



Economic Impact Analysis of Virginia Tech Football

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EXECUTIVE SUMMARY

This report estimates the economic contributions of Virginia Tech football to the New River Valley MSA and the Roanoke Valley MSA (NRRV). Virginia Tech football contributes economically to the NRRV in two ways. First, the Virginia Tech Athletics Department collects football revenue from outside the NRRV and spends it inside the region for its operations. Second, Virginia Tech football attracts visitors, who might not otherwise come to the region, and their spending puts new money in the regional economy.

As the table below summarizes, analysis of FY2014-2015 survey and operational data indicates that Virginia Tech football facilitates \$46.9 million of annual spending in the NRRV, from which 189 jobs are created or sustained annually and \$11 million funnels into households through workers' wages. As this money circulates within the NRRV economy through business and employee spending, additional money and jobs are created (indirect and induced effects), adding up to more than \$69 million and 289 jobs in the NRRV as a result of Virginia Tech football.

Combined Economic Impact of Virginia Tech Athletics Football Operations and Visiting Fans (FY14-FY15)			
	Economic Impact	Permanent Annual Employment	Household Earning
Direct	\$46,880,795	189	\$11,045,970
Indirect and Induced	\$22,226,458	100	\$10,294,252
Total	\$69,107,253	289	\$21,340,222

Other significant findings include:

- Since the 2000 economic impact analysis, nonlocal fan impact tripled due in part to 13,000 more seats in Lane Stadium, a larger percentage of nonlocal fans per game and the addition of a seventh home game. Nonlocals spent \$21 million, leading to almost \$35 million in the region due to fan spending.
- A total \$25.9 million was spent locally by Virginia Tech Athletics thanks to football revenue. This spending generated additional economic activity in the NRRV, resulting in \$34 million that would not exist in the region without Virginia Tech football.
- As many as 4,700 properties in the region may be owned by out-of-region football fans, primarily season ticketholders. Realtors estimate about half of those properties, or 2,350 homes were bought with the expressed intent to attend Virginia Tech football home games.
- Approximately 74 percent of restaurants, retail and hotel businesses in the NRRV say they are positively affected by Virginia Tech football, with on average 15-30 percent revenue increases during home game weekends
- Other sources of revenue not added to the economic impact numbers above included visitor spending on parking to schools, churches and nonprofit groups. These participating groups raised anywhere from \$500-\$12,000 each during the season.
- Why do fans keep coming to see Virginia Tech football and spending money in the region? Ninety-four percent of football fans said they were most satisfied with the overall game day atmosphere, which includes cheering for the Hokies, the energy and camaraderie among fans as well as the Hokie traditions like Enter Sandman and Virginia Tech's two marching bands.

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INTRODUCTION

As of 2014 Virginia Tech has played football for 122 seasons, has a record of 712-451-46 in 1,209 games played, and has competed in 28 bowl games.¹ The football program's development has mirrored the growth of the university, spawning traditions inseparable from the Tech experience, from the signature maroon and orange colors to the HokieBird mascot. The presence and popularity of football has also allowed many other University athletic programs to flourish. The influence of Virginia Tech football goes beyond the Blacksburg campus as well. Since 1892, football has helped attract visitors and Hokie alumni back to the New River and Roanoke Valleys. During each home game weekend, hotels, businesses and other organizations prepare themselves for an influx of over 25,000 visiting football fans and new money spent in the regional economy.²

This report explores the economic impact of these events and other impacts associated with Virginia Tech football to gain a deeper understanding of the program's influence on the New River and Roanoke Valley (NRRV) economies. Economic impact in this context is defined as total dollars generated within the NRRV region as a result of Virginia Tech football. After the spectacular 1999 football season in which the Hokies finished number two in both national polls,³ the Virginia Tech Department of Agriculture and Applied Economics conducted an economic impact analysis of Virginia Tech football within a larger analysis of the university. The 2000 study found football visitors to the NRRV spent approximately \$7.6 million during the season.⁴ It has been fourteen years since the previous analysis, and Virginia Tech football has continued to thrive and grow, for instance multiple stadium renovations since 2000 that added over 13,000 seats.

In an effort to update the previous 2000 study number and provide a more in-depth understanding of the impact of football operations, the Virginia Tech Athletics Department and University Relations engaged the Virginia Tech Office of Economic Development (OED) to conduct an economic impact study of the 2014 football season. This report provides a brief overview of economic impact analyses dealing with college football, summarizes the methodology used to conduct this study and then reviews Virginia Tech football's overall annual economic impact to the New River and Roanoke Valleys (NRRV).

A REVIEW OF FOOTBALL AND SPORTS-RELATED ECONOMIC IMPACT STUDIES

Collegiate football is one of the biggest sports in the country in terms of both yearly revenue and attendance. In 2013, almost fifty million people attended a college football game,⁵ producing almost \$913 million in revenue.⁶ However, the effects of college football go beyond the value of entertainment as the game, its fans and culture affect communities socially and economically. College football programs influence their universities and surrounding communities in many ways, both tangible and intangible. Proponents of college football argue that football programs can help create a sense of community among

¹ Virginia Tech Athletics (2014) "From the Beginning ... To the Beamer Era." Virginia Tech *hokiesports.com*: The official site of the Virginia Tech Hokies. <http://www.hokiesports.com/football/history.html>

² This number is based on the analysis from this report

³ Virginia Tech Athletics (2014) "From the Beginning ... To the Beamer Era." Virginia Tech *hokiesports.com*: The official site of the Virginia Tech Hokies. <http://www.hokiesports.com/football/history.html>

⁴ Beddow, J., J. Alwang, G. Hazarika, B. Mills, J. Ghosh (June, 2000). The Economic Impact of Virginia Tech on the Local Economy. Virginia Tech.

⁵ Johnson, Gary. (2014, February 8) Football Attendance Continues to Set Records for Conference and Schools. NCAA.com. Retrieved from <http://www.ncaa.com/news/football/article/2013-02-07/ncaa-football-attendance-continues-set-records-conferences-and-scho>

⁶ Berkowitz, Steve. (2014, March 20) NCAA has net assets of \$627 million, says records. USA Today.

<http://www.usatoday.com/story/sports/college/2014/03/20/ncaa-expenses-revenue-money-mark-emmert/6651133/>

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university students, foster pride and confidence among individuals as well as serve as “a catalyst for student involvement, student interaction, and overall student integration.”⁷ In addition, college football culture, its traditions and the effects of its media presence can attract new students with an interest in athletics to the university.⁸ College football can also serve as a way to bridge the “town and gown” gap by connecting local residents to university students, and increase residents’ well-being and connection to the university and the community.⁹

Many athletics programs also strive to quantify their economic impact on surrounding communities. A comparative analysis of several economic impact reports dealing with amateur sports concluded that the most significant factors to consider in sports-related economic analyses are the number and origin of nonlocal visitors, the proximity of teams involved, visitor spending patterns, length of stay, and operational and organizational expenditures by nonlocal entities affiliated with events.¹⁰ While some studies have shown limited economic impact of college football teams on surrounding communities,¹¹ a 2006 study noted a statistically significant increase in taxable sales due to college football games in smaller college towns hosting games. This finding suggests while there may be little significant impact of college football for larger metropolitan areas, smaller metropolitan areas can benefit.¹²

Many noticeable errors can occur during these studies, however. The most prevalent mistakes include ignoring the secondary costs of college football games (e.g. increased crime and traffic congestion), using inappropriate estimates based on outside data not comparable to the regional context, including resident spending and money spent in the stadium in expenditure measures, and overestimating the number of jobs created in the economic development model when college football is a seasonal sport and most often only adds temporary, part-time work or increased hours for existing workers in communities.¹³ Overall, while no economic impact report is perfect, studies that incorporate research-based best practices can be useful tools in approximating the value of college football to local communities.

⁷ Jones, W. (2010). Football and Freshmen Retention: Examining the Impact of College Football on Institutional Retention Rates. *J. College Student Retention*. 11. Pg. 554.

⁸ Chang, S. & Canode, S. (2002). Economic Impact of a Future College Football Program. *Journal of Sport Management*. 16. 239-246; Smith, R (2009). “College Football and Student Quality: An Advertising Effect or Culture and Tradition?” *American Journal of Economics and Sociology*. 68. 553-579.

⁹ Katz, M. & Clopton, A. (2014) Town & Gown... & Jerseys? NCAA Division III Athletics as Social Anchors *Journal of Issue in Intercollegiate Athletics*, 7, 285-306; Satterfield, J. & M. Godfrey (Jan 2011) “The University of Nebraska-Lincoln Football: A Metaphorical, Symbolic and Ritualistic Community Event.” *Forum: Qualitative Social Research* 12(1); Wann, D.L. (2006) “Understanding the Positive Social Psychological Benefits of Sport Team Identification: The Team Identification—Social Psychological Health Model.” *Group Dynamics: Theory, Research and Practice*. 4. 272-296.

¹⁰ Mondello, M., & Rische, P. (2004). Comparative Economic Impact Analyses: Differences across Cities, Events, and Demographics. *Economic Development Quarterly*. 18(4). 331-342.

¹¹ Baade, R., Baumann, R., & Matheson, V. (2008). Assessing the Economic Impact of College Football Games on Local Economies. *Journal of Sports Economics*, 9(6), 628-643; Baade, R., Baumann, R., & Matheson, V. (2011). Big Men on Campus: Estimating the Economic Impact of College Sports on Local Economies, *Regional Studies*, 45(3), 371-380.

¹² Baade, R., Baumann, R., & Matheson, V. (2008). Assessing the Economic Impact of College Football Games on Local Economies. *Journal of Sports Economics*, 9(6), 628-643; Coates, D. and Depken C. (2006) “Mega-events: Is the Texas-Baylor game to Waco what the Super Bowl is the Houston?” (International Association of Sports Economists Working Paper Series No. 06-06). Limoges, France: International Association of Sports Economists.

¹³ Baade, R, Baumann R., and Matheson V (2005). “Selling the Big Game: Estimating the Economic Impact of Mega-Events through Taxable Sales.” Department of Economics Holy Cross Working Paper.; Center for Business and Economic Research. (2012). University of Arkansas Athletics Economic Impact. Retrieved from http://cber.uark.edu/Economic_Impact_of_University_of_Arkansas_Athletics_Final.pdf; Crompton, J. (1995) Economic Impact Analysis of Sport Facilities and Events: Eleven Sources of Misapplication. *Journal of Sports Management*. 9. 14-35; Pearson, B. (2001). The Economic Impact of the 2000 NC State Football Season on Wake County, NC. Master Thesis. North Carolina State University.

