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Economic Impact of Big Ten Football Games in Michigan

Commissioned by Michigan's University Research Corridor

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EXECUTIVE SUMMARY

The Big Ten is one of the nation's premier conferences for collegiate sports, and is perhaps best known athletically for its football programs. Two of these programs, the University of Michigan (U-M) and Michigan State University (MSU), attract large crowds to home games in the State of Michigan each fall. Each game draws tens of thousands of fans from throughout the state and from around the country to campuses in Ann Arbor and East Lansing.

We estimate that during the 2007 season Michigan and Michigan State will have total game attendance exceeding 1.37 million. These fans generate significant economic activity in and around the stadium, benefiting not only the local economies, but also the entire state. We estimate that the net economic impact of Big Ten football games in Michigan is more than $177 million by the time the Spartans and Wolverines finish their regular 2007 season schedule. In terms of economic impact on the state, Big Ten football is worth more than three Super Bowls.

This figure is only the *net* economic impact, or the new economic activity directly or indirectly *caused* by Big Ten football game attendance in Michigan. It excludes economic activity that merely displaces other economic activity in the state. For example, we use a substitution effect to exclude food and drink expenditures that in-state attendees would most likely have made in the state even if the games were not played here.

In the following sections of this paper we will discuss how we arrived at these attendance and economic impact estimates. This begins with "Big 10 Football in Michigan" on page 2 where we provide an overview of the 2007 home football season and attendance estimates for U-M and MSU. Our economic impact analysis and findings are then more thoroughly discussed in "Economic Impact of Big Ten Football Game Attendance In Michigan" on page 3. We then compare Big Ten football with the economic impact that Super Bowl XL was estimated to have had on the State of Michigan. There is also a detailed discussion of our economic impact methodology provided beginning at "Methodology" on page 5.

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BIG 10 FOOTBALL IN MICHIGAN

Every fall Ann Arbor and East Lansing play host to Big Ten football games that are played in front of tens of thousands of fan at Michigan Stadium and Spartan Stadium. In its 2007 season, the University of Michigan has eight games in Ann Arbor, and Michigan State University has seven home football games scheduled. See Table 1 below for each team's 2007 home schedule.

TABLE 1. 2007 Big Ten Football Games in Michigan

	Opponent
University of Michigan	
September 1	Appalachian State
September 8	Oregon
September 15	Notre Dame
September 22	Penn State
October 6	Eastern Michigan
October 13	Purdue
October 27	Minnesota
November 17	Ohio State
Michigan State University	
September 1	University of Alabama at Birmingham
September 8	Bowling Green
September 15	Pittsburgh
October 6	Northwestern
October 13	Indiana
November 3	Michigan
November 17	Penn State

Source: University of Michigan and Michigan State University Ticket Offices

Attendance. These games are sure to be well attended, as both schools regularly sell out their games. During the 2006 season the University of Michigan had an average attendance of 110,026 per game, and Michigan State had an average attendance of 70,819 per game. The combined attendance for 2006 Big Ten football games played in Ann Arbor and East Lansing was 1.266 million.

For the 2007 season we assume that average game attendance will be the same as it was in 2006. However, the University of Michigan will play eight home games in 2007, as opposed to seven in 2006, thus total 2007 game attendance is estimated to exceed the 2006 level and reach a total of 1.376 million. This will include fans from across the state, students at the universities, and many traveling from outside of Michigan to attend the games (see Table 2 on page 3).

TABLE 2. 2007 Attendance Estimate: Big Ten Football Game Attendance in Michigan

Attendance by In-State Fans (non-student)	916,885
Attendance by In-State Fans (student)	279,880
Attendance by Out-of-State Fans	179,176
Total:	1,375,941

Source: Anderson Economic Group, LLC

The "type of attendee" (in-state, out-of-state, student) distinction is important as our economic impact measures only *net new* economic activity—that is, economic activity and direct expenditures that would not have occurred in Michigan without these games being played here. Attendees from out-of-state will of course have a larger economic impact as they are bringing in more dollars than otherwise would have been spent in Michigan. They are also likely to spend more than attendees from within the state, and well more than student attendees, as we will discuss further in the next section, "Economic Impact of Big Ten Football Game Attendance In Michigan."

