

# **Investigating the Economic Impact of James Madison University on the City of Harrisonburg and Rockingham County**

## **Executive Summary**

The State Normal and Industrial School for Women was established in Harrisonburg, Virginia in 1908. Almost 100 years later, the school has grown into one of the leading comprehensive institutions in the country. Its graduate programs are also quickly gaining recognition as premier opportunities in higher education. James Madison University's enrollment is approaching 17,000 students, with more than 3,000 employees and a 2006-07 operating budget of \$335 million.

James Madison University has a significant impact on the economies of the City of Harrisonburg and Rockingham County. The JMU Office of Institutional Research, with consultation and technical support from the Virginia Employment Commission, recently investigated that impact. This investigation was based on fiscal year 2005 spending for JMU operations and capital projects, fall 2004 thru summer 2005 student spending, and calendar year 2005 compensation to employees. JMU's impact on the local economy included:

- Over 3,000 non-JMU jobs in the local area were the result of university-related spending;
- Between 8 and 10 percent of all local employment, including JMU employees, resulted from university-related spending;
- More than \$292 million was spent locally by the university, its students and its employees. Spending by thousands of visitors and parents on special-event weekends was not included;
- Over \$39 million was spent in "indirect effects" -- payments to local businesses that were re-spent with other local businesses;
- Over \$40 million was spent in "induced effects" -- payroll received by employees working for local businesses that were re-spent to support their households;
- Over \$21 million (78 percent of the FY 2005 capital total) was spent with local firms for capital planning and construction;
- Almost \$12 million in health-insurance premiums paid by the university for its employees returned in payments to local health-care providers;
- Over \$8 million in retiree benefits from the Virginia Retirement System and non-VRS retirement plans were paid to JMU retirees;
- University-related spending generated a tax effect of \$7.6 million in revenue to local governments and \$16.2 million to the state; and
- Students used their JMU Flex Card electronic debit accounts to spend more than \$1.6 million off-campus in the local community.

The results from past OIR economic impact studies should not be compared to these results. Despite OIR's efforts to maintain continuity in its economic impact studies over time, the VEC guided this study to use newer and more detailed IMPLAN (Impact Analysis for Planning) spending models. The IMPLAN tool is software that contains data about economic activity at the local level. It also "knows" the kinds of goods and services that are purchased by different industry sectors and income populations.

This study used several new IMPLAN models including a line-item model for student spending and an aggregate model based on a “market basket” sample of universities for operation spending. For employee spending, the study used a simpler model based on net wages instead of a more complicated estimate of employee spending in the local area. Finally, the effect of local capital spending was added to this impact study for the first time.

## **ACKNOWLEDGMENTS**

This economic impact study required the support of many individuals. I am particularly grateful for the assistance provided by Mr. Timothy Kestner, Economist, Virginia Employment Commission. Mr. Kestner helped guide the investigation through the principles of economic impact analysis and with selecting the IMPLAN models for the study. He also processed JMU’s expenditure information through the IMPLAN software to generate the estimates of JMU’s impact on the local economy. From the Virginia Retirement System, Rich Rogness, Technology Support Team Leader, generated for the first time a report for JMU on pensions received by local JMU retirees. Thanks also to Yohna Cone, HR Director and Wanda Layman, HR Benefits Administrator who helped to obtain the VRS report.

A number of staff within the university were invaluable to this project because of their expert knowledge with university data. Ms. Terry Knight, Business Analyst, IT User Services provided data on non-personal expenditures. Ms. Jill Eckard, Director, Payroll Services, compiled the payroll expenditure information. Mr. Jimmy Rule, Assistant Controller, Financial Reporting, provided data on the university’s total expenditures. Courtney Hodges, Budget Manager, Facilities Management provided information on capital outlay expenditures. Brad Barnett, Senior Associate Director, Office of Financial Aid & Scholarships provided detail on the student aid budget. All of these individuals also played important roles as consultants to the analysis within their areas of expertise.

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## **Introduction**

The State Normal and Industrial School for Women was established in Harrisonburg, Virginia in 1908. It is difficult to imagine what the City of Harrisonburg and Rockingham County would look like today if this school had not been created and did not grow into a nationally recognized public institution with enrollment approaching 17,000 students. A host of factors over the past century might have created an area mixed with the special character, beauty and industries of other Shenandoah Valley cities. Or maybe, the area would have grown into a more unique community which is as exceptional and prosperous as it is today.