DATA AND METHODOLOGY

An economic impact analysis examines a specific event, new organization or activity, or object of study such as a trail, convention center or sports arena. The analysis accounts for money flowing into a defined region, from outside the region, due to the study's subject. The analysis then determines how the diffusion of that money affects business revenues, household income and employment in the region, while accounting for leakages due to ensuing spending outside of the region. This current analysis focuses on the 2014-2015 Virginia Tech football season, the effects of visitor spending during home game weekends and annual effects of spending by the Virginia Tech Athletics Department due to out-of-region football revenue. The study area into which money is flowing has been limited to the New River Valley MSA and the Roanoke Valley MSA, as the two regions are geographically adjacent and increasingly connected economically (See Figure 1).¹⁴

Figure 1. New River and Roanoke Valley Study Area



Data collection and analysis were split into several key parts including:

- A football fan survey to assess average spending per fan, spending habits and insight into game experiences;
- A breakdown of the Virginia Tech football budget, both incoming revenues from outside the study area and spending within the study area;
- A business survey sent to assess the industry perspective of Virginia Tech football.

Note this data is locally-sourced and contextualized to the region.

The study first assesses the direct spending by the Virginia Tech Athletics Department in the New River and Roanoke Valley region (NRRV), and then the estimated spending habits of nonlocal football fans. These estimates are considered the direct effects of Virginia Tech football, and will then be analyzed using Regional Input-Output Multipliers (RIMS II) from the US Bureau of Economic Analysis (BEA) to estimate the total economic impact, described as combined direct, indirect and induced effects:

- The direct effect on suppliers who meet the incremental demand for goods and services by visitors/operations,
- The indirect effect created when direct suppliers purchase inputs from other firms who themselves purchase further inputs and so on, and
- The induced effects, which arise when the beneficiaries (households) of the direct and indirect expenditures spend their increased incomes on consumer goods and services.¹⁵

Finally, this study will provide a brief overview of the fan input concerning the game experience as well as businesses perspectives on the impact of Virginia Tech football in the area.

Nonlocal Football Fan Spending

Through online surveys to season ticketholders¹⁶ and in-person surveys at four home game tailgates spread out across the season, OED collected data to assess the spending habits of Virginia Tech football

¹⁴ The New River and Roanoke Valley MSAs (NRRV) are comprised of Giles, Pulaski, Montgomery, Roanoke, Botetourt, Franklin and Craig counties and the independent cities of Radford, Roanoke and Salem. Football attendees living outside that region are called "nonlocal" or "visiting" fans.

¹⁵ Lee, M. (2006) "Analytical Reflections on the Economic Impact Assessment of Conventions and Special Events." *Journal of Convention & Event Tourism* 8(3): 71-85.

¹⁶ Virginia Tech Athletics maintains an email listserv of all season ticketholders. This database was used to distribute emails inviting fans to participate in the online survey.

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fans. Table 1 shows the attendance per game, the survey samples taken and the number of responses. Survey samples pertain to the online surveys for which Virginia Tech Athletics sent survey request emails to a sampling of the most recent game's attendees. No attendee was surveyed for multiple games. Actual responses were surveys that were filled out online and during tailgates. The response rate for online surveys was 37 percent. The total response rate for online and intercept surveys was 40 percent, with 67 percent of responses coming from nonlocal visitors to the NRRV region. Average group size for game goers was three people, which matches ticket sales averages of three tickets per purchase.

	Game Day Attendance	Survey Sample (# Distributed)			Actual Responses		
		Online (post-game)	Game Day In-person	Total	Local	Nonlocal	Total
William & Mary	55,920	526	--	526	66	109	175
East Carolina	58,110	818	90	908	123	259	382
Georgia Tech	58,680	962	--	962	105	215	320
Western Michigan	55,852	756	81	837	121	206	327
Miami	59,837	885	46	931	215	452	667
Boston College	56,078	424	--	424			
UVA	58,068	718	78	796	89	212	301
TOTAL	402,545	5,089	295	5,384	719	1,453	2,172¹⁷

Source: Virginia Tech Athletics and OED Fan Survey

Survey responses were distributed into one of several categories: local/nonlocal season ticketholders, local/nonlocal single game goers, student ticketholders and visiting team fans. With the aid of Virginia Tech Athletics, OED outlined a ticketholder breakdown by game to better understand the characteristics and economic impact of these ticketholder groups. Table 2 illustrates the ticketholder breakdown by game and average total spending per person.¹⁸ Nonlocals from outside the NRRV are distinguished from locals as their spending in the region is foundational to the economic impact analysis.

	Avg. Tickets per Game	% Total Attendance	Total Home Game Attendance	Avg. Total Spending per Person
Nonlocal Season Ticketholder	25,740	38.9%	156,440	\$109
Nonlocal Single Game Goer	1,802	2.7%	10,954	\$139
Visiting Team Fan	3,225	4.9%	19,601	\$91
Local Season Ticketholder	13,260	20.0%	80,590	\$70
Local Single Game Goer	4,206	6.3%	25,560	\$40
Student	17,000	25.7%	103,321	--
Administration Tickets	1,000	1.5%	6,078	--
TOTAL	66,233	100%	402,545	\$110 (nonlocal)

Source: VT Athletics ticket breakdown averages and OED Fan Survey

¹⁷ This total may also be broken down by ticketholder response type – season ticketholders: 1,943 (1,297 nonlocal); single game ticketholders: 157 (130 nonlocal); visiting team fans: 26; and 46 student/faculty/staff responses.

¹⁸ Average total spending was based upon survey responses, and divided by average group size, 3, to determine a per person average spending total. For the ticketholder breakdown, "Administration Tickets" refers to tickets set aside by Virginia Tech Athletics or purchased by different university offices to bring guests to the game. OED counts these tickets as local, assuming little spending is done by these guests and/or football is not their primary reason for being in the area. With a sufficient sample size of season ticketholders, local/nonlocal proportions—66 percent (±2.7) being nonlocal—were estimated based on survey responses (99 percent confidence level). Virginia Tech Athletic records support this estimate. With an insufficient sample size of single game ticketholders, OED was conservative and used local/nonlocal estimates from the 2000 economic impact study, 30 percent nonlocal.

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Based on survey responses and discussions with Virginia Tech Athletics, OED estimated 46 percent or about 187,000 ticketholders were from outside the New River and Roanoke Valleys. In descending order, most in-state nonlocal fans came from the Richmond MSA, Northern Virginia, Hampton Roads and Southwest Virginia. Approximately 24 percent of nonlocal survey respondents were from outside Virginia. Half of those were from North Carolina, primarily the Charlotte MSA, Raleigh-Durham-Chapel Hill MSA, and the Greensboro-Winston-Salem-High Point MSA (in descending order).

The primary reason for coming to the NRRV for 99 percent of these visitors was Virginia Tech football, with only a few citing their principal desire was to see friends, family or the campus. When asked if they would come to the region during Fall 2014 if there were no football, 46 percent said they would not or were unsure. The main factors nonlocal survey respondents cited for not coming to the football game were family obligations or no one else would attend with them (60 percent), time conflicts (34 percent), quality of Virginia Tech's team (33 percent), and quality of the opponent (29 percent). Those living farther away were more likely to say the distance was a consideration, particularly if home games were on back-to-back weekends as was done in September of this 2014 season.

To determine direct visitor spending, survey responses were divided amongst ticketholder groups, isolating nonlocal ticketholder groups, as seen in Table 2. Respondents were asked to estimate their spending across numerous spending categories. While Table 2 shows average total spending per person by ticketholder group, breaking spending down by industry category was necessary for estimating total impact in the RIMS II model. OED calculated average per person spending by nonlocal ticketholder group and industry spending category, and then multiplied those averages by total home game attendance of those respective ticketholder groups (See Table 2—Total Home Game Attendance). Table 3 shows total seasonal spending by ticketholder group and spending category.

Table 3: Estimated Direct Visitor Spending by Nonlocal Ticketholder Group and Spending Category				
	Season Ticketholders	Visiting Teams	Single Game Goers	Total Visitor Direct Spending
Dining	\$ 4,184,466	\$ 507,606	\$ 360,630	\$ 5,052,701
Groceries	\$ 2,163,508	\$ 135,697	\$ 166,486	\$ 2,465,691
Retail	\$ 2,419,746	\$ 79,156	\$ 143,529	\$ 2,642,431
Arts, music, and other entertainment	\$ 156,962	\$ 75,387	\$ 21,692	\$ 254,041
Outdoor Recreation	\$ 143,313	-	\$ 4,158	\$ 147,471
Hotel	\$ 4,517,695	\$ 730,751	\$ 635,034	\$ 5,883,480
Rented House	\$ 971,760	-	-	\$ 971,760
Gasoline	\$ 2,481,326	\$ 246,264	\$ 187,817	\$ 2,915,407
Public Transit	\$ 40,104	-	\$ 4,700	\$ 44,804
TOTAL	\$ 17,078,881	\$ 1,774,861	\$ 1,524,045	\$ 20,377,786

Source: 2014 Football Season - Online and Intercept Surveys

Surveys specifically asked ticketholders to exclude all spending they made in the stadium to avoid double counting. To assess in-stadium visitor spending, Virginia Tech Athletics recorded \$1.3 million paid to in-stadium private concessions and catering businesses. Of that total, 46 percent or approximately \$600,000 was estimated to be nonlocal spending. As a result, total visitor direct spending equaled \$21 million.

Virginia Tech Athletics Football-Related Operational Spending

To assess the regional impact of Virginia Tech Athletics operations due to football, OED analyzed data from the 2014 football season revenue and expenditures budgets provided by Virginia Tech Athletics. As some of the most recent 2014 data hasn't been finalized, 2013 data was used as an estimate. Table 4 provides a summary of 2014-2015 football revenue from outside the NRRV region, \$30 million, indicating the amount of money that would not exist in the region if not for Virginia Tech football. Of that amount, \$25.9 million was spent in the NRRV, either on football or other non-revenue sports operations. Virginia Tech Athletics provided a breakdown of local spending, which was then organized into NAICS industry categories for input into the RIMS II model. Appendix A provides a description of industry categories. Local spending was 63 percent of total football spending. Most local spending was attributed to employee earnings and fees paid to the university by Virginia Tech Athletics such as facilities use, athlete tuitions and support services. Additional football revenue that was not spent on Virginia Tech football, but for other sports, was broken down proportionally to mimic proportional football expenditures.

