

## Introduction

Virginia Tech, the commonwealth's top research institution and its largest university, is a land-grant institution with a tripartite mission of public service, research, and instruction. As such, it is committed to improving the economic well being and quality of life of all Virginians. The university's educational, research, and outreach programs increase the productivity and competitiveness of individuals, firms, and institutions (including governmental agencies) throughout the state.

Virginia Tech, however, by its very existence in the New River Valley of Southwestern Virginia, plays a major role in fueling the regional economy in many ways. The university and its related organizations manage more than \$1 billion in assets and employ 8,500 people. In turn, the expenditures of Virginia Tech and those of its employees, students, visitors, and related organizations have a multiplier effect that creates additional levels of economic activity.

The largest economic effect occurs in Montgomery County, but the activities spill over into the surrounding region. The total economic contribution ultimately translates into more jobs, additional income and tax revenues, greater diversity in retail shopping and services, and generally increase the quality of life in the region.

In 1992, an economic impact study estimated that about \$765 million of the economic activity in Montgomery and surrounding counties occurred because of the presence of Virginia Tech. This study updates the previous results for fiscal year 1999.

The study's main objective is to estimate the annual short-run economic impact of the university on the surrounding area. This impact is derived by considering the effects of expenditures that would not occur if the university did not exist.

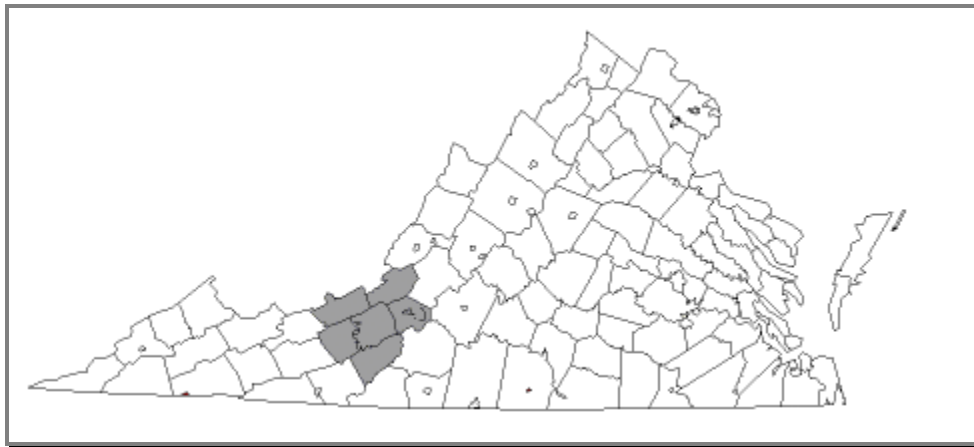
The economic impact of Virginia Tech provides just one measure of the many interactions between the university and the surrounding community. While this economic activity is quite substantial and beneficial to the study areas, it is important to note that the residents of Montgomery County and the New River/Roanoke Valley (NRRV) benefit from Virginia Tech's presence in other ways as well. The existence of a large university, particularly in rural areas, provides numerous cultural, academic and recreational benefits to local residents, such as increased diversity, sporting events, cultural presentations, and academic opportunities.

## Procedure and Study Area

The goal of this study is to measure the short-run economic impact of Virginia Tech on the local community, which includes Montgomery County and the New River Valley and Roanoke Valley. The New River and Roanoke Valleys (NRRV) encompass Craig, Floyd, Giles, Montgomery, Pulaski, and Roanoke counties, and the independent cities of Radford, Salem, and Roanoke.

The study compares the state of the local economy with and without the university. The main challenge is to identify and estimate the magnitude of the economic activities that are created by the presence of the university. The study considers three primary types of economic activities that occur because of the university's presence:

- Spending by the university and its affiliates
- Local spending by university associates including undergraduate and graduate students, faculty members, and staff members
- Local spending by non-local visitors to the university, such as football game attendees, conference attendees, and individuals visiting students



Study Area

## Summary of Findings

The presence of Virginia Tech had several significant effects on the economies of the study regions during 1999. More than 15,000 jobs in the NRRV and more than 12,000 jobs in Montgomery County can be traced to the activities of Virginia Tech and its associates (students, employees, and visitors). This accounts for more than 25 percent of the jobs in Montgomery

County and over six percent of the jobs in the NRRV. The presence of Virginia Tech increases Montgomery County's Gross Regional Product (GRP) by \$521 million, or \$16,600 per household. In the NRRV, total GRP is increased by about \$586 million (\$4,200 per household). Approximately \$1.2 billion in economic activity in Montgomery County and \$1.3 billion in economic activity in the NRRV can be traced to university-related spending in these areas.