ECONOMIC IMPACT OF BIG TEN FOOTBALL GAME ATTENDANCE IN MICHIGAN

We estimate that attendance at U-M and MSU home football games will have a net economic impact of more than $177 million on the state in 2007. This economic impact estimate includes only spending by those attending the games, and does not account for other beneficial but harder to measure economic activity, such as apparel licensing, spending by those not attending the games, and revenue from television rights.

TABLE 3. Summary of Big Ten Football 2007 Game Attendance Net Economic Impact in Michigan

In-State (non-student) Attendee Expenditure Impacts	
Direct Economic Impact	$26,765,650
Indirect Economic Impact	$26,749,591
In-State (student) Attendee Expenditure Impacts	
Direct Economic Impact	$1,794,425
Indirect Economic Impact	$1,793,348
Out-of-State Attendee Expenditure Impacts	
Direct Economic Impact	$60,160,664
Indirect Economic Impact	$60,124,567
Total Net Economic Impact From All Attendee Expenditures	**$177,388,244**

Source: Anderson Economic Group, LLC

Direct Economic Impacts. Of the total $177 million in economic impact, just over half ($88.7 million) is a direct economic impact—that is, the expenditures made by game attendees on tickets, parking, concessions, food and drink before and after the

game, accommodations, and other goods and services in the state, net of any such expenditures that they would have made here even if not for the football games. We were careful to take into account game attendees that travel together, sharing hotel, gas, and other travel costs. Any spending by attendees that would likely have occurred in the state anyway is considered substituted economic activity. For example, we assume that 80 percent of expenditures by student attendees and 75 percent by in-state attendees is money that they would have spent elsewhere in Michigan even if they not been able to attend a MSU or U-M football game. Attendees from out-of-state, however, are much less likely to have spent their money here if it were not for a MSU of U-M football game, and we assume only a 5 percent substitution effect for them.

This is further detailed in "Methodology" on page 5 and in the appendix tables.

Indirect Economic Impacts. The remaining $88.6 million of the $177 million total economic impact comes from economic activity that is stimulated by the direct expenditures made by game attendees. This is sometimes thought of as a ripple effect, whereby the direct expenditures by game attendees contribute to additional rounds of spending. For example, when an attendee from Chicago spends $50 on a ticket to a Michigan State football game, he is helping to support employees in the ticket office, as well as those in the print shop where the ticket is made. These employees take some share of the ticket sale in the form of salary, and make additional expenditures, most of which occur in Michigan. This continues as these employees spend their money at local golf courses, which helps to pay a greens keeper, who also lives and spends in Michigan.

To estimate the amount of indirect economic activity attributable to direct expenditures we use a RIMS II economic multiplier supplied by the U.S. Bureau of Economic Analysis. Specifically, the multiplier prescribed for "recreation" activities in Michigan is 1.9994, which implies that for every $1 spent on recreation there is an additional $0.9994 of indirect economic activity generated.

This is further detailed in "Methodology" on page 5 and in the appendix tables.

COMPARISON WITH SUPER BOWL XL

To gauge the significance of Big Ten football's economic impact on the state of Michigan, we compared it to another major football event recently held in Michigan—Super Bowl XL. On Sunday, February 5, 2006, the Pittsburgh Steelers played the Seattle Seahawks at Ford Field in Detroit, Michigan. Prior to the event, a good deal of publicity was given to the likely economic benefits Super Bowl XL would bring to Metro Detroit.

Using the same conservative methodology applied in this paper, we estimated the impact of the Super Bowl on Metro Detroit to be almost $50 million.[1] Our original analysis focused on the Detroit Metro area only. To provide an apples-to-apples comparison with the Big Ten football economic impact, we have adjusted some of the parameters in our original Super Bowl model to capture the impact on the state of Michigan as a whole.

This analysis shows that Big Ten football in Michigan has triple the net economic impact of Super Bowl XL. We estimate that the statewide economic impact of Super Bowl XL is $56.2 million, while Big Ten football in 2007 will likely result in an economic impact of over $177 million. The Super Bowl is a large, one-time event. It draws tens of thousands of more fans from outside Michigan than one Big Ten football game draws. However, the fifteen games played in 2007 (each with an economic impact of over $11.8 million per game) compared to the one Super Bowl account for the larger overall economic impact of Big Ten football in Michigan, as shown in Table 4 below.