Table 4: Operational Revenue by Origin and Local Spending by Industry Category¹⁹		
<i>Revenue (nonlocal and local)</i>		
Total Football Revenue	\$ 41,210,471	
Nonlocal Revenue (from outside NRRV)	\$ 29,979,834	73%
Local Revenue (from inside NRRV)	\$ 11,230,637	27%
<i>Local Spending (inside NRRV)</i>		
Industry	Football	Other Sports
Contracting and Maintenance	\$ 52,000	\$ 36,312
Transportation	\$ 114,000	\$ 79,607
Retail	\$ 49,622	\$ 34,651
Postal Services	\$ 125,000	\$ 87,288
Game Day Equipment and Party Supplies	\$ 10,493	\$ 7,327
Game Security	\$ 240,000	\$ 167,593
Custodial Services	\$ 132,000	\$ 92,176
Game Night Hotel	\$ 65,962	\$ 46,062
University	\$ 5,271,583	\$ 3,681,173
Medical and Ambulatory Services	\$ 85,621	\$ 59,790
Food and Restaurants	\$ 534,767	\$ 373,430
Employee Earnings	\$ 8,563,834	\$ 5,980,168
TOTAL	\$ 15,244,881	\$ 10,645,577

Source: Virginia Tech Athletics Department

¹⁹ In consultation with OED, Virginia Tech Athletics staff went through their football budget to determine all revenue coming from outside the NRRV and all spending within the NRRV. Certain revenue and spending items were removed (e.g. local ticket sales revenue). The majority of football revenue, 73 percent, is from nonlocal sources. OED distributed Athletics spending into industry categories.

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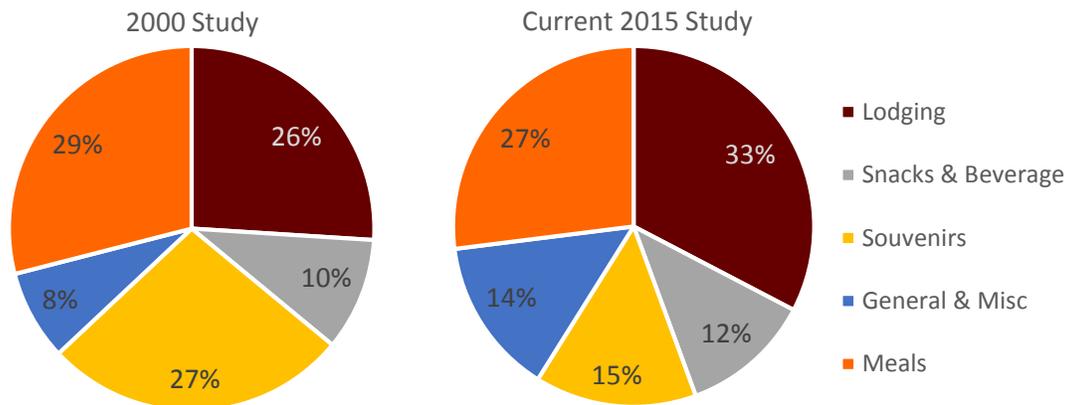
Nonlocal Fan Spending Impact

During seven home games in fall 2014, nonlocal football fans spent \$21 million in the NRRV. After inputting visitor spending in the BEA RIMS II model, the analysis indicated nonlocal football fan spending generated an additional \$14 million for the local region, for a total economic impact of approximately \$35 million. Visiting football fan spending was also associated with \$10.3 million in household earnings for NRRV employees, or one-third of the total economic impact.²⁰ As this spending was seasonal, OED did not attribute any employment increases to this influx of new money in the region. Economic impact estimates appear in Table 5.

Table 5: Economic Impact of Nonlocal Football Fans		
	Economic Impact	Household Earnings
Direct	\$20,990,337	\$6,270,696
Indirect and Induced	\$13,973,674	\$4,008,577
Total	\$34,964,011	\$10,279,272

Compared to the 2000 study, total estimated economic impact is three times higher. The 2000 study found the overall economic impact of football visitors to the region was \$7.6 million, or \$10.4 million in 2014 dollars. This difference in impact can be attributed to the addition of over 13,000 seats to Lane Stadium since 2000, a larger percentage of nonlocal fans estimated in this study, and the addition of a seventh home game. Otherwise, the two analyses' findings were relatively comparable. Average fan spending in the 2000 study was \$81.75 per game or \$112 in 2014 dollars. This study estimated average fan spending to be \$110 per person. While this study asked for more detailed spending habits, Figure 1 shows the spending breakdown when aligned with the 2000 study is also similar.

Figure 1: Nonlocal Fan Spending Breakdown Comparison



Fan spending on lodging was estimated to be larger in the most recent study, perhaps because hotel rates have increased more relative to other industries. Spending on retail and souvenirs was also distinctly less in the FY2014-2015 study, possibly indicating attempts at more conservative spending habits on the part of fans in the post-recession period.

²⁰ The reason that household earnings are such a large part of the total economic impact by visitors is that most of the direct expenditures by visiting football fans were on dining, retail and accommodations, service/employee-driven industries.

Operational Spending Impact

The 2000 study analyzed nonlocal fan spending alone. This analysis added Virginia Tech Athletics operational spending as a second component to total economic impact. During the 2014-2015 athletic year, Virginia Tech Athletics spent approximately \$25.9 million locally. Table 6 contains the results of the BEA RIMS II analysis. Direct spending generated a total of \$34 million in economic impact, supporting 289 jobs and \$11 million in household earnings.²¹

Table 6: Economic Impact of Virginia Tech Athletics Football Operations			
	Economic Impact	Employment	Household Earnings
Direct	\$25,890,459	189	\$4,724,774
Indirect and Induced	\$8,243,800	100	\$6,286,857
Total	\$34,134,258	289	\$11,011,631

Combined Economic Impact

The total economic impact of Virginia Tech football, combining Virginia Tech Athletics operations and nonlocal fan spending, was over \$69 million in the NRRV. Over \$21.3 million accrued to local households in the form of earnings, sustaining a total of 289 jobs (due to Virginia Tech operations only).

Table 7: Combined Economic Impact of Virginia Tech Athletics and Nonlocal Fan Spending			
	Economic Impact	Employment	Household Earnings
Direct	\$46,880,795	189	\$10,995,469
Indirect and Induced	\$22,217,474	100	\$10,295,434
Total	\$69,098,269	289	\$21,290,903

Appendix B provides a breakdown of economic impact by industry sector. For instance, of the \$69.1 million of total economic output, 14 percent or \$9.9 million was attributed to money spent by Tech Athletics and football fans on overnight accommodations. Money spent on retail—including souvenirs, groceries and gasoline—resulted in \$13.8 million or 20 percent of total economic impact. Likewise, money spent on dining contributed to 16.3 percent of total economic impact (\$11.3 million).

Tax Revenue Impact

OED conducted a basic analysis of tax revenue generated due to nonlocal fan and Virginia Tech Athletics direct spending. Focus was placed on direct spending because it is unclear in what industries the additional money generated within the region—the indirect and induced effects—resides and what additional tax revenues would be produced. For instance, money spent on retail would stimulate spending by retail businesses in perhaps other industries (e.g. food crops), which are details unspecified in the RIMS II model. As seen above, direct spending was approximately \$46.9 million dollars. Depending on the industry sector, OED applied sales, lodging and/or meals taxes to the direct spending estimates.

- State sales tax is 5.3 percent where 4.3 percent goes to the state and 1 percent remains in the region
- Average lodging tax within the NRRV region was calculated to be 7.1 percent
- Average meals tax in the NRRV was calculated to be 5.4 percent

The baseline estimate of total tax revenue due to sales, lodging and meals taxes was almost \$1.1 million.²²

²¹ High household earning as a proportion of total economic impact are attributed to relatively higher salaries of university employees, particularly a minority of those in Virginia Tech Athletics. The highest direct expenditures were salaries and spending to the university.

²² Due to the nature of the fan survey questions, OED could not differentiate between spending and tax revenue in different NRRV county jurisdictions.

FAN PERCEPTIONS AND OTHER IMPACTS

As part of the football ticketholder surveys, OED asked several questions about fans and their experiences before and during the game. This analysis is broken down by additional fan characteristics and spending behaviors, opinions of Virginia Tech Athletics marketing and views on football attendees' overall game experience. This analysis focuses primarily on nonstudent perspectives.²³ See Appendix C for the full football fan survey.

Visiting fan data analyzed based on number of nights stayed in the region showed 64 percent of visitors stayed at least one night in the NRRV. While spending varied greatly within these groups, average spending per person increased \$50+ for each additional night stayed up to two nights. As the average nonlocal group size is three people, that increase per night is \$200 on average. Spending increased only slightly at three or more nights. See Table 8.

Number of Nights in NRRV	Total Respondents	% Nonlocal Fans	Average Spending per person	Standard Dev (σ)
0	525	36%	\$44	625
1	383	26%	\$106	958
2	452	31%	\$176	725
3 or more	93	6%	\$191	579
TOTAL	1453	100%	\$110	773

Source: OED Fan Survey

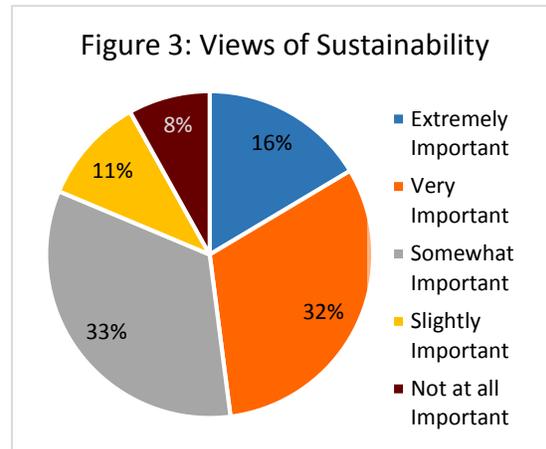
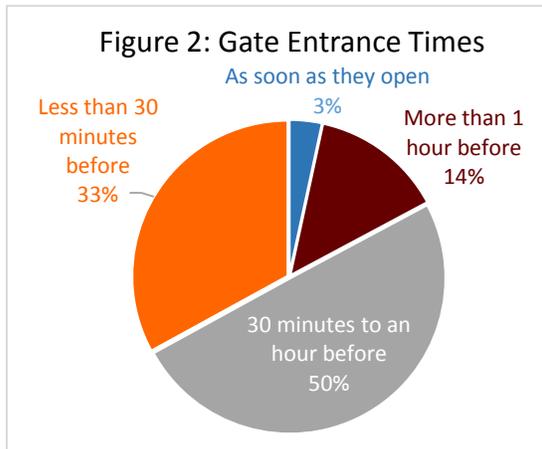
Almost half of nonlocal fans stayed in NRRV hotels, motels or B&Bs. The remaining attendees stayed with friends or family (26 percent), owned property (12 percent), or stayed elsewhere. Based on survey responses from fans who stayed at least one night in the NRRV, OED estimated approximately 4,700 properties in the region may be owned by out-of-region football fans, primarily season ticketholders, which is 2.1 percent of total housing stock in the NRRV.²⁴

Other fan characteristics, including both local and nonlocal fans, explored on the survey were the time they headed to the stadium for the game and their views on sustainability. Approximately 50 percent of survey respondents said they headed to the stadium sometime between thirty minutes and an hour before kickoff. Another 33 percent said they went to the stadium less than thirty minutes before kick-off, indicating they wait for the sound of Skipper, the Virginia Tech Core of Cadets' cannon. Figure 2 shows the times when most football fans head to the Lane Stadium gates.