## **Local Expenditures**

**The University and Affiliates.** Total direct spending by the university and its affiliates in the NRRV and Montgomery County was estimated to be \$175 million and \$163 million, respectively.

Although the total expenditure of Virginia Tech and its affiliates was more than \$690 million during FY 1999, payments to local faculty and staff members and students were not included in this direct spending analysis because they are part of individual spending. Also not included were spending by the Virginia Cooperative Extension offices outside of the NRRV, and spending by the Northern Virginia Center, the Southwest Virginia Higher Education Center in Abingdon, and the Center for European Studies and Architecture in Switzerland.

The remaining non-wage expenditures were broken down into 949 expenditure accounts. A similar process was used to derive the expenditure pattern of the Virginia Tech Foundation. Expenditures of other Virginia Tech affiliates were obtained from representatives of each program and were broken down into operating expenses, salaries and wages, and fringe benefits.

**Undergraduate Students.** Undergraduates spend approximately \$81.1 million locally each year. The main economic impact of undergraduate students, however, results from their local spending of money obtained from university employment, stipends, and other non-local sources. This figure, called "net local spending," was estimated at \$66.4 million after subtracting non-Virginia Tech wages earned by the students, which was estimated at \$14.7 million.

The expenditure pattern of students was estimated using a survey distributed to students during the fall 1999 semester. The survey asked about monthly student spending in various categories, student employment, and whether the student stays in the local area over the summer break.

Based on the survey, the average undergraduate student spends approximately \$425 per month locally, not including expenditures at Virginia Tech, such as dining plans, dormitory room

rental, and tuition (see below). The average annual expenditure per student is then multiplied by the total number of students to derive total expenditures.

The average undergraduate earns approximately \$1,190 per year locally for a total of \$24.7 million each year for all undergraduates. About \$10 million came from university employment earnings and \$14.7 million from non-Virginia Tech local earnings.

**Graduate Students.** Local spending by graduate students was analyzed separately using a procedure similar to the one used to analyze undergraduate expenditures. Data on graduate student expenditures was gathered at various on-campus locations and using an Internet-based survey. The average reported local expenditure was slightly more than \$1,000 per month, or \$10,878.30 per year, not including payments made to the university.

Category	\$/month	\$/year
<b>Housing and Utilities</b>	404.14	4,199.59
<b>Meals, Beverages, and Groceries</b>	233.62	2,427.65
<b>Entertainment and Recreation</b>	80.71	838.64
<b>Services</b>	20.13	209.18
<b>Health</b>	55.26	574.24
<b>Transportation</b>	80.03	831.61
<b>Retail and Other Goods</b>	172.97	1,797.39
<b>TOTAL:</b>	1,046.87	10,878.30

**Virginia Tech Employees.** Spending by all non-student employees of Virginia Tech and its affiliates was analyzed as a single group. It is assumed that the total expenditure (local and non-local) of university employees is equal to their disposable income paid by the university, or \$224 million each year.

Using survey data from the 1992 economic impact study, this study then estimated the proportion of disposable income spent in various categories and the amount spent on-campus and outside the NRVV.

**Student Visitors.** Students receive various out-of-town visitors throughout the year. Information about these visitors was gathered from students in a survey. Respondents indicated how many friends and relatives visit them each year while at school and the average stay of each type of

visitor. From this information, spending on motels, food, and miscellaneous items was estimated. Expenditures of visitors who came to Blacksburg to assist students during the fall move-in period were assessed directly by surveying them. Other visitors, including those attending admissions open houses, commencements, orientations, Parents Day, and Founders' Day events were assumed to exhibit similar expenditure patterns to that revealed in the move-in surveys although the expenditure pattern was modified somewhat for some types of visitors.

Estimated Totals for Miscellaneous Student Visitors

Category	Special Events	Move-In	Undergraduate Visitors		Graduate Visitors		Totals
			Friends	Relatives	Friends	Relatives	
Person-Days	58,145	72,957	180,964	78,888	33,658	57,907	482,519
Person-Nights	11,629	41,780	112,468	39,751	21,715	44,562	271,905
Lodging	\$ 324,691	437,009	\$0	\$ 737,917	\$0	827,218	\$2,326,835.00
Food	\$ 268,925	\$ 290,111	\$ 836,979	364,864	\$ 155,671	\$ 267,824	\$2,184,374.00
Miscellaneous	\$ 1,395,471	\$ 1,676,806	\$ 1,123,487	\$ 1,424,664	\$ 150,332	\$ 274,531	\$6,045,291.00

**Conference Visitors.** Virginia Tech hosted almost 28,000 conference visitors last year, mostly through its continuing education programs. It is estimated that these visitors spent more than 74,000 person-days in the NRRV and about 46,000 person-nights. A budget was created for conference visitors by adjusting national conference visitor survey data and state government *per diem* allowances for local conditions. Using this approach, it was estimated that these visitors spend approximately \$8.8 million annually in the NRRV and \$4.8 million in Montgomery County.

