Historically Black Colleges and Universities
Economic Series

The Economic Impact of Fayetteville State University

NORTH CAROLINA INSTITUTE OF MINORITY ECONOMIC DEVELOPMENT

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About the Authors

The North Carolina Institute of Minority Economic Development commissioned this study to assess the economic impact of Fayetteville State University. This report is part of the Institute's Historically Black Colleges and Universities Economic Series designed to measure and quantify the economic impact of HBCUs on their local communities, the state and beyond.

About The Institute

The North Carolina Institute of Minority Economic Development ("The Institute") is a statewide nonprofit organization. The Institute works to build the asset base of underutilized and undeveloped populations through economic development strategies that build businesses and sustain institutions vital to vibrant communities. Since inception in 1986, the Institute has published more than 15 studies/reports. Over the past five years (2004- 2009) its business development clients have realized more than $230 million in contracts and financial transactions.

About The Author Of The Economic Analysis

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Profile of Fayetteville State University

Fayetteville State University ("FSU") is a public comprehensive regional university that promotes the educational, social, cultural, and economic transformation of southeastern North Carolina and beyond. The primary mission of FSU is to provide students with the highest quality learning experiences that will produce global citizens and leaders as change agents for shaping the future of the state. Awarding degrees at the baccalaureate, master's, and doctoral levels, FSU offers programs in teacher education, the arts and sciences, health professions, business and economics, and unique and emerging fields. FSU is an institution of opportunity and diversity. Committed to excellence in teaching, research, scholarship, and service, the university extends its services and programs to the community, including the military, and other educational institutions throughout North Carolina, the nation, and the world.

Fayetteville State University is a historically black university founded in 1867 as the Howard School by seven black men for the purpose of educating black children. FSU has a tradition of excellence in teacher education and is the second oldest state supported school in North Carolina. The student body, faculty, and staff today rank among the nation's most diverse campus communities. FSU has a tradition of collaboration with the Fayetteville/Fort Bragg-Pope Air Force Base community, and renders services throughout southeastern North Carolina. FSU has a tradition of an affordable education and of preparing students to be life-long learners, to be responsible citizens, and to render selfless service to mankind. The 156-acre main campus is located in the City of Fayetteville, the largest municipality in Cumberland County. In 2008 Fayetteville State University celebrated 100 years of being located on Murchison Road. The Murchison Road Corridor (MRC) connects the University to downtown Fayetteville and Fort Bragg Army Base.

FSU's core values are:

1. ***Student Success and the Pursuit of Excellence***- We believe in student success and the obligation of the university to provide the highest quality learning experiences and academic programs to facilitate student success, intellectual and cultural growth, excellence in scholarship, leadership, and ethical standards.
2. ***Shared Governance***-We believe in shared governance, fiscal responsibility, a commitment to life-long learning, and professional development for faculty, staff, and students.
3. ***Global Responsibility***- We believe in respect for diversity, global responsibility, conservation of natural resources, and a commitment to sustainability.
4. ***Collaboration***- We believe in outreach, partnerships with educational institutions, the military, and the community, economic transformation of the state, and service to others.

Community Involvement

In late 2007 all campuses within the UNC System, were asked to participate in the UNC Tomorrow initiative to determine how the University of North Carolina and its 17 constituent institutions can respond more directly and proactively to the 21st century challenges facing North Carolina through the efficient and effective fulfillment of its three-pronged mission of teaching, research and scholarship, and public service. FSU's historic mission and commitment to excel in teaching, research and service to the community, and to prepare its students and graduates to lead meaningful and productive lives is directly related to this initiative. FSU, through its community based economic development non-profit organization (the FSU Development Corporation), has committed to strengthening its role in developing and managing community redevelopment efforts, providing more resources for economic transformation and community development, and continuing efforts to increase opportunities for small and minority-owned businesses.

Prior to the UNC Tomorrow Initiative, FSU was a leader in economic transformation in the Murchison Road Corridor ("MRC"). Over the last 20 years the university has been at the forefront of the redevelopment of the MRC, including the completion of the Murchison Road/College Heights Master