TABLE 4. Comparison of 2007 Big Ten Football with Super Bowl XL

	Super Bowl XL (2006)	Big Ten Football (2007 Season)
Attendees		
In-state Attendees	10,500	1,196,765
Out-of-State Attendees	59,500	179,176
Expenditures		
Average Expenditure Per Out-of-State Attendee	$386	$205
Average Ticket Price (non-student)	$300	$46
Number of Games	1	15
Gross Related Expenditures[a]	$64.4 million	$358.6 million
Net Economic Impact	$56.2 million	$177.4 million
Net Economic Impact Per Game	$56.2 million	$11.8 million

Source: Anderson Economic Group, LLC

a. We define *gross related expenditures* as all direct and indirect expenditures related to the event. This figure does not exclude economic activity that displaces other economic activity in the state, and in this way differs from *net economic impact*.

METHODOLOGY

AEG has completed a number of other economic impact assessments associated with sporting events, including the 2006 Super Bowl, the 2004 and 2006 Ryder Cups, and 2006 Detroit Tigers' playoff baseball games. The basis for our methodology is stated in the book *Business Economics and Finance* written by Patrick Anderson, principal and CEO for Anderson Economic Group.[2]

1. See Scott D. Watkins and Patrick L. Anderson, *Likely Economic Impact of Super Bowl XL*, AEG Working Paper 2006-10, 2006 available at: http://www.AndersonEconomicGroup.com. We note that there are publicized claims of the "economic impact" of a Super Bowl that exceed $200 million, However, as discussed in the working paper, such claims have never been documented using a reasonable methodology, and appear to be based on a sum of all expenditures related to the event instead of measuring the net economic impact, which is what our analyses provide.
2. Patrick L. Anderson, *Business Economics and Finance,* CRC Press, 2004.

Unfortunately, many "economic impact" reports do not follow a consistent methodology or a conservative approach, and are done largely for public relations purposes. Our analysis uses a consistent, conservative methodology that avoids double-counting of costs or benefits, properly considers the shifting and substitution of economic activity, and does not unnecessarily inflate the impact by using excessive multipliers.

Our analysis of the economic impact of attendees at Big Ten football games in Michigan follows a careful methodology. There are two primary components to this analysis: (1) an analysis of game attendees and (2) an analysis of expenditures by these attendees. The expenditures analysis is further broken down by attendee type—student attendee, in-state attendee, and out-of-state attendee. These expenditures are then multiplied by attendance figures to obtain a direct economic impact estimate. From this we account for substitution effects and economic multipliers to estimate an indirect economic impact, which is finally added to the direct economic impact estimate to determine an overall economic impact.

The assumptions used in the above methodology include:

Event Attendance

1. Average home game attendance was estimated based on actual 2006 ticket sales.[3] At the University of Michigan, average attendance for 8 home games is estimated to be 110,026, while at Michigan State University the average attendance for 7 home games is estimated to be 70,819.
2. For a home game played against an out-of-state opponent at the University of Michigan, 85 percent of attendees are assumed to be from within Michigan. In-state attendees for a home game played against an out-of-state opponent at Michigan State University account for 88 percent of attendance. However, for a game played against another school from within Michigan, in state attendance for both schools rises to 93 percent. Total attendance by in-state fans, excluding students, is 916,885.[4]
3. Out-of-state attendees account for 15 percent of those at a University of Michigan football game against an out-of-state opponent. We assume 12 percent of attendees are from outside Michigan at a similar game at MSU. Total attendance by out-of-state fans is 179,176.
4. Student attendance is separated from non-student, in-state and out-of-state attendance. Students account for an average of 279,880 fans in attendance per game.[5]

Out-of-State Attendee Expenditures

1. Out-of-state attendees are estimated to spend an average of $55 per day on food and drink, $30 on shopping or other things in the area, $45 on parking, gasoline, or other

3. Source: 2006 NCAA attendance report <http://web1.ncaa.org/d1mfb/Internet/attendance/IA_AVGATTENDANCE.pdf>
4. Assumption based on Michigan State University out-of-state season ticket sales data and University of Michigan athletic department estimates of visiting team attendance figures.
5. Student ticket information provided by ticket offices at University of Michigan and Michigan State University.

auto in the area, and $46 for a game ticket Also, 70 percent of attendees from out of state are assumed to stay at a hotel or some other paid lodging with an average room occupancy of 1.5, and an average rate of $160 per night.[6]