As things happened, the school established in 1908 grew to become James Madison University. It employs over 3,000 full-time and part-time faculty and staff. Its 2006-07 operating budget is \$335 million. It is consistently ranked as one of the top master's institutions in the southern region of the United States and "best college buys" by publications like *US News & World Report* and *Money Magazine*.

It is difficult to look at JMU without realizing the significant impact it must contribute to the local economy. Similar significance might also be assumed about other businesses and industries in the area. As businesses open, expand, cutback or close, the news is often accompanied by some estimate of the number of jobs or expenditures that will be gained or lost in the community. Given JMU's growth, both recent and projected, it is helpful to periodically examine and put into perspective its economic impact on the local community.

## **Overview**

In simple terms for this study, economic impact means tracking expenses to see how much they contribute to local businesses and their employees, and how those businesses and their employees spend that income locally. Local expenses become the input for an economic model that outputs three types of effects:

- **Direct Effects:** The amount of expenses which initially remain in the local community. For example: If a television were purchased locally, the direct effect would be the vendor's markup (the difference between the vendor's wholesale purchase price and retail sales price).
- **Indirect Effects:** Estimates of the expenses that occur when direct dollars are spent by local businesses with other local businesses, and are then spent again between local businesses until the expenses leave the community. Indirect effects also include the number of jobs associated with the indirect expenditures.

- **Induced Effects:** Induced effects include estimates of the direct and indirect dollars paid by businesses to their employees which they spend locally to support their households. The number of jobs created by induced spending is also an induced effect.

The JMU Office of Institutional Research has received help from the Virginia Employment Commission with estimating the local economic impact of the university in three prior studies beginning in 1992. The VEC has the expertise and computing tools that can estimate economic impact from spending estimates supplied by the university. The software used by the VEC is commonly referred to as IMPLAN (Impact Analysis for Planning). For this study, VEC used IMPLANPro, an economic modeling system owned and maintained by Minnesota IMPLAN Group (MIG), Inc. One new addition to this study from previous studies is an estimate of the tax impact (revenue) to state and local governments.

In simple terms, two types of data help power IMPLAN. First, IMPLAN has data about the kinds of goods and services that are produced and/or can be purchased in a specific locality. Second, IMPLAN knows the “baskets” of goods and services that people, businesses or institutions are likely to purchase. By knowing how much of “what” may be purchased locally by “whom,” IMPLAN can return the various effects on expenses and employment (direct, indirect and induced).

The best economic impact estimates are derived from IMPLAN models requiring high levels of spending detail. For example, a line-item model for operations spending would receive as input the totals for many specific items like electricity, paving, vehicles and postage. With an aggregate model, the model would internally include a distribution of expenses across a basket of goods and services that is based upon research of a sample of institutions. The line-item model should return better results than the aggregate model. Likewise, a model based on employee net wages is better than one that uses gross wages. The gross wage model would introduce some error in order to estimate the net wages within the analysis.

Finally, the larger the institution, the more difficult it becomes to take operational data on expenses and transform them into the line-item categories required by the IMPLAN model. These difficulties are discussed below.

## **Methodology**

When JMU last received assistance from the VEC (June 2002), the results were accompanied by the following statement:

“While this study was conducted in a manner similar to the previous studies, any future requests for economic impact studies will be conducted using updated methodologies for calculating the multiplier effects. As a result, any subsequent studies will not be comparable to previous studies.”

Despite OIR’s efforts to maintain continuity in its economic impact studies over time, the VEC guided this study to use newer and more detailed IMPLAN spending models. The study would try to use line-item models for student and operations spending. The study would use a simpler approach to employee spending that used only net wages instead of an estimate of employee spending in the local area. Also, capital spending would be added to the impact study.

The first step in determining which IMPLAN models to use for this study was to consult with the VEC to determine the available options. Soon thereafter, institutional data extraction and data consultation began with help from JMU accounting and reporting, payroll, purchasing, capital outlay and financial aid staff. For each of the following categories, data were examined to see if they could be used for the best VEC recommended IMPLAN model:

- Student spending within the local community;
- Employee net wages (students not included);
- JMU operational spending (non-personal only) to local vendors; and
- JMU capital expenditures to local vendors.