Sustainability is a growing initiative at Virginia Tech. Virginia Tech Athletics wished to gauge the importance of sustainability in the eyes of its football attendees. When asked how important sustainability and recycling was to them, fans responded positively across ticketholder groups and game days. As Figure 3 indicates, almost 50 percent of fans said sustainability and recycling were very or extremely important.

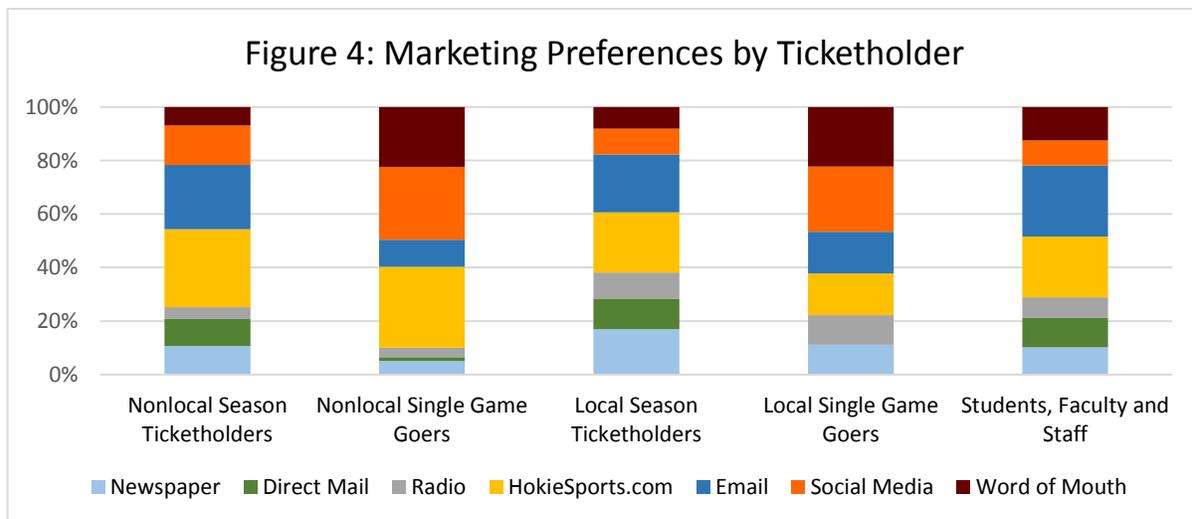
²³ It is important to note that given the method of data collection, proportionally more season ticketholders were surveyed than other ticketholder groups. To account for that possible bias in overall data, OED analyzed both total responses and responses by ticketholder group. Any significant difference in response by ticketholder group is highlighted in the text. The student population in particular is underrepresented in this analysis given the nature of the economic impact analysis however. To understand student perspectives more, OED recommends another student-focused survey.

²⁴ Total housing stock in the NRRV was estimated based on American Community Survey 2009-2013 5yr Estimates. <http://factfinder.census.gov>.



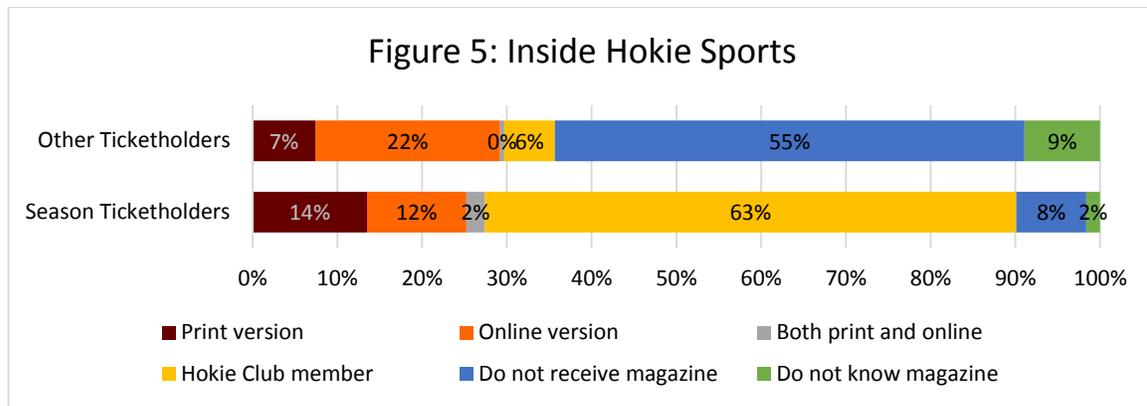
Marketing and Inside HokieSports

When asked how they typically heard about Virginia Tech sporting events, most nonlocals said they relied on HokieSports.com, email and other social media. Single game goers cited word of mouth and social media more than other ticketholder categories. Figure 4 illustrates general marketing preferences among different ticketholder groups, calculated by total number of responses within each group.



Most respondents had no recommendations for improving marketing, or they complimented recent marketing efforts and increased presence of Virginia Tech Athletics in social media. Many liked giving input and felt valued by Virginia Tech asking their opinions.

When asked if they received Inside HokieSports Magazine, answers varied based on whether respondents were season ticketholders and/or Hokie Club members. Figure 5 illustrates this division, showing 90 percent of season ticketholder respondents receiving the magazine with 63 percent saying they received it through their Hokie Club membership. Only 28 percent of season ticketholder respondents received Inside HokieSports otherwise. In contrast, only 35 percent of respondents who were not season ticketholders said they subscribed to Inside HokieSports. Of those, 22 percent subscribed to the online version.



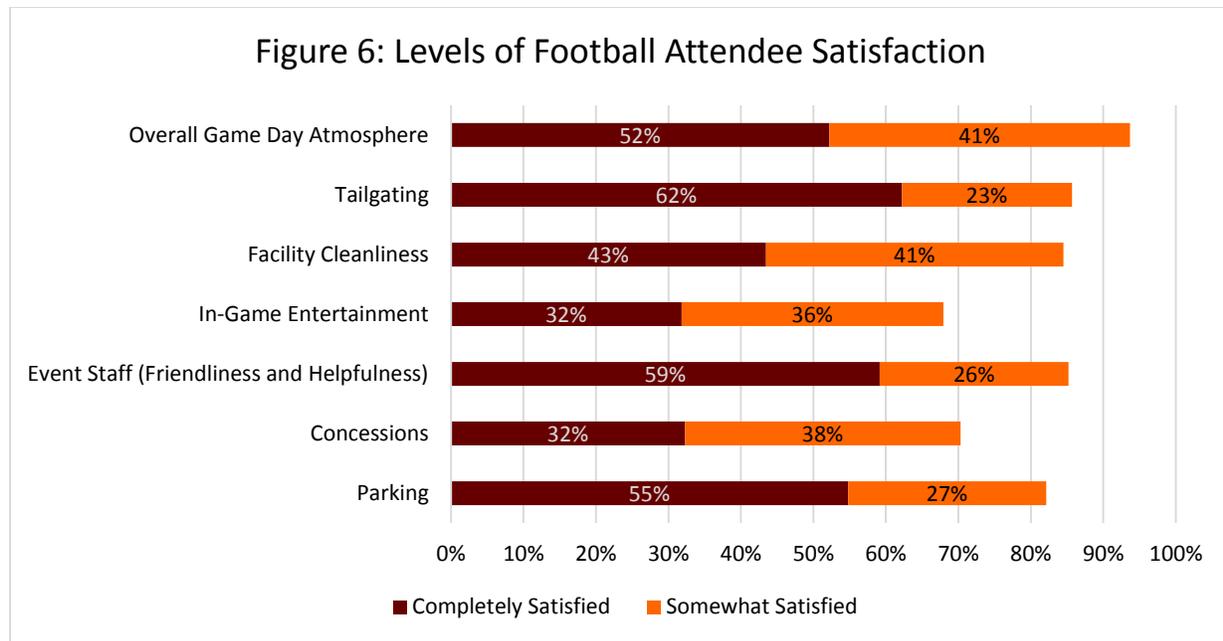
Of the 1,281 survey comments, impressions of Inside HokieSports magazine were positive overall, most commenting on the good quality and informative content. Many respondents stated they liked the magazine, it was good or great. The top reasons readers liked the magazine were:

- 1) it is informative and keeps them up to date on Virginia Tech Athletics news (147 citations);
- 2) it covers all sports including the non-revenue sports (81 citations);
- 3) the in-depth athlete stories from why they chose Tech to what they do outside of sports and their lives after they graduate (79 citations); and
- 4) the quality photography (26 citations).

Some respondents asked for more athlete stories, particularly stories about former Virginia Tech players in the NFL. The biggest complaint about Inside HokieSports was its dated information by the time readers received it (62 citations). Many said they would read the magazine for its in-depth coverage that they could not get elsewhere, but would turn to online sources to get up-to-date information. Some respondents, primarily Hokie Club members, preferred getting just an online version, but they may not have known how to change their subscription or that there was an online version. There were 79 respondents who commented they rarely read or only occasionally skimmed their copies of Inside HokieSports; the magazine was okay but their impressions were overall neutral.

Football Fan Satisfaction

When asked about their game experience, 95 percent of game attendees said they were likely or very likely to recommend their experience at Lane Stadium to friends. Figure 6 breaks down levels of satisfaction by different game aspects. The overwhelming majority of survey respondents were somewhat or completely satisfied with various aspects of the game day experience.



Expanding upon responses in Figure 6, fans replied to two open answer questions about their favorite part of Virginia Tech football and what they would change. By far the most frequent response to favorite aspect of Virginia Tech football was the overall game day experience. Of the 1,692 comments, 571 fans referenced the “football atmosphere” and the fans, sense of camaraderie and enthusiastic Hokie Spirit comprising that atmosphere. Related to these comments were over 350 fans surveyed lauding Hokie traditions like Enter Sandman and the bands. One respondent summarized this popular sentiment nicely by stating, “Atmosphere, tradition, camaraderie and noise!” Equally important were the 359 fans who said tailgating with friends, family and other Hokie fans was their favorite aspect of Virginia Tech football. These comments reflect trends discussed in football economic impact literature above regarding qualitative impacts. Whether football attendees are local or nonlocal, the sense of community developed within the Virginia Tech football culture instills a sense of pride in students, alum and those in the surrounding region.

