person makes a retail purchase, they pay a price that includes the raw cost of the item, along with

[2] The survey asked game attendees to indicate how much they spent on transportation, including gas and transit. These expenses were all considered to be gasoline expenditures. Certainly, a fraction of these expenditures went to transit (such as the light rail). However, since the researchers had no way to estimate what fraction, they were all considered as gasoline expenditures.

a mark-up for the retailer and a cost for transportation and storage of the product. Typically, the item is not produced locally, so the only portion of the spending that benefits the local economy is the mark-up to the retailer and perhaps a portion of the transportation and storage expenditure. The input-output modeling software used for this analysis has an average breakdown for each of these components and thereby performs margining calculations.

After margining, the average amount of local spending by game day visitors is estimated to be $177. This is the direct impact shown in Table 2. As this $177 is spent in the local economy, businesses must purchase more inputs, in the form of goods and services and labor. Indirect impacts capture the additional spending businesses make to increase inventory to make sales to Vikings game attendees. Induced impacts capture the additional spending by the employees of the businesses that make sales. The total economic impact of one non-metro attendee of a Vikings game is $359.

Table 2: Economic Impact of An Individual Playoff Game Visitor: Vikings Playoff Game of January 17, 2010

	Output
Direct	$177
Indirect	$81
Induced	$101
Total	$359

*Estimates by University of Minnesota Extension Center for Community Vitality using IMPLAN.

Economic Impact of All Attendees of Playoff Game

To measure the economic impact of all attendees of the playoff game, the spending profile for an average individual attending the game was applied to all visitors (non-metro residents) who attended the January 17th playoff game. The email survey was received by 986 individuals. On average, they purchased 2.8 tickets per email address. Therefore, Ticketmaster sales for the playoff game represented 2,760 game attendees. Further, information from the Minnesota Vikings indicates that 56,000 season ticket holders purchased tickets for the game. Of these, 40 percent are non-metro residents. Thus, 22,400 tickets were also sold to non-metro resident, season ticket holders. In sum, it is estimated 25,160 visitors (non-metro residents) were in attendance of the January 17th playoff game.

Total spending by the 25,160 attendees was $5,801,896, as detailed in Table 3. Viking playoff game visitors spent over $1 million each in restaurants, lodging establishments, and retail stores during the weekend.

Table 3: Total Expenditures by Playoff Game Visitors: Vikings Playoff Game of January 17, 2010	
Expenditure Categories	Average Expenditure
Restaurants	$1,507,084
Lodging	$1,439,152
Retail	$1,205,164
Entertainment	$719,576
Transportation	$656,676
Parking	$211,344
Other	$62,900
Total	$5,801,896

*Estimates by University of Minnesota Extension Center for Community Vitality using survey data.

Inclusion of only the retail margins, as explained earlier, brings the $5.8 million of total spending down to $4.5 million. The latter amount represents output (sales) in the local economy and is the starting point for the IMPLAN calculations of indirect and induced output (sales), employment and labor income (see Table 4). In order to produce this $4.5 million in sales, local businesses had to employ 82 people and pay $2.1 million in labor income. As local businesses increased demand for their inputs, another $2 million of output was generated in the economy, along with 13 jobs and $694,000 in labor income. As the labor income was spent by employees, another $2.6 million in output, 18 jobs, and $847,000 of labor income was created.

Therefore, the total economic impact of attendees of the Minnesota Vikings playoff game on January 17th, 2010 was $9.1 million in sales, 113 jobs, and $3.6 million in labor income.

Table 4: Economic Impact of Playoff Game Visitors: Vikings Playoff Game of January 17, 2010				
	Direct	Indirect	Induced	Total
Output	$4,464,397	$2,021,483	$2,566,748	$9,052,628
Employment	82	13	18	113
Labor Income	$2,106,878	$694,409	$847,288	$3,648,574

*Estimates by University of Minnesota Extension Center for Community Vitality using IMPLAN.

In the IMPLAN model, full-time and part-time jobs are given equal weight as employment. The results indicate that 113 jobs were created as a result of spending by visitors to the Vikings game. It gives no indication if these were part- or full-time jobs or if the jobs were temporary. It is likely some of these jobs were created on a part-time basis just to cover the extra activity of the game weekend.

Economic Impact of Playoff Game versus Regular Season Game Attendees

This analysis focused on a specific Vikings game, in particular, a playoff game on a holiday weekend. The results could be different for a regular season home game on a non-holiday weekend. A previous study, conducted by Conventions Sports and Leisure (CSL), found that the average non-metro season ticket holder spent $187 in the Twin Cities while attending a Vikings game. In comparison, our survey found that the average non-metro attendee spent $230 on the playoff game.

Methodology

Special economic models, called input-output models, have been developed to conduct economic impact analysis. There are several input-output models available. One particular input-output model is called IMPLAN (IMpact Analysis for PLANning, Minnesota IMPLAN Group). IMPLAN is widely used by economists for economic impact analysis because it: can measure output and employment impacts; is available on a county-by-county basis; and it is flexible for the user. Due to these reasons, the IMPLAN model was used for this analysis. IMPLAN has some limitations and qualifications, but it is one of the best tools available to economists for input-output modeling. Understanding the IMPLAN tool, its definitions, and its limitations will help ensure the best results from the model.