For student spending, an estimate was derived from the student budget that is used by the university's Office of Financial Aid and Scholarships to calculate student aid awards. The student budget was built with line-items like room, board, transportation and clothing. So, a detailed line-item estimate of local spending by students was a viable fit for an IMPLAN line-item model. To avoid double counting, the student totals were adjusted to remove JMU revenue from students for tuition, fees, housing, meal plans, and Flex Card (electronic debit) accounts spent on-campus. Estimates were based on enrollment from fall 2004 thru summer 2005.

For employee spending, university data also worked for the recommended IMPLAN model. Payroll services delivered the net salary and wages paid to JMU employees in calendar year 2005. Detail on pre-tax deductions and employer-paid benefits was also delivered. The net wages data were adjusted in two ways. First, student payroll was removed from the totals. Second, pre-tax benefit deductions, like medical expenses and day care, were added back into the net. They were added back to net because they are predominantly local expenses which are normally paid from net wages by many people who do not have pre-tax benefit plans.

Operational expenses (non-personal only) were examined to see if the data could be transformed to fit the line-item IMPLAN model. Many gaps were found between simple descriptions of line-items in the institutional data and line-item descriptions in the IMPLAN model. The line-item model was dropped when it became clear that there was insufficient detail in the institutional data to map it to the IMPLAN line-item model.

For operational expenses (non-personal only), the next best option was to use an aggregate IMPLAN model based upon a "basket of goods" common to universities and colleges. This model was feasible for the data and the total amount of non-personal operations expenses within the local community was determined. The determination included identifying local versus non-local vendors by zip code of the vendor mailing address. Fiscal year 2005 expenses were used.

For capital expenses, university expenses on capital outlay were acceptable for the recommended IMPLAN model. The aggregate capital expenses made to local vendors were clear in the data and the outlay total reconciled against other capital outlay reports.

Throughout the investigation of expense data and spending estimates, the OIR researcher doggedly sought to determine: "Where did these dollars go?" Reasonable attempts were made to see that:

- Dollars spent in the community did not “leak out of” the analysis;
- Dollars not spent in the community did not “leak into” the analysis; and,
- Dollars were not double counted.

This investigation found five primary difficulties in determining where the dollars went. The first of these involved direct expenditures that are initially made outside of the local economy but come back later. Two large expenditures likely to come back to the community are premiums spent on health insurance and payments to pensions, annuities and social security payroll taxes. Both were added to the study.

According to Anthem, the administrator of the Commonwealth’s employee health insurance system, about 75 percent of premiums paid to Anthem return as payments to local vendors. The FY 2005 expense for employee health care was used to calculate the IMPLAN input for the impact of this spending on the local medical industry.

OIR also requested a special report from the Virginia Retirement System on pension payments to local JMU retirees (the first request of its kind by higher education according to the VRS contact). The report revealed that in fiscal year 2005 over \$7 million gross (over \$5 million net) in pension benefits was paid to former JMU employees still living in the local community. Some JMU employees, however, have non-VRS benefit plans. From the VRS results, OIR estimated that almost \$3 million more in net non-VRS retirement pensions returned to the local community. Unfortunately, federal social security payments from JMU retirees were not found and leaked from the model.

Other difficulties compiling expenses included the complications that arise when the institution or business is so large that its operations include expense and revenue accounting for internal services between departments. For example, facilities maintenance departments often provide services for other internal departments and grant accounts are often charged for indirect costs. This results in internal accounting for chargebacks to departments for labor, materials and overhead. Only the expenses that leave the institution are included in this analysis.

Another problem was “lockbox error.” The ZIP code of the vendor payment address is the best available criteria for determining if an expense was local. Lockbox error occurs when payments for local goods and services are made to an office that is not local. This is often the case for large corporate vendors and credit card purchases.

Student spending estimates also required special handling to avoid double counting. Students spend money both on and off campus. Tuition and fees will eventually be spent by the university and should not be included in student spending estimates. University revenue amounts for optional student services, like room or board, should be removed from student spending. This study included an examination of the line items that make up the student financial aid budget. Amounts for car insurance and license fees were also not included as local expenditures.