2. We assume that 5 percent of the spending by out-of-state attendees substitutes for spending that would have been made in Michigan even if it were not for these football games. Thus, only 95% of all expenditures for out-of-state attendees creates a direct economic impact.
3. To determine the indirect economic impact generated by the direct spending of out-of-state Big 10 football game attendees in Michigan we apply an economic multiplier of 0.9994.[7]

In-State Attendee Expenditures

1. In-state attendees spend an average of $30 per day on food and drink, and $15 on parking, gasoline or other auto in the area. Only 5 percent of these fans choose to pay for lodging or accommodation in the area at an average of $160 per day. Each of these fans also stays in the area for 1.5 days.[8] The average ticket price is $46.[9]
2. We assume that 75 percent of expenditures would occur in Michigan even without attendance at one of these games. This translates to an assumed 75 percent substitution effect.
3. An economic multiplier of 0.9994 was also used for the indirect impact of in-state attendee expenditures.

Student Attendee Expenditures

1. We assume that student attendees spend an average of $10 for food and drink at, before, and after the game, and that they do not require parking, lodging, or other expenditures given their proximity to the event venues.
2. The average student ticket price is $22.[10]
3. We assume that 80 percent of the money spent by students would still be put into the economy due to student expenditures on other forms of entertainment. This translates to an assumed 80 percent substitution effect.
4. An economic multiplier of 0.9994 was also used for student attendees.

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6. A 2000 study from the Michigan State University Department of Park Recreation & Tourism Resources pegged average daily expenditures of visitors in Greater Lansing at $197 per day, and a 2002 study from the same group pegged average daily expenditures of visitors in Washtenaw County, Michigan (Ann Arbor) at $214 per day. Ticket price is based on a weighted average of non-student ticket prices for Michigan State University and University of Michigan.
7. Source: BLS RIMS II Economic Multipliers for Michigan's "amusements, gambling, and recreation" industry.
8. Studies from the Michigan State University Department of Park Recreation & Tourism Resources.
9. Based on a weighted average of ticket prices for Michigan State University and University of Michigan student tickets.
10. Based on a weighted average of ticket prices for Michigan State University and University of Michigan student tickets.

Appendix Table 1: Football Game Attendance Analysis

2007 Game Attendance

U-M Average Home Attendence	110,026	
Home Games v. Out-of-State Opponent	7	
Share of attendees from in state	85%	
Home Games v. In-State Opponent	1	
Share of attendees from in state	93%	
Student Ticket Attendees per Game	23,610	
Subtotal: U-M In State Attendence (non-student)		568,099
Subtotal: U-M In State Attendence (student)		188,880
Subtotal: U-M Out of State Attendence		123,229
MSU Average Home Attendence	70,819	
Home Games v. Out-of-State Opponent	6	
Share of attendees from in state	88%	
Home Games v. In-State Opponent	1	
Share of attendees from in state	93%	
Student Ticket Attendees per Game	13,000	
Subtotal: MSU In State Attendence (non-student)		348,786
Subtotal: MSU In State Attendence (student)		91,000
Subtotal: MSU Out of State Attendence		55,947
Total Attendance by In-State Fans (non-student)		**916,885**
Total Attendance by In-State Fans (student)		**279,880**
Total Attendance by Out-of-State Fans		**179,176**
TOTAL 2007 ATTENDANCE		**1,375,941**

Appendix Table 2. Out-of-State Attendee Expenditure and Economic Impact Analysis

Expenditures per day			
Food and drink		$	55
Shopping and other spending in area		$	30
Gasoline, parking, other auto in-area		$	45
Lodging, average price per night	$ 160.00		
Share paying for accommodations	70%		
Average room occupancy	1.5		
Average lodging expense		$	75
Total visitor expenditures per day		$	205
Average length of stay (days and nights)	1.5		
Subtotal: Non-ticket Expenditures		$	55,007,072
Average Ticket Price	$ 46		
Subtotal: Ticket Expenditures		$	8,319,942
Total Out-of-State Attendee Expenditures		$	63,327,014
Substitued Economic Activity	5%		
Direct Economic Impact		**$**	**60,160,664**
Economic Multiplier	0.9994		
Indirect Economic Impact		**$**	**60,124,567**
Economic Impact from Out-of-State Attendees		**$**	**120,285,231**
note: gross related expenditures (direct and indirect)		*$*	*126,616,033*