Estimated Total Expenditures for Conference Visitors

Area	Lodging	Meals	Entertainment	Miscellaneous
Mont. County	\$1,697,400	\$1,292,800	\$606,000	\$1,171,600
NRRV	\$3,175,132	\$2,358,861	\$1,105,716	\$2,137,718

**Football Game Attendees.** Football games attract a large number of out-of-town visitors to Virginia Tech. These visitors purchase goods and services using money derived from non-local sources and therefore impact the local economy. To estimate the impact of football visitors, surveys were distributed during two Virginia Tech football games, Syracuse and Miami. About 350 non-NRRV visitors returned usable surveys at both games. Based on the survey, the average expenditure per visitor was \$81.75 per game, spent over an average stay of 1.6 days.

According to the zip codes of season ticket holders, it was estimated that 29 percent of the attendees at each game came from outside the NRRV, and 39 percent came from outside Montgomery County. Using this figure and the reported attendance at the six home games, it was estimated that there were approximately 92,769 non-NRRV football visitors and 126,474 visitors from outside the county during the 1999 season. These visitors spent approximately \$7.6 million and \$10.3 million, respectively.

**Total Local Spending by Football Visitors**

<b>Category</b>	<b>Direct Impacts</b>	
	<b>NRRV</b>	<b>Montgomery Co.</b>
Meals	2,193,000	2,989,000
Lodging	1,944,000	2,650,000
Snacks and Beverages	778,000	1,060,000
Souvenirs	2,032,000	2,771,000
General and Misc. Items	638,000	869,000
<b>Total</b>	<b>\$7,584,000</b>	<b>\$10,339,000</b>

**Overall Visitor Spending.** Overall, the direct impact of spending by out-of-area university-related visitors was about \$26.9 million in the NRRV and \$25.3 million in Montgomery County. Based on these findings and Virginia Tourism Corporation data, Virginia Tech visitors accounted for about 40 percent of the travel-related expenditures made in Montgomery County. Visitors attending non-football sporting events are not considered in this study. Many of these visitors come from the local area and therefore produce no local impact. However, a very small proportion of these visitors undoubtedly are from outside the study regions. Therefore, the estimated overall visitor is somewhat conservative.

**Direct Visitor Spending by Study Area**

<b>Visitor Type</b>	<b>NRRV</b>	<b>Montgomery Co.</b>
Conferences	\$8.8 million	\$4.8 million
Football	\$7.6 million	\$10.3 million
Student Move-in	\$2.4 million	\$2.6 million
Student Visits	\$8.2 million	\$7.6 million
<b>TOTAL</b>	<b>\$26.9 million</b>	<b>\$25.3 million</b>

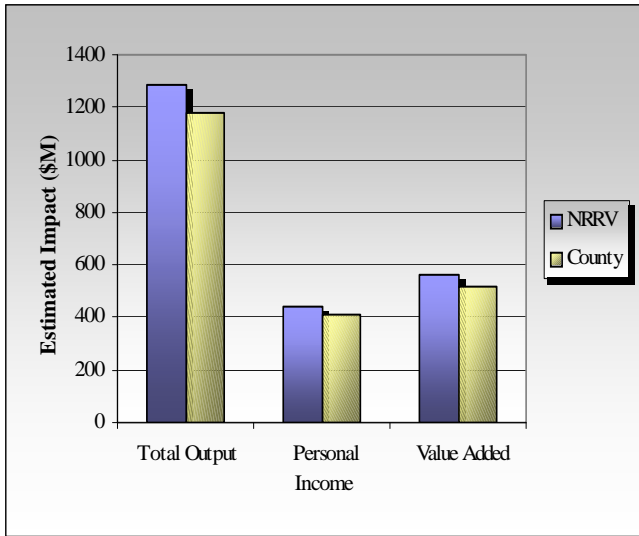
## RESULTS

It is estimated that the presence of Virginia Tech increases total NRRV economic output by nearly \$1.3 billion and value-added by about \$586 million. (Total value-added is total revenue used to pay for interest, taxes, wages, salaries, and profits, and does not include payments for products used in the production of other goods. A region's value added is analogous to a nation's Gross Domestic Product.)