Finally, large contractual services were examined to see if they required an adjustment to any of the estimates. For example, the commission paid by the privately operated bookstore to JMU was removed from student spending estimates for books and supplies to prevent double counting.

## Results

The investigation into fiscal 2005 spending by JMU, its employees and students estimated that more than \$292 million was spent in the City of Harrisonburg and Rockingham County. This included almost \$12 million in premiums for health insurance returned as payments to local care providers. It also included an estimate of over \$8 million paid to VRS and non-VRS pensioners living locally. Social security benefits could not be determined and are not included. Table 1 shows the types and amounts of spending that were delivered to the VEC for this economic impact analysis.

Total	\$ 292,066,775
Students (fall 2004, spring 2005 and summer 2005)	\$ 100,032,742
Employee Net Wages (Students not included, calendar 2005 data used)	\$ 96,536,869
Operations Expenditures	\$ 54,114,454
Capital Expenditures	\$ 21,189,006
Employer paid premiums for health insurance returned as payments to local providers.	\$ 11,984,489
Virginia Retirement System net pensions, plus estimate of non-VRS net pensions, paid to local JMU retirees.	\$ 8,209,215

The VEC determined that out of the total of \$292 million spent locally, \$179 million remained in the local economy to generate indirect and induced spending for other local goods and services. This was the direct effect. The indirect effects from local industry purchases were \$39 million. The induced effects of households spending income from the direct and indirect effects was \$40 million. Total employment and payroll, including JMU, was 6,225 jobs associated with \$180.5 million in compensation. An estimated 3,023 non-JMU jobs were associated with institution-related spending. Table 2 shows the estimated effects of spending by JMU on the local economy in terms of spending and jobs associated with the spending.

Total Spent Locally	\$ 292,066,775
Direct Effect	\$ 179,149,400
Indirect Effect	\$ 39,000,000
Induced effect	\$ 40,000,000
Total	\$ 258,149,400
JMU Employees (full-time and part-time fall 2005)	3,202
Non-JMU jobs	3,023
Total Jobs Associated with the Institution	6,225

The IMPLAN tool also generated an estimate of the tax impact on the state and local area in three categories: corporate, business and personal taxes. The estimate includes tax revenue and other forms of government revenue such as vehicle license fees and fines. Overall, the state received about \$16.2 million and the local area about \$7.6 million. State tax receipts included almost \$3 million in corporate

taxes, over \$4 million in sales tax, and over \$7 million in income tax. The model generated more than \$6 million in business property taxes to the local governments. However, the model severely underestimated indirect personal property taxes at only \$37,246. With over 3,000 non-JMU jobs associated with JMU spending, one would estimate real estate property tax impact to be in the single digit millions. Table 3 shows the tax impact of JMU in these three categories as generated by IMPLAN.

Corporate Profits and Dividends	\$2,898,686
Indirect Business Taxes	
Property Tax	\$6,026,165
Sales Tax	\$4,430,274
Meals Tax	\$557,945
Other Taxes and Fees	\$2,171,436
Indirect Business Taxes Total	\$13,185,820
Personal Taxes	
Income Tax	\$7,400,209
Motor Vehicle License	\$83,612
Property Tax	\$37,246
Other taxes and fees	\$174,160
Personal Taxes Total	\$7,695,227
Total Taxes	\$23,779,733

## Discussion

JMU's significant impact on the local economy is clear. This study found that almost one out of every 10 jobs in the local area (between 8 and 10 percent) were associated with spending by James Madison University, its employees and students. This spending was estimated at \$292 million in the City of Harrisonburg and Rockingham County in fiscal year 2005. This spending was associated with over 3,000 non-JMU jobs and more than \$258 million in direct, indirect and induced spending in the local community.

This study also broke new ground on several fronts. Local capital spending of more than \$21 million was included for the first time. These \$21 million were 78 percent of the total amount spent by JMU on capital planning and construction. JMU's most recent five year average for capital spending was more than \$23 million per year. Although capital spending is a "one-time" event, JMU's capital spending is expected to continue to have a significant impact in coming years. In fall 2002, JMU was authorized to receive a total of \$99.9 million in capital spending through general obligation bonds approved by voters. By the end of FY 2005, almost \$13 million of this amount was spent. Another \$87 million more from these bonds will be spent by JMU on capital projects over the next several years. Likewise, the university will continue to pursue funding for other capital projects.