Similarly, responses to the question, “What would you change about Virginia Tech home games?” aligned with fans fear of losing their favorite aspects of the experience. Of the 1,087 responses, fans indicated an overwhelming desire to “return to tradition”. This “revival of old traditions” encompassed a variety of suggestions that cumulatively totaled 229 responses. The majority of the suggestions (66 percent) involved more involvement with the marching band and cheerleaders, with less piped in “techno and rap music”. Other suggestions, 19 percent, reported the wish to bring back traditional cheers, particularly the “stick it in” chant (41 requests). Other requests included scheduling more flyovers, firing the cannon in the stadium for every Virginia Tech score and lowering the volume of the sound system so fans can interact and make their own noise (95 responses). Most of these responses were in reaction to survey respondents’ dissatisfaction with the in-game entertainment. Even with a return to Hokie traditions, a handful of fans requested other game scores, more game replays and athlete statistics be displayed on the big screen.

Economic Impact of Virginia Tech Football

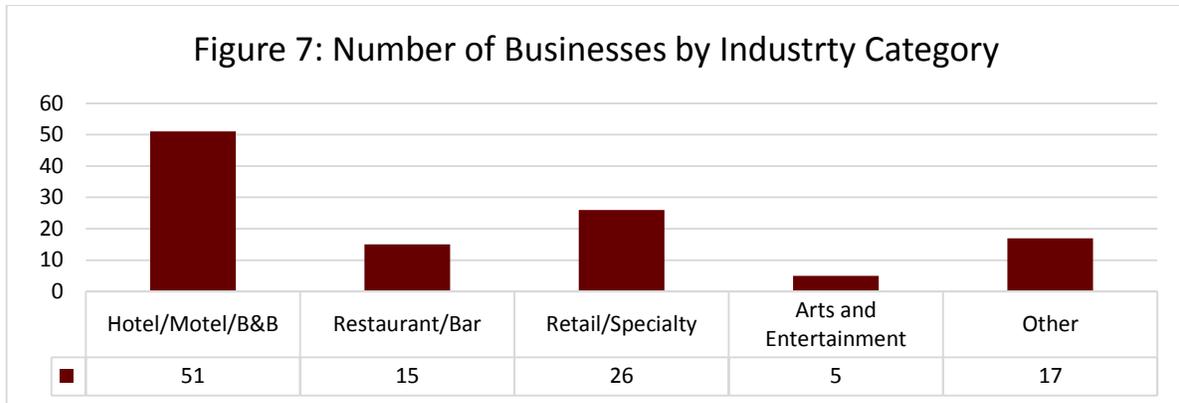
The single most reported request for change was to have fewer noon games. Of the 271 respondents who indicated a preferred later kickoff off time, the most frequented desired time appears to be around 3:30 p.m. The later evening game times were reported to be more convenient for individuals commuting to the game from a few hours away, allowing them to begin their journey at a reasonable hour of the morning and the game to end in ample time to journey home the same day. Even locals indicated the desire to postpone the game time to allow for more time to enjoy tailgating activities. However, most participants also acknowledged television schedules are in large part responsible for the game time scheduling.

Other fan comments included:

- Concessions: Better quality and wider variety of food (32 responses); improve concession layout for better circulation and access to vendors (21 responses); cheaper food and drink especially water (20 responses).
- Stadium facilities: More and cleaner restrooms during tailgates and in stadium (33 responses); improve cell reception and wifi capabilities (27 responses); improve crowd flow in and out of stadium (20 responses).
- Seating: seats are too tight (31 responses).
- Parking: better and lower priced (26 responses); more handicap accessible parking and accessibility into the stadium (12 responses).

BUSINESS PERSPECTIVES

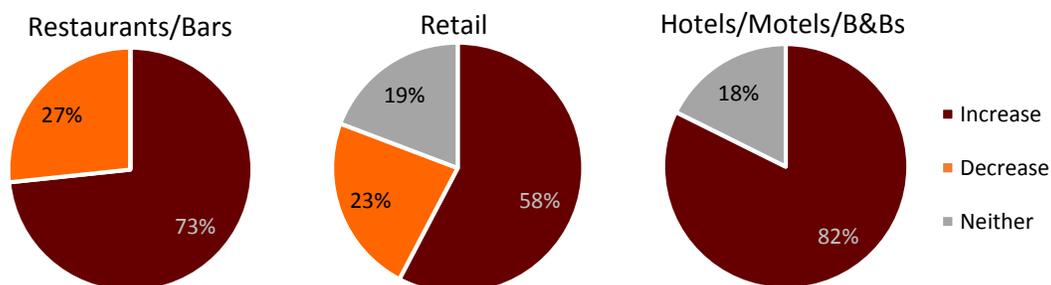
The NRRV region experiences other impacts that neither Virginia Tech Athletics operation spending nor visitor spending can easily capture. To assess impacts of Virginia Tech football even further, OED developed a business survey, asking organizations how they have been affected by Virginia Tech football home games. The business survey instrument is included in Appendix D. More than 530 businesses and organizations were contacted through phone, email and NRRV counties’ chambers of commerce or business associations. Of those contacted, 114 organizations completed the online survey. The “Other” category includes mostly nonprofits and schools.



Revenue Impacts of Virginia Tech Football

Eighty-five percent of businesses said they were affected by Virginia Tech home games. The businesses reporting most influence were hotels, restaurants, retail and those in the arts and entertainment sector such as art galleries and movie theaters. While Figure 8 shows most restaurants, retail and hotels expected revenue increases, all respondents in the arts and entertainment sector expected decreases in revenue as football fans do not frequent their establishments and the football event tends to crowd out any potential local clientele. Arts and entertainment businesses said they expected anywhere from a 5-30 percent or more decrease in revenue; however such a decrease may also be a shift in timing due to congestion, where clientele will visit these stores at a later date when the game crowd has gone.

Figure 8: Do you expect in increase or decrease in revenue?

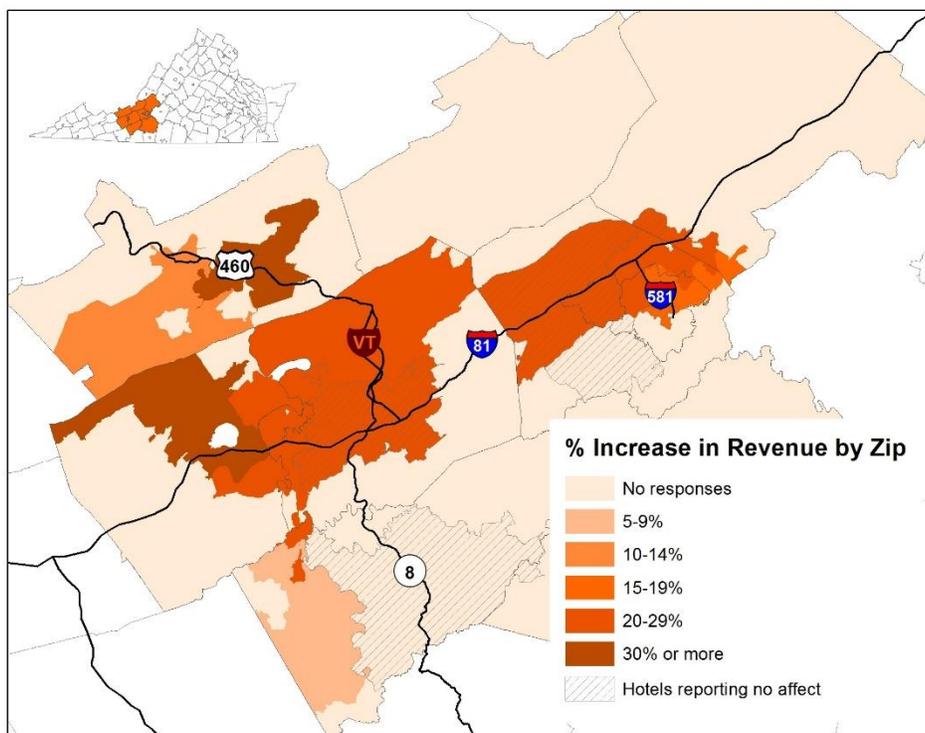


The median revenue increase for restaurants and bars benefitting from Virginia Tech football fan patronage was 15-19 percent, with greatest revenue increases (20 percent or more) occurring in Blacksburg and Christiansburg. One Blacksburg restaurant owner responded, “Game day weekends are great. They supply the additional sales to push us through the slower months of Jan and Feb. We make more money and my staff makes more money.” The restaurants that expected a decrease in revenue, 30

percent or more, were located in Roanoke, implying local clientele spending may shift within the NRRV during home game weekends. Estimated revenue increases for retail businesses varied widely. Grocery and other stores where football attendees could buy tailgate supplies seemed to benefit most with an average 20-29 percent increase, as did gas stations. Retail businesses experiencing little to no revenue increase and those that experienced revenue decreases were scattered throughout the region.

By far, hotels benefited the most from nonlocal football fans, a fact that mirrors the visitor survey spending data (See table 4). Of the 42 hotels stating their revenues increased during home game weekends, 55 percent reported their revenues increasing 30 percent or more, and 24 percent said they had increases of 15-29 percent. Figure 9 shows a map of average hotel revenue increases by zip code. Hotels that were not affected by Virginia Tech football visitors were mostly located in the City of Roanoke, Floyd and Salem.²⁵

Figure 9: Average Percent Increase in Hotel Revenue due to Virginia Tech Football



With the “Other” category, five businesses were determined to be nonprofits or civil society organizations, for instance, local community groups, animal shelters and a church youth group. Four of the organizations worked concessions stands at the Virginia Tech football games and had an average increase in revenue of 15-19 percent as a result of fans’ in-stadium spending.²⁶

Among all businesses surveyed, the conditions in which businesses receive the highest revenue are afternoon and evening games. The most popular game time was evening games, followed by afternoon

²⁵ Comments in later survey questions indicate hotels that reported their revenues were not affected were actually filled with Virginia Tech football attendees during home game weekends; however these football guests may simply crowd out other potential hotel guests, which is why these particular respondents did not see significant impacts. This “crowding out” phenomenon also suggests some of the direct economic impact due to hotel revenue may be exaggerated or the revenue due to “other potential” guests would be displaced or moved to other weekends.

²⁶ This fan spending revenue was not part of the \$1.3 million reported by Virginia Tech Athletics, seen in the direct fan spending section above.

games. Thursday night games and noon games were close for the ranking of least popular game time. However, testimonials in both the business and visitor surveys indicated least popular games were noon games.

Many local churches, religious organizations, schools, and other institutions charge football fans to park on their property on game days. To gauge the economic impact of these operations, OED staff called 26 organizations and asked them a series of questions about game-day parking. The dollar amount of impact is limited to this sampling of respondents as not all organizations in the Blacksburg area offer or charge for parking. Table 9 shows the results of interviews with public and nonprofit organizations.