One of the most critical aspects of understanding economic impact analysis is the distinction between the "local" and "non-local" economy. The local economy is defined as part of the model building process. The local economy, also known as the study area, can be defined by either the group requesting the study or by the analyst. Typically, the study area is a county or a group of counties that share economic linkages.

One main limitation of IMPLAN is its assumption of fixed-prices. IMPLAN assumes that regardless of the size of the economic impact, prices will remain fixed. It is easy to imagine a scenario where if a large economic impact occurs, prices may change. A large enough increase in demand, for instance, could drive suppliers to increase prices. If prices do change, then IMPLAN would overestimate the impacts. However, if the impacts are small relative to the total market for supplies, then the economic impact will not likely change prices and the IMPLAN estimates remain accurate. All efforts have been made in this report to ensure that the economic impact is small relative to the larger market.

There are a few definitions that are essential to understand in order to properly read the results of an IMPLAN analysis. The terms and their definitions are provided below.

<u>Output</u>
Output is measured in dollars and is equivalent to total sales. The output measure can include significant double counting. For example, think of corn. The value of the corn is counted when it is sold to the mill, again when it is sold to the dairy farmer, again as part of the price of fluid milk, and then yet again when it is sold as cheese. The value of the corn is built into the price of each of these items and then the sales of each of these items are added up to get total sales (or output).

<u>Employment</u>
Employment includes full- and part-time workers and is measured in annual average jobs. Total wage and salaried employees as well as the self-employed

are included in employment estimates in IMPLAN. Because employment is measured in jobs and not in dollar values, it tends to be a very stable metric.

Labor Income

Labor income measures the value that is added to the product by the labor component. For example, in the corn example, when the corn is sold, a certain percentage of the sale goes to the farmer for his/her labor. Then when the mill sells the corn as feed to the dairy farmer it includes in the price some markup for its labor costs. When the dairy farmer sells the milk to the cheese manufacturer, he/she includes a value for his/her labor. These individual value increments for labor can be measured. This is labor income. Labor income does not include double counting.

Direct Impact

The direct impact is equivalent to the initial economic change in the economy. In this study, the direct impact is equal to local spending by visitors in town for the Vikings playoff game.

Indirect Impact

The indirect impact is the summation of changes in the local economy that occur due to **spending for inputs** (goods and services) by the industry or industries directly impacted. For instance, if employment in a manufacturing plant increases by 100 jobs, this implies a corresponding increase in output by the plant. As the plant increases output, it must also purchase more of its inputs, such as electricity, steel, and equipment. As it increases its purchases of these items, its suppliers must also increase their production, and so forth. As these ripples move through the economy, they can be captured and measured. Ripples related to the purchase of goods and services are indirect impacts.

Induced Impact

The induced impact is the summation of changes in the local economy that occur due to **spending by labor** by the employees in the industry or industries directly impacted. For instance, if employment in a manufacturing plant increases by 100 jobs, the new employees will have more money to spend to purchase housing, buy groceries, and go out to dinner. As they spend their new income, more activity occurs in the local economy. This can be quantified and is called the induced impact.

Total Impact

The total impact is the summation of the direct, indirect and induced impacts.

Conclusion

The Minnesota Vikings versus Dallas Cowboys playoff game on January 17th, 2010 brought visitors into the Minneapolis-St. Paul (Twin Cities) metropolitan area. These visitors stayed in the Twin Cities and spent money in hotels, restaurants, and retail stores.

A survey of those visitors found that the average Vikings game visitor brought 2.1 members of their household to the Twin Cities as part of their trip and took 2.0 members of their household with them to the game. Thus, in addition to bringing visitors to the game, the Vikings game also attracted visitors to the region who participated in other recreational activities in the metro. The average Vikings game visitor spent $230 during the weekend. The majority of this was spent on lodging, restaurants, and retail items.

In total, Vikings playoff game visitors spent $5.8 million dollars during the weekend of January 17th, 2010. Visitors spent over $1 million each on lodging, restaurants, and retail items. This spending generated additional economic activity in the region as hotels, restaurants, retail establishments and other businesses increased purchases of their inputs: labor and goods. Further, the additional income paid to labor generated more new spending in the economy. Therefore, the total economic impact of spending by game day attendees was $9.1 million. Along with increased output, the spending also helped to employ 113 individuals who were paid $3.6 million in labor income.

Appendix 1: Vikings Playoff Game Survey Questions

1. Did you attend the NFL playoff game on January 17, 2010? Yes No
2. As the primary ticket holder, how many tickets did you buy?
3. How many people from your household traveled to the Metro area?
4. How many people from your household attended the game?
5. Was the game your primary purpose for traveling to the Metro? Yes No
6. Did you overnight in the Metro? Yes No
    a. If yes, did you stay in a hotel? Yes No
    b. If yes, how many nights did you stay?
7. Please estimate total spending by your household on this trip.
        Tips: Round to the nearest dollar
        Include only spending in the Metro
        Do not include purchases made in the Dome
        Do not include ticket purchases
    a. Restaurants (outside the Dome)
    b. Hotel/Lodging
    c. Retail (shopping)
    d. Transportation (gas, public transit, etc)
    e. Parking
    f. Entertainment/Recreation
    g. Other

Appendix 2: Bibliography

Crompton, John L. "Economic Impact Studies: Instruments for Political Shenanigans?". Journal of Travel Research. 2006: 45:67.

Skiem, Craig. (Personal communication to Lester Bagley, October 29, 2009).