For the first time, this study was able to include figures on the actual pension amounts received by local JMU retirees. The Virginia Retirement System reported that 458 local retirees received over \$7 million in gross pension benefits. Pensions and annuities received by local non-VRS retirees were estimated at almost another \$4 million. Amounts from social security benefits could not be clearly estimated and leaked from the analysis.

For the first time, this study also included estimates of state and local tax benefits created by JMU spending. A total of \$23.8 million in tax and other revenue effect was determined by the VEC using the IMPLAN tool. Using other state data, the VEC made post-model adjustments to the corporate and income tax amounts (\$2.9 million and \$7.4 million respectively) that give high confidence to these estimates. However, IMPLAN seemed to severely underestimate the effect on local property taxes (only \$37,000). IMPLAN also estimated a total effect of more than \$9.3 million in meals and drinks served, yielding over \$500,000 in local meals taxes. Of the state sales tax, 1 percent was returned to the source localities, yielding an additional \$400,000 in tax revenue effects to the City of Harrisonburg and Rockingham County. Finally, some portion of these sales taxes were paid by students using their Flex Card accounts, which totaled more than \$1.6 million in local, off campus electronic transactions.

From a different source, the City of Harrisonburg found that when most JMU students leave in May, meals tax revenue drops about \$35,000 per month. For the nine months of regular session (fall and spring terms), students alone generate an estimated \$315,000 in meal tax revenue for the city. This nine-month figure for students helps to reinforce the reasonableness of the total estimate of more than \$500,000 from employees and students for the entire year.

Spending by parents and visitors to James Madison University were not included in this study. Thousands of university-related visitor days and hotel nights are spent in the City of Harrisonburg and Rockingham County every year. Annual events like Freshman Move-In Day, Homecoming, Parents Weekend and spring graduation result in a significant amount of local spending. Critical information, like better estimates of visitors for events like these, is necessary before the magnitude of parent and visitor spending can be brought to light.

Economists with the VEC clearly noted that the results of this study should not be compared to previous studies due to changes in the methodology and reporting of results. However, examining the values of a couple of items from the FY 2001 study may help demonstrate the reasonableness of the current results.

The FY 2001 report found that between roughly 7 and 9 percent of local employment was associated with JMU spending. The current results found between roughly 8 and 10 percent of the local employment was associated with university spending. The proximity of the results between both studies helps validate the fact that JMU is a significant influence on local employment. These results do not mean that there has been a 1 percent increase in the statistic.

The most significant difference between the current and previous studies was how the VEC reported direct spending. Direct spending is added to indirect and induced spending to determine the total spending impact. The two different reporting styles result in extremely different amounts of total spending impact. In the FY 2001 study, the VEC included all local spending in the result it described as “direct” spending. In the current study, only the dollars that stayed directly in the community were included. Using the sale of a television as an example again, FY 2001 direct spending included the full

retail price paid for the television. The current report included only the retail markup and left the wholesale price of the television out of the direct effects. If the total effects of the current study were reported the same as the FY 2001 report and with capital spending removed (capital was not included in the FY 2001 study), the total impact would be \$344 million instead of \$258 million. The total impact of the previous study, adjusted for inflation to 2005 dollars, was \$307 million. These figures validate the fact that the impact of JMU has increased with JMU's increase in student enrollment over the past four years. These figures do not mean that the total impact increased by \$37 million.

## **Conclusion**

James Madison University enrolled 15,809 students into on-campus courses in fall 2004. This level of enrollment represents a significant amount of spending related to JMU operations, employees, staff, construction and retirees in the local community. In fall 2005, the number of on-campus students grew by 4.7 percent to 16,546. Official enrollment projections estimate more than 17,000 on-campus students by fall 2008. As the Commonwealth of Virginia works to find new seats for college students in Virginia, the City of Harrisonburg and Rockingham County will continue to benefit from the economic impact of James Madison University.