Table 9: Game Day Parking Charges and Revenue Estimates for Public and Nonprofit Organizations (sampling)					
	Number of Respondents	Average Charge	Average # Cars per Game	Total Amount Collected Over Season	Average Amount Collected Over the Season
Churches/ Religious Organizations	5	\$13	67	\$20,575-\$22,675	\$4,115-\$4,535
Schools	4	\$9	14	\$6,180-\$6,780	\$1,545-\$1,695
Town of Blacksburg	1	\$20	N/A	\$11,200-\$14,000	--
Total	10	\$12	43	\$37,955-\$43,455	--

Source: OED Business Survey and follow-up calls

Overall, these organizations collected as much as \$37,955-\$43,455 in revenue from game day parking. Parking charges varied according to proximity to the stadium, ranging from \$5-\$20 per parking spot. Meanwhile, organizations provided as many as 180 parking spaces to as few as five. The largest amount of revenue collected by a public or nonprofit institutions over the course of the season was the Town of Blacksburg, which collected as much as \$14,000 by offering season parking passes. All proceeds went toward funding the Blacksburg Museum. Other organizations used these funds for a variety of activities including operations, school projects and activities, and religious retreats for students.

Other Impacts

OED staff contacted realtors and others in the housing business to assess the effects of Virginia Tech football on the New River Valley housing industry. All of the 22 realtors surveyed answered that Virginia Tech football affects their businesses. Of the 13 realtors who answered the entire survey, the average amount of properties sold was 11-20 properties. The average amount of total gross sales per year was between \$2.5 to \$5 million. Despite different establishment sizes, almost all realtors cited between 0-15 percent of the properties they sold were “Hokie Houses” or houses that are bought as second homes by VT alums and fans to be used during football weekends as well as for vacations and retirement. Given the amount of fans surveyed who cited owning property, the estimated 0-15 percent may be closer to two percent of total properties sold. Real estate survey respondents said that most of the Hokie houses purchased were townhouses or condos located within Blacksburg or Montgomery County, and were within walking distance of campus. Other locations included Giles County, Claytor Lake, and other surrounding counties.

A weighted average based on property sales volume indicated that 51-60 percent of the Hokie Houses sold were purchased with the intention of attending football home games. Thus, of the 4,700 Hokie Houses estimated based on fan surveys, half or 2,350 were bought at least in part for the purpose of attending home games. Other uses may include other campus activities, vacation homes or parents

Economic Impact of Virginia Tech Football

buying apartments for their children attending Virginia Tech. Steve Hill, a local real estate developer who specializes in condos and townhouses, offered his perspective, saying many of his customers bought houses originally as sports pads for basketball, football and board meetings in the area, but they turned them into second retirement homes because they liked the college atmosphere and quality of life in the region.

When asked what Virginia Tech Athletics can do for realtors, respondents linked the success of their sales and other businesses to the success of the football team, encouraging Virginia Tech to win more. Other comments applied to Virginia Tech at large. Survey respondents wished the university would provide referrals and allow a more diverse group of realtors more opportunities to engage new or prospective employees and donors. One realtor asked the university to consider initiating new housing developments for recent alumni (an “alumni community”) similar to what was done at Harvard or University of Florida.

When asked how Virginia Tech football positively affected their business, the overwhelming response was that there was an increase in revenue and customers. Businesses commented on the benefits of a winning season, home games, evening and game weekends, and increased awareness of the region by nonlocals. Three businesses reflected on the sense of community and morale boost that Virginia Tech football helped to bring to the region. One business owner stated, “Virginia Tech football is an identity builder for our region, people like to be associated with winning,” implying that the more Virginia Tech wins, the more businesses in the area profit.

To address secondary costs of college football games, OED asked businesses how football negatively affects them. Responses included noise, trash and damage to property as negative impacts (6 respondents). Lewis-Gale Hospital reported they had a slight increase in ER visits, which they compensated for by increased staff. Meanwhile, Urgent Care by Carilion Clinic said they actually expected a decrease in visitors during game days.

Virginia Tech and Blacksburg Police both increase their staff during game days, with Virginia Tech Athletics paying 50-100 percent of the cost. Officers are also brought in from surrounding regional police or sheriff stations and paid for their time by Virginia Tech Athletics. Some officers actually volunteer for these additional work hours as the added revenue helps them financially prepare for Christmas, tax season, vacations and other upcoming events. When asked about secondary costs including vandalism, drunken and disorderly behavior, and other nuisances, both Virginia Tech and Blacksburg police said number of incidents vary by game conditions such as the time of the game, opponent, whether Virginia Tech wins or not, and the weather. This year in particular was very calm considering the numerous noon games and bad weather. They expect more incidents during games that take place during holidays, start at 3:30 or later, have great weather, and/or are against strong rivals. Virginia Tech Police have noted a decrease in incidents as police have implemented more proactive strategies such as more direct patrols on foot and bikes weaving within the crowd. Even when discussing secondary costs though, incidents mostly include minor nuisances; for example noise complaints, fans walking through yards and dropping beer cans, public urination and other intoxicated behavior. Virginia Tech Police cites occasional thefts of liquor and food supplies left out in tailgate areas during the game. Overall, however, both police departments agree that the positive outcomes of Virginia Tech football, including additional revenue for businesses and the exposure for Virginia Tech and the region, far outweigh the negative impacts.

Most businesses were averse to noon games and a losing season, claiming that they affected their business (12 responses). Five other businesses said that local residents tend to avoid going downtown due

to all the traffic and crowds, and two businesses cited fewer volunteers during game days. Again, this crowding out of locals may result in them going downtown or volunteering at a later date. Finally, many businesses stated that the sooner the football schedule is posted the better because then they can make their own business schedule. When the football schedule is late to be posted, businesses must develop their schedules late as well.

In responses to how Virginia Tech could better serve businesses, 14 businesses responded with a wish to have a list of businesses that support Virginia Tech football advertised to fans, with an emphasis on local businesses. Others asked for more cost-effective and accessible advertisements for local or smaller businesses during football games. These requests align with 57 percent of football attendee survey respondents who said they were either likely or very likely to try a product or service if the business were a Hokie sponsor. Other responses included more evening/afternoon games, fewer noon games, and improved gameplay because a losing season is bad for business.

Changes in Businesses Behavior due to Virginia Tech Football Home Games

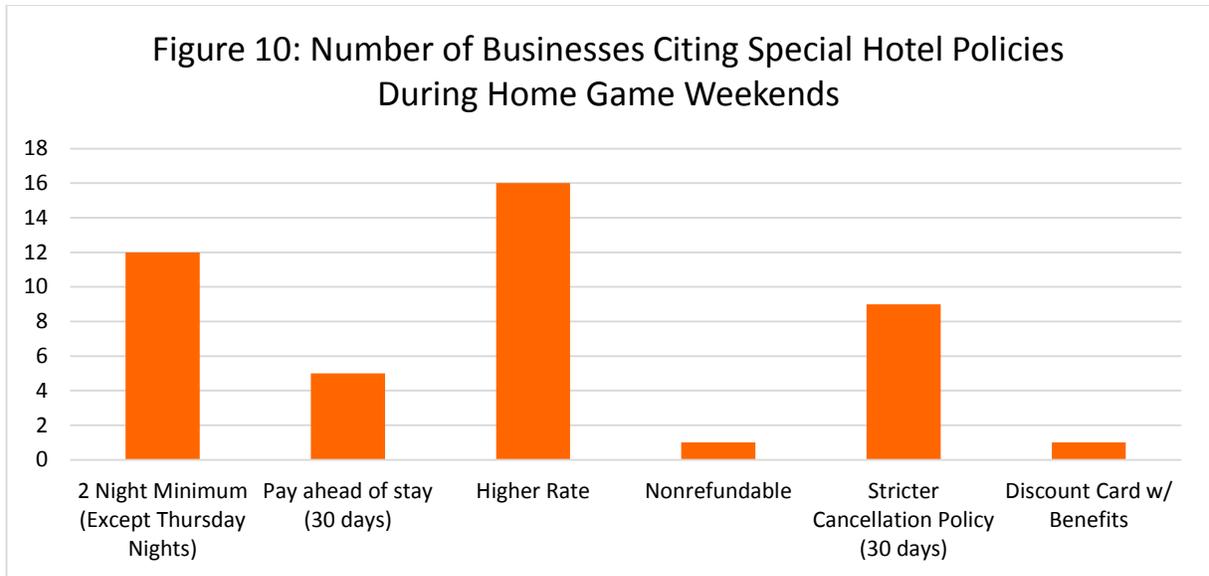
Reflecting increases in revenue and other effects of Virginia Tech football home games, certain businesses reported increasing their staff during home game weekends, including hotels (51 percent), restaurants and bars (67 percent), and grocery/convenience and ABC stores (80 percent). Only 21 percent of other retail stores reported increasing their staff numbers. When looking at Blacksburg versus non-Blacksburg businesses, 69 percent of respondents in Blacksburg said they increased their staff while only 34 percent of non-Blacksburg businesses reported increased staff. In Montgomery County, 55 percent of respondents said they increased staff. Table 10 shows businesses’ estimated dollar and percent increase in workers’ wages during these home game weekends.²⁷

Table 10: Estimated Dollar and Percent Increase in Worker’s Wages due to Virginia Tech Home Games				
Industry	Average Dollar Increase	Number of Respondents Who Answered in Dollar Amounts	Average % Increase	Number of Respondents Who Answered in Percentages
Hotel/Motel/B&B	\$450	9	16%	5
Restaurant/Bar	\$594	8	--	0
Retail	\$293	3	15%	1

Source: OED Business Survey

According to business and visitor surveys, most hotels, motels and B&Bs are sold out during home game weekends, although not all of the rooms are taken by football fans. Of the 42 establishments that responded, many said their occupancy rates vary particularly on the quality of the visiting team and whether it is a rivalry game. Only those located in Blacksburg, Christiansburg and along I-81 and I-581 reported special rates and policies during home game weekends (24 of 49 establishments reporting). Figure 10 provides a breakdown of special policies cited by reporting establishments.