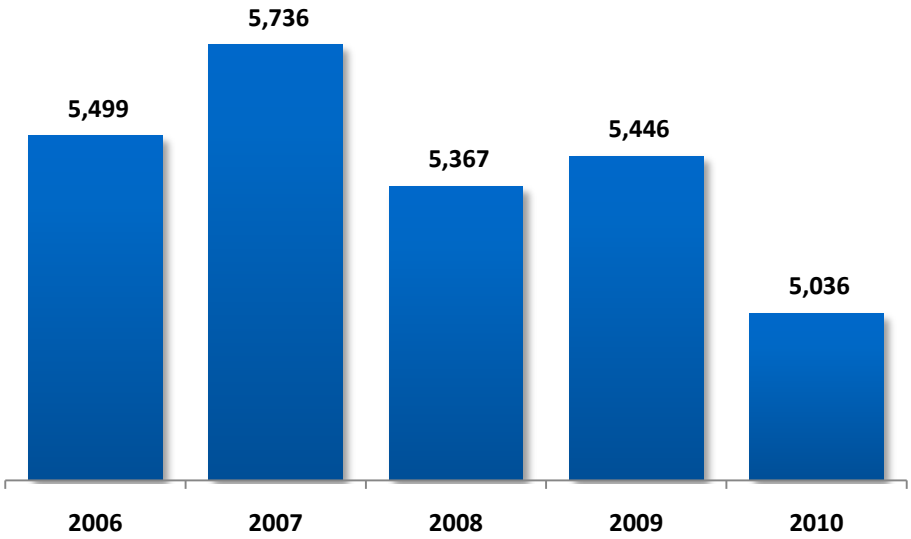
Economic Development Plan which resulted on the rationale for redevelopment and identified the business investment opportunities within this long-neglected gateway to the city. As a result of this plan, the Fayetteville State University Development Corporation ("FSUDC"), was formed to (1) acquire, own, and develop real property; (2) provide services and programs to the communities along the Murchison Road Corridor, and (3) through these activities garner funds for scholarships and operations at FSU. The FSUDC currently has 50% interest in the Bronco Development, LLC, a public/private partnership that owns Bronco Square Retail Plaza. Opened in 2002, Bronco Square, a 6,000 square foot shopping complex is located adjacent to FSU's main campus and serves a tenant mix which includes restaurants, office space and personal care shops. FSUDC also owns and operates the Fayetteville Business Center. The Center is classified as an incubator and was designed to nurture small start-up ventures by providing office and/or manufacturing space and consulting support via students and faculty of FSU's School of Business and Economics. The incubator was opened in the fall of 2001. FSUDC's board consists of University staff and community members. . FSU staff oversees the administration and financial management of FSUDC.

This study will set out to examine the impact of FSU on the economy of the Fayetteville MSA and the MRC. In fulfilling this mission, the study will answer the following perennial questions: What is the short-term economic impact of FSU on its host community? What are the college degrees granted by FSU worth?

Enrollment

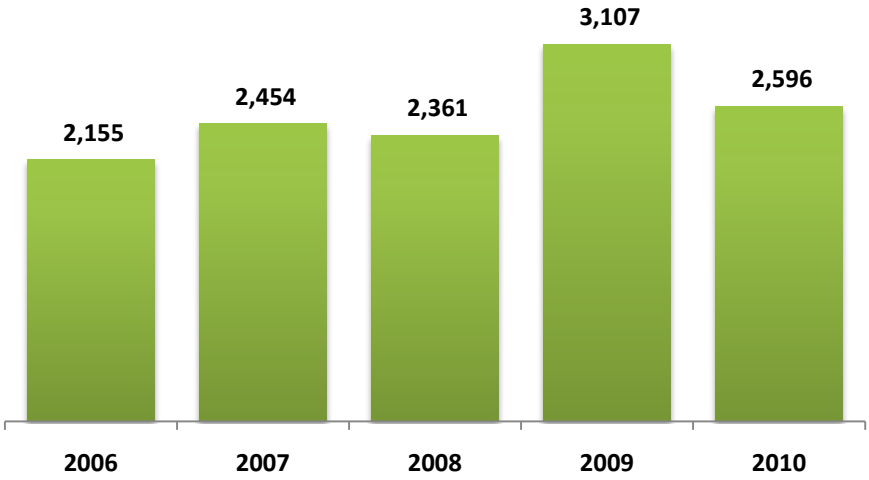
Fayetteville State University is a constituent institution of the University of North Carolina and the second-oldest public institution of higher education in the state. Founded in 1867 as the Howard School for the education of African Americans, today FSU ranks among the nation's most diverse campus communities and currently serves a growing student body of over 5,000.

Figure 1: Fayetteville State Full Time Student Enrollment (Fall 2006-Fall 2010)



Applicants

Figure 2: Fayetteville State Freshman Applications (2006-2010)



Economic Impact Highlights

The fundamental finding of this study is that FSU creates substantial economic impacts in terms of output, value-added, labor income, and employment. The economic impact of FSU on its host communities in 2007 includes:

- $198 million in output (sales);
- $115 million in value added (gross regional product);
- $83 million in labor income; and
- 2,440 full- and part-time jobs.