Appendix Table 3. In-State Attendee Expenditure and Economic Impact Analysis

Expenditures per day			
Food and drink		$	30
Shopping and other spending in area		$	15
Gasoline, parking, other auto in-area		$	20
Lodging, average price per night	$ 160.00		
Share paying for accommodations	5%		
Average room occupancy	1.5		
Average lodging expense		$	5
Total visitor expenditures per day		$	70
Average length of stay (days and nights)	1		
Subtotal: Non-ticket Expenditures		$	64,487,569
Average Ticket Price	$ 46		
Subtotal: Ticket Expenditures		$	42,575,032
Total In-State Attendee Expenditures		$	107,062,601
Substitued Economic Activity	75%		
Direct Economic Impact		**$**	**26,765,650**
Economic Multiplier	0.9994		
Indirect Economic Impact		**$**	**26,749,591**
Economic Impact from In-State Attendees (non-student)		**$**	**53,515,241**
note: gross related expenditures (direct and indirect)		*$*	*214,060,964*

Appendix Table 4. Student Attendee Expenditure and Economic Impact Analysis

Food and drink		$	10
Shopping and other spending in area		$	-
Gasoline, parking, other auto in-area		$	-
Lodging, average price per night	$ 160.00		
Share paying for accommodations	0%		
Average room occupancy	1.5		
Average lodging expense		$	-
Total visitor expenditures per day		$	10
Average length of stay (days and nights)	1		
Subtotal: Non-ticket Expenditures		$	2,798,800
Average Ticket Price	$ 22		
Subtotal: Ticket Expenditures		$	6,173,323
Total Student Attendee Expenditures		$	8,972,123
Substitued Economic Activity	80%		
Direct Economic Impact		**$**	**1,794,425**
Economic Multiplier	0.9994		
Indirect Economic Impact		**$**	**1,793,348**
Economic Impact from Student Attendees		**$**	**3,587,772**
note: gross related expenditures (direct and indirect)		*$*	*17,938,862*

ABOUT ANDERSON ECONOMIC GROUP

Anderson Economic Group LLC is a research and consulting firm with expertise in economics, financial valuation, market research, and land use economics.

AEG's past clients include:

- Governments, such as the states of Michigan, North Carolina, and Wisconsin; the cities of Detroit, MI, Cincinnati, OH, Norfolk, VA, and Fort Wayne, IN; counties such as Oakland County, Michigan, and Collier County, Florida; and authorities such as the Detroit-Wayne County Port Authority.
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- Nonprofit organizations, such as Michigan State University, Wayne State University, Van Andel Institute, the Michigan Manufacturers Association, International Mass Retailers Association, American Automobile Manufacturers Association, Automation Alley, and the Michigan Chamber of Commerce.

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Among the clients for whom he has worked are the Michigan Manufacturers Association, Michigan State University, Wayne State University, Michigan Chamber of Commerce, Michigan Retailers Association, Collier County, Florida; and the West Virginia High Technology Consortium Foundation. Recent reports by Mr. Watkins include: "Economic Impacts from 2006 Detroit Tigers' Game Attendance," "Automation Alley's Second Annual Technology Industry Report: Driving Southeast Michigan Forward," and "Benchmarking for Success: Education Performance among the American States." He has also provided testimony to the Michigan House of Representatives on matters of education finance, and is the editor of the book The State Economic Handbook 2008, as published by Palgrave Macmillan.

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Patrick L. Anderson. Mr. Anderson founded Anderson Economic Group in 1996, and serves as Principal and CEO of the company. In this role he has successfully directed projects for state governments, cities, counties, nonprofit organizations, and corporations in over half of the United States.

Mr. Anderson has written over ninety articles published in periodicals such as *The Wall Street Journal, The Detroit News, The Detroit Free Press, American Outlook, Crain's Detroit Business*; and monographs published by the Mackinac Center for Public Policy, The Economic Enterprise Foundation of Detroit, the Ethan Allen Institute in Vermont, and the Heartland Institute of Chicago. His book *Business Economics and Finance* was published by CRC Press in August 2004. His paper "Pocketbook Issues and Presidency," co-authored with Ilhan Geckil, was awarded the 2004 Mennis award for the best submitted paper to *Business Economics* by the National Association of Business Economics.

Mr. Anderson is a graduate of the University of Michigan, where he earned a Masters degree in Public Policy and a Bachelors degree in Political Science. He has been a member of the National Association for Business Economics since 1983.

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