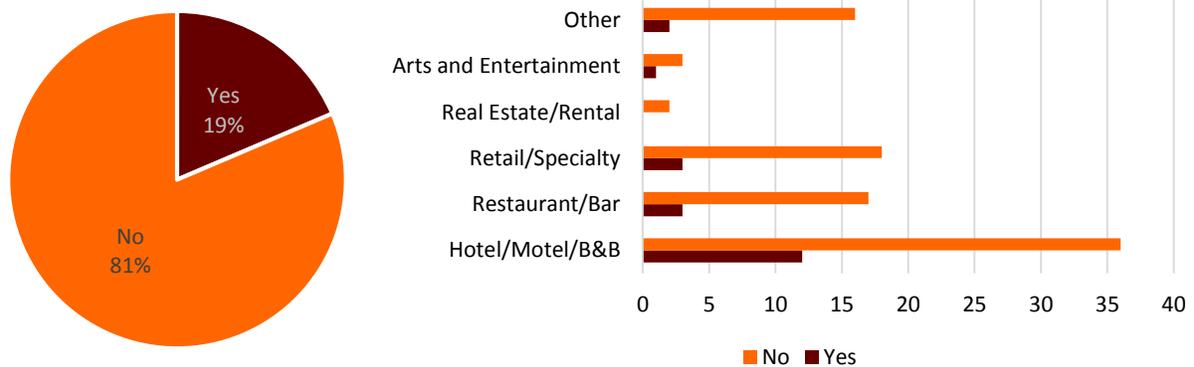
²⁷Data from business survey responses. Many businesses refrained from estimating any dollar or percent increase in wages.



Businesses said they changed other aspects of their business due to Virginia Tech football home games as well. For instance, many said they purchased additional products to sell or had extended hours. Meanwhile others reported doing nothing special. Businesses that cited they were negatively affected by Virginia Tech football said they decreased their hours of operation or closed altogether.

When asked if they advertised to attract football fans, the large majority of businesses said no. Those that said they advertised were mostly hotels, motels and B&Bs, and they advertised themselves through their own or other websites, email and occasionally flyers.

Figure 11: Do You Advertise?



CONCLUSION

Virginia Tech Athletics has recently adopted a new mission statement: “Virginia Tech Athletics is committed to excellence, both academically and athletically, and to the personal development of our student-athletes. In the spirit of Ut Prosim, we stand together to serve and represent our university and community with integrity and respect.”²⁸ Already in support of this mission, this report illustrates Virginia Tech football’s role in bringing together a community of diverse and caring sports fans from around the Virginia Commonwealth and country. These fans come for the Hokie football atmosphere, to stand together with their fellow Hokies and to participate in community traditions created as early as 1892. Moreover, fans, particularly season ticketholders, expressed the desire to reconnect and stay informed about Virginia Tech, including its athletes both on and off the field. As reflected in the football literature, Virginia Tech football serves as a platform for community building, engaging and sharing.

However, this report goes beyond the traditional understanding of Virginia Tech football’s qualitative contributions to including measures of economic impact on the region and its businesses. Approximately 74 percent of restaurants, retail and hotel businesses say they are positively affected by Virginia Tech football, with on average 15-30 percent revenue increases during home game weekends. Based on football fan and real estate input, the NRRV may have as many as 4,700 housing units owned by nonlocal Virginia Tech football fans, half of which were bought with the expressed intent of going to Virginia Tech football games. For one fiscal year, total economic impact of football home games and Virginia Tech Athletics expenditures due to football revenue was over \$69 million in the New River and Roanoke Valleys. This impact contributed to 289 jobs and approximately \$21 million in household earnings in the region. Thus, with its sense of camaraderie and dedication to Virginia Tech and its regional home, Virginia Tech football truly makes an economic contribution to the local economy.

²⁸ Virginia Tech Athletics (Feb 2015). “Tech athletics introduces new mission statement, core values: Both will be the guiding principles of the department moving forward” Virginia Tech hokiesports.com The Official Site of the Virginia Tech Hokies. <http://www.hokiesports.com/football/recaps/20150213aaa.html>

APPENDIX A

Virginia Tech Athletics Operational Spending: Industry Categories

Virginia Tech Athletics spending was broken down by industry categories for input into the RIMS II Input-Output Model. Industry categories are described below.

Operational Revenue by Origin and Local Spending by Industry Category		
<i>Revenue (nonlocal and local)</i>		
Total Football Revenue	\$ 41,210,471	
Nonlocal Revenue (from outside NRRV)	\$ 29,979,834	73%
Local Revenue (from inside NRRV)	\$ 11,230,637	27%
<i>Local Spending (inside NRRV)</i>		
Industry	Football	Other Sports
Contracting and Maintenance	\$ 52,000	\$ 36,312
Transportation	\$ 114,000	\$ 79,607
Retail	\$ 49,622	\$ 34,651
Postal Services	\$ 125,000	\$ 87,288
Game Day Equipment and Party Supplies	\$ 10,493	\$ 7,327
Game Security	\$ 240,000	\$ 167,593
Custodial Services	\$ 132,000	\$ 92,176
Game Night Hotel	\$ 65,962	\$ 46,062
University	\$ 5,271,583	\$ 3,681,173
Medical and Ambulatory Services	\$ 85,621	\$ 59,790
Food and Restaurants	\$ 534,767	\$ 373,430
Employee Earnings	\$ 8,563,834	\$ 5,980,168
TOTAL	\$ 15,244,881	\$ 10,645,577

Contracting and Maintenance – NAICS 238 Speciality Trade Contractors – comprises establishments whose primary activity is performing specific activities involved in construction. In this case, regular maintenance and updates of Virginia Tech Athletics facilities.

Transportation – NAICS 485 Transit and Ground Passenger Transportation – Charter buses. Local Company

Retail – NAICS 44-45 Retail – Establishments engaged in retailing merchandise, generally without transformation

Postal Services – 491 Postal Services and 492 Couriers and Messengers – mail both public and private

Game Day Equipment and Party Supplies – 532400 Commercial and industrial machinery rental and 532 General and consumer good rental – equipment rental for game days including tents, cranes and other equipment

Game Security – NAICS 561600 Investigation and Security Services – local branch of a security firm hiring mostly local staff

Custodial Services – NAICS 561700 Services to buildings and dwellings including custodial work

Game Night Hotel – NAICS 59 Accommodations – Night before the game team goes to the Roanoke Hotel and Conference Center

University – NAICS 611 Junior colleges, colleges, universities and professional schools – fees, rentals and student tuition/room/board money

Medical and Ambulatory Services – NAICS 621 Ambulatory Health Care Services – provide health care services directly or indirectly to ambulatory patients and do not usually provide in-patient services – services during practices and games in case of emergency

Food and Restaurants – NAICS 722 Food services and drinking places – restaurant food for practices, meetings, etc.

Employee Earnings – Household salaries

APPENDIX B

Total Economic Impact broken down by Industry Sectors

Below are tables showing the total economic output for each industry. Final Economic Output does not mean that the money stays within that industry sector. Rather, these tables show the amount of money going into these industry sectors and estimates how much money is generated in the NRRV region due to spending activity by these sectors. Businesses within the Accommodations or Hotel sector, for instance, may spend money gained from Virginia Tech football fans in other industries not even shown on this table such as furniture fabrication.

The total economic impact due to Virginia Tech Athletics expenditures in the NRRV was estimated to be \$34.1 million. This includes expenditures on football and other, non-revenue sports but all money coming from football revenue. The table below itemizes that impact by industry sector, showing how much money was spent in each industry sector (direct expenditures), how much money was created through the economic activity generated thanks to the direct expenditures (indirect/induced effects), and the total sum of that money (final economic output).

Industry	Direct Expenditures	Indirect/Induced Effects	Total Economic Output
Contracting and Maintenance	\$88,312	\$79,286	\$167,598
Transportation	\$193,607	\$172,039	\$365,646
Retail	\$84,273	\$56,774	\$141,047
Postal Services	\$42,458	\$31,771	\$74,229
Couriers and Messengers	\$169,831	\$118,100	\$287,931
Game Day Equipment and Party Supplies	\$17,820	\$14,992	\$32,812
Game Security	\$407,593	\$320,857	\$728,451
Custodial Services	\$224,176	\$159,524	\$383,700
Game Night Hotel	\$112,024	\$73,588	\$185,612
University	\$8,952,756	\$7,199,806	\$16,152,562
Medical and Ambulatory Services	\$145,411	\$127,351	\$272,761
Food and Restaurants	\$908,197	\$648,907	\$1,557,105
Employee Earnings	\$14,544,002	-\$759,197 (leakage out of NRRV)	\$13,134,258
TOTAL	\$25,890,459	\$8,243,800	\$34,134,258

Economic Impact of Virginia Tech Football

The Virginia Tech football fan survey asked respondents to estimate their spending within different industry sectors as well, focusing primarily on the traditional tourist type of spending. The following table illustrates total estimated spending by nonlocal football fans during the seven home game weekends. This direct spending is broken down by industry sector. Based on the characteristics of those industry sectors, multipliers were created by the BEA to illustrate the amount of money that is actually generated from resulting economic activity due to new money flowing into the region, whether industry businesses then spend that money in the region to promote more in-region business or whether employees then spend their earnings locally. These are the induced and indirect effects. Adding the direct, indirect and induced effects gives one a total estimated economic output number.

Fan Spending and Resulting Economic Impact			
Industry	Direct Expenditures	Indirect/Induced Effects	Total Economic Output
Dining	\$ 5,052,701	\$ 3,610,155	\$ 8,662,857
Dining (In-Stadium)	\$ 612,551	\$ 437,667	\$ 1,050,218
Arts, music, and other entertainment	\$ 254,041	\$ 180,344	\$434,385
Hotel	\$ 5,883,480	\$ 3,864,858	\$ 9,748,338
Rented House	\$ 971,760	\$ 336,035	\$ 1,307,795
Public Transit	\$ 44,804	\$ 39,812	\$ 84,616
Total Retail (NAICS)	\$ 8,171,000	\$ 5,504,803	\$ 13,675,803
<i>Groceries</i>	<i>\$ 2,465,691</i>	<i>\$ 1,661,136</i>	<i>\$ 4,126,827</i>
<i>Retail (souvenirs)</i>	<i>\$ 2,642,431</i>	<i>\$ 1,780,206</i>	<i>\$ 4,422,637</i>
<i>Gasoline</i>	<i>\$ 2,915,407</i>	<i>\$ 1,964,110</i>	<i>\$ 4,879,517</i>
<i>Outdoor Recreation</i>	<i>\$ 147,471</i>	<i>\$ 99,351</i>	<i>\$ 246,822</i>
TOTAL	\$ 20,990,337	\$ 13,973,674	\$ 34,964,011

Note that the BEA RIMS II input-output model uses NAICS codes to categorize industries. In this case, the fan survey categories of “groceries,” “retail or souvenirs,” “gasoline,” and “outdoor recreation items” all fall under the NAICS retail category. Fan spending in these survey categories were therefore combined in the model to get a total economic output of \$13.7 million.