Measured in the simplest and broadest possible terms, the total economic impact of FSU was $198 million in 2007. Output can be thought of as the equivalent of business revenue, sales, or gross receipts. Of the 2007 total, $146 million (74 percent) is initial spending by the institutions and students; $52 million (26 percent) is the induced or respending (multiplier) impact. Dividing the 2007 total output impact ($198 million) by initial spending by the institutions and students ($146 million) yields an average multiplier value of 1.35. On average, therefore, every dollar of initial spending generates an additional 35 cents for the economy of the region hosting the institution.

2007 Economic Impact of Fayetteville State University Summary:

$198 million

in output (sales);

$115 million

in value added (gross regional product);

$83 million

in labor income

2,440

full- and part-time jobs.

In 2007, value added comprises $115 million (58 percent) of the $198 million output impact, with domestic and foreign trade comprising the remainder $83 million (42 percent) of the output impact. Labor income received by residents of the communities that host one or more institutions equals $83 million, and represents 72 percent of the value-added impact. Expressed in other dimensions, the employment impact of FSU, including multiplier effects, is 2,440 full- and part-time jobs.

In addition to the short-term impacts of college- and university related spending on their host communities, the 948 graduates of FSU (2008) can expect work-life earnings of $3.0 billion ($2008), of

which $1.2 billion (39%) represents the incremental work-life earnings that can be attributed to their college degrees. That amounts to an additional $1.23 million in work-life earnings per degree conferred. On average, that's what a college degree is worth.

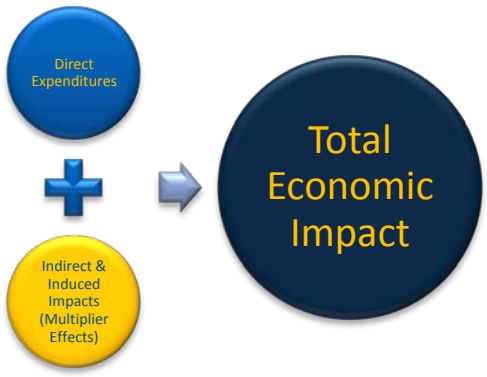
The Short-Term Economic Impact of FSU-Related Spending In 2007

Based on data for the 2007 fiscal year, short-term economic impacts are estimated for four important categories of college/university-related expenditures:

1. Spending by FSU for wages and salaries;
2. Spending by FSU for other budget categories (e.g., outlays for items other than wages and salaries);
3. Spending by undergraduate students who attended FSU; and
4. Spending by the graduate and professional students who attended FSU.

Also, the additional work-life earnings attributable to the college degrees conferred by FSU are estimated for 2008 graduates[1]. The total annual economic impact of university-related spending is defined to consist of the net changes in regional output, value added, labor income, and employment that are due to initial spending by FSU, by its' faculty and staff, and by its' students. The total economic impact includes the impact of the initial round of spending and the secondary, or indirect and induced, spending – often referred to as the multiplier effect – created as the initial expenditures are re-spent. Figure 3 provides a schematic representation of impact relationships.

Figure 3: Schematic representation of impact relationships



There are two types of secondary spending, indirect spending and induced spending. Indirect spending refers to the changes in inter-industry purchases as a region's industries respond to the additional demands triggered by spending by FSU, its faculty and staff, and its students. It consists of the ripples of activity that are created when the institution, its employees, and its students purchase goods or services from other industries located in the host community. Induced spending is similar to indirect spending except that it refers to the additional demand triggered by spending by households as their income increases due to changes in production. Basically, the induced impact captures the ripples of activity that are created when households spend more due to the increases in their earnings that were generated by the direct and indirect spending.

[1] It should be noted that the short-term impacts of university-related spending are reported in 2007 dollars, but that the work-life earnings estimates are reported in 2008 dollars.

The sum of the direct, indirect, and induced economic impacts is the total economic impact, which often is expressed in terms of output (sales), value added (gross regional product), income, or employment. Total industry output is gross receipts or sales, plus or minus inventory. It is the value of production by industry (including households) for a given period of time (one year). Total output impacts are the most inclusive, largest, measure of economic impact. Because of their size, output impacts typically are emphasized in economic impact studies and receive much media attention. One problem with output as a measure of economic impact, however, is that it includes the value of inputs produced by other industries, which means that there inevitably is some double counting of economic activity. The other measures of economic impact (value added, labor income, and employment) are free from double counting and provide a much more realistic measure of the true economic impact of FSU on its regional economy.