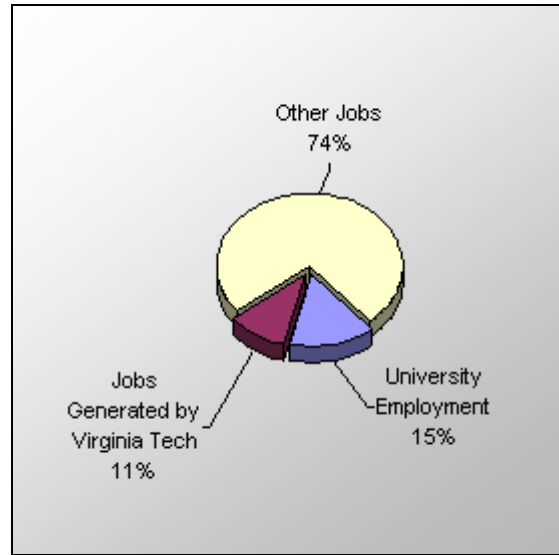
The university and its associates generate about 25 percent of Montgomery County's 47,800 full-time equivalent jobs and produce more than 15,000 jobs in the NRRV (approximately 6 percent of NRRV employment). Virginia Tech increases total personal income by almost \$460 million in the NRRV and more than \$409 million in Montgomery County. Further, the university contributes to the average annual personal income of each Montgomery County household by more than \$13,000 (\$3,300 in the NRRV ) and average value-added per household by more than \$16,600 (\$4,200 in the NRRV).

Estimated Impacts

	Total Output (\$M)		Personal Income (\$M)		Value -Added (\$M)		Employment (FTE)	
	CNTY	NRRV	CNTY	NRRV	CNTY	NRRV	CNTY	NRRV
Virginia Tech and Affiliates	897.2	938.0	347.96	364.4	371.96	399.2	8,823	9,440
Student Spending								
Undergraduate	63.7	93.2	11.7	29.1	28.5	48.4	642	1,355
Graduate	40.7	52.5	7.8	12.1	19.2	19.2	424	538
Total, Student Spending	104.4	145.7	19.5	41.2	47.7	67.6	1,066	1,893.0
Faculty and Staff	142.2	162.3	30.9	40.0	83.9	97.6	1,597	1,869
Visitors								
Athletic Visitors	11.7	9.7	3.8	3.4	6.1	5.3	268	203
Conference Visitors	6.6	13.7	2.1	4.6	3.4	7.1	148	279
Misc. Student Visitors	10.7	12.9	3.5	4.4	5.6	6.9	226	249
Move-In	3.6	3.8	1.4	1.5	2.3	2.4	90	87
Total, Visitors	32.6	40.1	10.8	13.9	17.4	21.7	732	817.5
Overall Total	\$1,176.4	\$1,286.1	\$409.2	\$459.5	\$521.0	\$586.1	12,218.2	14,019.9



Estimated Impacts of Virginia Tech on Montgomery County and the NRRV



Virginia Tech and Employment in Montgomery County

A significant portion of the economies of both the NRRV and Montgomery County can be traced to Virginia Tech. More than 27 percent of the Gross Regional Product (GRP) of Montgomery County and about 6 percent of NRRV GRP is attributable to Virginia Tech. About 38 percent of the trade in Montgomery County (7 percent in NRRV) is due to the presence of Virginia Tech. And approximately 33 percent of the salaries and wages earned in the county (7.5 percent in the NRRV) are due to the university.

These results demonstrate the importance of Virginia Tech in the economies of Montgomery County and the New River/Roanoke Valleys. All residents of the study areas are affected by Virginia Tech’s presence through increased income, regional product, employment, and trade. The economic impacts of Virginia Tech provide one measure of the many interactions between the university and the surrounding community. While these economic interactions are quite substantial and beneficial to the study areas, it is important to note that the residents of Montgomery County and the NRRV benefit from Virginia Tech’s presence in other ways as well. The presence of a large university, particularly in rural areas, provides numerous cultural, academic and recreational benefits to local residents such as increased diversity, sporting events, cultural presentations and academic opportunities.

This study conceptually separated the university from the study areas in order to model the university’s effects. However, Virginia Tech is more properly thought of as a part of Montgomery County and the NRRV. Each economic transaction that makes up the university’s impact required a buyer and a seller, both of which benefit from the transaction. Thus, whenever the study regions

receive benefits from Virginia Tech, Virginia Tech receives benefits from the study regions. This complementary relationship underscores the need for mutual understanding and concern between members of the university community and the institutions and residents of the NRRV and Montgomery County.

*Copies of the full report can be obtained from the Office of University Relations, 540-231-5396.*