APPENDIX C

Economic Impact Football Fan Survey

Thank you for joining us at the Virginia Tech vs. _____ game! We have developed the following survey as part of a project to help us to understand how Virginia Tech football games affect our local economy. Your participation will help us to estimate the amount of economic activity football fans bring to our region, and to learn more about what factors help to make Hokie football games in Blacksburg a great experience. First, we would like to ask a few questions about yourself, and what you did during your stay in Blacksburg. These questions will help us estimate how spending by football fans affects our local economy. Next, we'll ask some questions about your experiences with Hokie football, so we can understand what fans like about the games, and what we can do to make the experience even better. The total survey should take 10 minutes or less to complete. If you have questions or comments about any of these questions, please contact Sarah Lyon-Hill at the Virginia Tech Office of Economic Development. Email: sarahlh@vt.edu

Economic Impact of Virginia Tech Football

Q1 What is your zip code? _____

Q2 Please tell us whether you belong to any of the following groups that regularly attend Hokie football games. Please check ALL the categories that apply to you.

- Full Season Ticket Holder (1)
- Mini Plan Ticket Holder (2)
- Single game ticket holder (3)
- Hokie Club Member (4)
- Suite Ticket Holder (5)
- Club Seat Holder (6)
- Undergraduate Student (7)
- Graduate Student (8)
- Alumni (9)
- Recent Alumni (Graduate after 2008) (10)
- Student Athlete Guest (11)
- Visiting Team Fan (12)
- Other (13) _____

Q3 Where did you purchase your tickets?

- HokieTickets.com (1)
- Walk-up sale prior to game (2)
- Scalpers (3)
- Through the Virginia Tech ticket office via phone (4)
- Online secondary ticket market (e.g. StubHub, etc.) (5)
- Other (6) _____

Q4 Which home game(s) do you plan to attend this season? (CHECK ALL THAT APPLY)

- William and Mary (August 30) (1)
- East Carolina (September 13) (2)
- Georgia Tech (September 20) (3)
- Western Michigan (September 27) (4)
- Miami (October 23) (5)
- Boston College (November 1) (6)
- University of Virginia (November 28) (7)

Economic Impact of Virginia Tech Football

Q5 What is your zip code?

Q6 Are you currently residing in the New River Valley or Roanoke Metropolitan Areas [Counties: Giles, Montgomery, Pulaski, Botetourt, Craig, Franklin, Roanoke; Cities: Radford, Roanoke, Salem]?

- Yes (1)
- No (2)

If Yes Is Selected, Then Skip To the best of your knowledge, please...

Q7 How many people came with you to Blacksburg from outside the region?

Q8 Did you come to this region primarily for the football game?

- Yes, I came for the game. (1)
- No, I was coming to the region anyway for other reasons, but the game is a fun thing to do. (2)

If Yes, I came for the game. Is Selected, Then Skip To Would you come to the region some oth...If No, I was coming to the reg... Is Selected, Then Skip To What was your primary reason for visi...

Q9 What was your primary reason for visiting Blacksburg, aside from the game?

- Work (1)
- Visiting Family and Friends (2)
- Visiting Virginia Tech (3)
- Visiting other attractions in the region (4)
- Other (5) _____

Q10 Would you come to the region some other time this fall, even if there were no Virginia Tech football games?

- Yes (1)
- No (2)

Q11 How long was your visit to the region?

- Only stayed for game day (1)
- 1 night (2)
- 2 nights (3)
- 3+ nights (4)

If Only stayed for game day Is Selected, Then Skip To Please estimate the amount you spent ...

Q12 Where did you stay during your trip?

With Friends (1)

At a property I own (2)

At a property am I renting (3)

Hotel in the New River Valley or Roanoke (4) _____

Hotel outside region. Name? (5) _____

Economic Impact of Virginia Tech Football

Camping or RV (6) _____
Unknown (7)

Q13 Please estimate the amount you spent on the following items during your time in the Blacksburg-Roanoke area. Do NOT include the cost of your tickets or items purchased in the football stadium (e.g. food, souvenirs).

- Dining (1)
- Groceries (2)
- Retail shopping (3)
- Arts, music, and other entertainment (4)
- Outdoor Recreation (5)
- Hotel (6)
- Rented House (7)
- Gasoline, oil, car repair (8)
- Public Transportation (9)

Q14 How do you typically hear about Virginia Tech sporting events and ticket information?

- Newspaper (1)
- Instagram (2)
- Direct Mail (3)
- Radio (4)
- HokieSport.com (5)
- Email (6)
- Twitter (7)
- Word of Mouth (8)
- Other (9) _____

Q15 Do you have any recommendations for improvements on how Virginia Tech Athletics communicates with you?

Q16 How likely would you be to recommend your experience at Lane Stadium to friends?

- Very Likely (1)
- Somewhat Likely (2)
- Neutral (3)
- Somewhat unlikely (4)
- Very unlikely (5)

Economic Impact of Virginia Tech Football

Q17 How satisfied were you with your experience concerning the following amenities at the game?

	Completely satisfied (1)	Somewhat satisfied (2)	Neutral (3)	Somewhat dissatisfied (4)	Completely dissatisfied (5)
Parking (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concessions (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Event Staff (Friendliness and Helpfulness) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In-Game Entertainment (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facility Cleanliness (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tailgating (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall Game Day Atmosphere (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 The gates to Lane Stadium open two hours before kick-off. What time do you usually try to arrive at the gates?

- As soon as they open (1)
- More than 1 hour before kickoff (2)
- 30 minutes to an hour before kickoff (3)
- Less than 30 minutes before kick-off (4)

Economic Impact of Virginia Tech Football

Q19 Would the following factors influence you to choose NOT to attend more football home games?

Check all that apply

- Family Obligations (1)
- Inconvenient Stadium location (2)
- Limited Interest in football (3)
- Quality of opponents (4)
- Quality of Virginia Tech Team performance (5)
- Weather conditions (i.e. rain/temperature) (6)
- I attend all home football games (7)
- Time Conflicts/game schedules (8)
- Lack of internet connection in stadium (9)
- No one else will attend (10)
- Quality of stadium (11)
- Traffic/parking (12)
- Lack of quality fan amenities at stadium (i.e. restrooms, concessions) (13)
- Other: (14) _____

Q20 How important is sustainability and recycling to you?

- Extremely Important (1)
- Very Important (2)
- Somewhat important (3)
- Slightly important (4)
- Not at all important (5)

Q21 Do you receive inside HokieSports?

- Yes, I subscribe to the print version (1)
- Yes, I subscribe to the online version (2)
- Yes, as a member of the Hokie Club (3)
- No (4)
- I was unaware of a magazine being available (5)

If No Is Selected, Then Skip To What is your favorite aspect of the V...If I was unaware of a magazine... Is Selected, Then Skip To What is your favorite aspect of the V...

Q22 Please tell us what you think of HokieSports magazine

Q23 What is your favorite aspect of the Virginia Tech football home games?

Q24 What would you change about Virginia Tech football home games?

Economic Impact of Virginia Tech Football

Q25 How likely are you to use or try a product or service if they are sponsors of the Hokies?

- Very Likely (14)
- Likely (15)
- Undecided (16)
- Unlikely (17)
- Very Unlikely (18)

Q26 Other thoughts?

Q27 Thank you for your time!! If you have any questions or comments about this survey, please contact Sarah Lyon-Hill at sarahlh@Virginia Tech.edu

APPENDIX D

Assessing the Economic Impact of Virginia Tech Football Games on the New River Valley and Roanoke Metropolitan Areas

Greetings! The Virginia Tech Office of Economic Development is conducting a research project to assess the ways that Virginia Tech football affects the surrounding communities of the New River and Roanoke Valleys. As part of this project, we have developed a brief questionnaire for businesses that are impacted by the presence of football fans. Your responses will help us understand how Virginia Tech football affects regional businesses, and how the region can maximize the benefits of these events.

NOTE: All responses will be kept confidential-- the final, public version of the report will contain only aggregate, generalized data that does not identify specific businesses.

If you have any questions or comments about this survey or the research project, or if you would like to participate in more in-depth interviews with the project researchers regarding the impacts of Virginia Tech football games on your business, please contact:

Sarah Lyon-Hill, Virginia Tech Office of Economic Development (sarahlh@vt.edu)

1. What is your zip code? _____

2. What is your primary business classification?

- | | |
|--|---|
| <input type="checkbox"/> Hotel/motel/B&B | <input type="checkbox"/> Real Estate/Rental |
| <input type="checkbox"/> Restaurant/bar | <input type="checkbox"/> Retail/specialty |
| <input type="checkbox"/> Convenience/grocery store | <input type="checkbox"/> Arts and entertainment |
| <input type="checkbox"/> Outdoor/sports equipment rental | <input type="checkbox"/> Healthcare |
| <input type="checkbox"/> Automotive/gas | <input type="checkbox"/> Other: _____ |

3. Do you think your business is affected by Virginia Tech football home games? Yes No

4. Do you expect an increase or decrease in revenue during a HOME GAME week or as a result of a HOME GAME?

Economic Impact of Virginia Tech Football

- Increase
- Decrease
- Neither

If so, what percentage increase/decrease?

- <5 %
- 5-10 %
- 10-15 %
- 15-20 %
- 20-30 %
- >30 %

5. During an AWAY GAME or as a result of an AWAY GAME, do you expect an increase or decrease in revenue?

- Increase
- Decrease
- Neither

If so, what percentage increase/decrease?

- <5 %
- 5-10 %
- 10-15 %
- 15-20 %
- 20-30 %
- >30 %

6. Does the game-time have an effect on how much business you receive from football fans?

- Yes
- No

If so, which type of game has the greatest impact? (rank 1-4, 1 is the greatest impact)

- Noon games
- Afternoon (2p-6p)
- Evening (6p or later)
- Thursday games

7. Which games/conditions do you receive the highest increase in revenue?

8. Do you increase your staff on football weekends? Yes No
If yes- please estimate the additional amount you spend on workers' pay as a result _____

9. What other aspects of your business might you change during Virginia Tech football games (e.g. hours of operation, purchasing, specials/sales, special rates etc.)?

10. How would you characterize your clientele on football weekends? (Check All the Apply)

- Older
- Younger

Economic Impact of Virginia Tech Football

- | | |
|---|--|
| <input type="checkbox"/> Families | <input type="checkbox"/> Virginia Tech Students |
| <input type="checkbox"/> Older Alumni | <input type="checkbox"/> Recent College Graduates (Since 2008) |
| <input type="checkbox"/> Local Residents | <input type="checkbox"/> Visitors to NRV and Roanoke Valley |
| <input type="checkbox"/> Visiting Team Fans | <input type="checkbox"/> Other: _____ |

11. Do you advertise to attract football fans to your business?

- Yes
 No

If yes, in what types of media do you advertise (eg, print, on-line, name of magazine, website, etc.)

12. Apart from increased sales/customers-- in what other ways does Virginia Tech football (positively or negatively) affect your business and its operations?

13. In what ways could Virginia Tech Athletics better serve your business during football home games?

14. Additional Comments?

15. Would you be willing to share with us your name, business and contact information for possible additional follow-up questions? Again, this information would be completely confidential.