Value added (or gross regional product) consists of employee compensation, proprietor income, other property income, and indirect business taxes. Value added is equivalent to gross output (sales or receipts and other operating income, commodity taxes, and inventory change) minus intermediate inputs (consumption of goods and services purchased from industries or imported). It is often referred to as the state- or regional-level counterpart of the nation's gross domestic product (GDP).

Income comprises all forms of employment income, including wages, salaries, and proprietors' incomes. It does not include non-wage compensation (e.g., pensions and health insurance), transfer payments (e.g., welfare or Social Security benefits), or unearned income (e.g., dividends, interest, and rent). Employment includes total wage and salary employees as well as self-employed individuals. It includes both full- and part-time jobs and is measured in annual average jobs. Employment therefore is expressed as the full- and part-time job count and not as full-time equivalents.

Results

Total initial spending accruing to FSU's regional economy equals the summation of spending originating from spending by the institution for wages and salaries; spending by the institution for other budget categories (e.g., outlays for items other than wages and salaries); spending by undergraduate students attending the institution; and spending by the graduate and professional students attending the

institution. For 2007, total initial spending for FSU was $146 million. Initial spending for FSU is reported in the first column of Table 1.

Table 1: Total Economic Impact of Fayetteville State University in 2007[2]

Institution	Initial Spending (2007 dollars)	Output Impact (2007 dollars)	Value Added Impact (2007 dollars)	Labor Income Impact (2007 dollars)	Employment Impact (jobs)
FAYETTEVILLE STATE UNIV	**146,353,662**	**198,296,330**	**115,269,854**	**83,023,692**	**2,440**
Wages & Salaries	41,932,798	80,846,684	56,560,978	49,893,889	1,102
Other Institutional Spending	34,177,439	37,925,601	10,586,751	7,320,939	223
Undergraduate Students	64,551,375	72,968,870	44,149,772	23,633,215	1,024
Graduate/Professional Students	5,692,050	6,555,175	3,972,353	2,175,649	91

Total Output Impact

For each category of initial spending, an IMPLAN model of FSU's regional economy was used to calculate the total output impact. Output impacts for 2007 are reported in the second column of Table 1. The output impact includes the impact of the first round of spending and the impacts generated by the re-spending of these amounts – the multiplier effect.

FSU generated an output impact on the Fayetteville region of $198 million in 2007. The output impact was 1.35 times greater than their initial spending. The output impacts are reported in the second column of Table 1.

[2] Output refers to the value of total production, including domestic and foreign trade. Value added includes employee compensation, proprietary income, other property type income, and indirect business taxes. Labor income includes both the total payroll costs of workers who are paid by employers and payment received by self-employed individuals. Employment includes both full-time and part-time jobs. Initial spending estimates are based on survey data obtained from the National Center for Education Statistics' Integrated Postsecondary Education Data System (Fall 2007 Staff Survey, Fall 2007 Enrollment Survey, and the 2007 Finance Survey. The impacts of spending on Output, Value Added, Labor Income, and Employment were estimated using the IMPLAN system, Type SAM multipliers, and consumption functions provided by MIG, Inc.

Total Value-Added Impact

Because value-added impacts exclude expenditures related to foreign and domestic trade, they provide a much more accurate measure of the actual economic benefits flowing to businesses and households in a region than the more inclusive output impacts.

FSU generated a value-added impact of $115 million in 2007. The value-added impact equaled 79 percent of initial spending in 2007. The value-added impacts are reported in the third column of Table 1.

Labor Income Impacts

The IMPLAN model also was used to calculate impacts in terms of labor income. FSU generated a labor income impact of $83 million. The labor income impact equaled 57 percent of initial spending in 2007. Labor income is reported in the fourth column of Table 1.

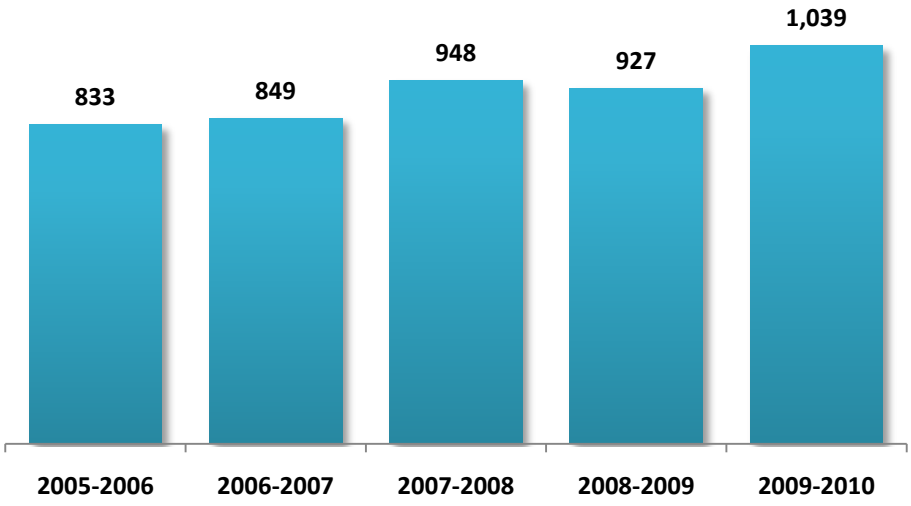
Employment Impacts

The economic impact of hosting FSU probably is most easily understood in terms of its effects on employment. FSU generated an employment impact of 2,440 full- and part-time jobs. Employment impacts are reported in the fifth column of Table 1.

Increases in Work-Life Earnings Associated With Degrees from FSU

One tangible measure of the economic "worth" of higher education is increased earnings over a working lifetime. The increase in earnings associated with a degree will of course vary from one individual to another and overtime; it is possible, however, to estimate aggregate benefits to graduates of FSU in a given year, as well as benefits accruing to the average degree holder. This section of the report presents such estimates for graduates of FSU who received degrees in 2008. The number degrees conferred by each institution were obtained from the NCES's IPEDS.

Figure 4: The number of graduates for each academic year



The higher work-life earnings obviously benefit degree holders, but due to migration and a host of other factors there is controversy in the academic literature regarding whether or not increases in work-life earnings should be included in estimates of the economic impact of a college or university on its host community (Brown and Heaney 1997).

Estimating Work-Life Earnings

In 2002, the U.S. Census Bureau issued synthetic estimates of work-life earnings: "The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings" (P23-210). The estimates were based on earnings data for 1997-1999 from the *Current Population Surveys* conducted by the U.S. Census Bureau in 1998, 1999, and 2000. A typical work-life was defined as the period from age 25 through age 64. The synthetic estimates were created by using the working population's 1-year annual earnings and summing their age-specific average earnings for people ages 25 through 64 years. The resulting totals represent what individuals with the same education level could expect to earn, on average, in today's dollars, during a hypothetical 40-year working life. The estimates should be

considered to be illustrative and do not predict actual future earnings. The synthetic work-life earnings are "expected average amounts" based on cross-sectional earnings data.

In 2007, Mark Kantrowitz updated the Census Bureau's synthetic estimates of work-life earnings based on data from the Census Bureau's *2006 Current Population Survey*. Kantrowitz's estimates of work-life earnings were published the *NASFAA Journal of Student Financial Aid* (Vol. 37, No. 1), "The Financial Value of a Higher Education." The estimates of "synthetic work-life earnings per degree" reported in the first column of Table 2 are based on the estimates produced by Mark Kantrowitz, but they were converted from 2005 dollars (as originally published) to 2008 dollars using the U.S. Bureau of Labor Statistic's Consumer Price Index (all urban consumers).

Table 2: Synthetic Estimates of Work-Life Earnings of 2008 Graduates of Fayetteville State University (millions of 2008 dollars)[3]

Institution	Synthetic Work-Life Earnings Per Degree	Incremental Work-Life Earnings Per Degree	Number of Degrees Conferred	Synthetic Work-Life Earnings All Graduates	Incremental Work-Life Earnings All Graduates
FAYETTEVILLE STATE UNIV	**-**	**-**	**948**	**2,994**	**1,164**
Professional	6.18	3.16	0	0	0
Doctoral	4.91	1.89	13	64	25
Master's	3.68	0.66	160	589	106
Bachelor's	3.02	1.33	775	2,341	1,034
Associate's	2.12	0.43	0	0	0

Work-life earnings increase dramatically with education level. For example, over a working lifetime, the average worker with a high school diploma earns an average of $1.69 million ($2008) compared to $2.12 million for the average worker with an Associate's degree, or $3.02 million for the average worker with a

[3] The Synthetic work-life earnings estimate for a high school graduate, including GED, is $1.69 (expressed in millions of 2008 dollars). The estimates of synthetic work life earnings per degree were obtained (in $2005 dollars) from Mark Kantrowitz, "The Financial Value of a Higher Education", NASFAA Journal of Student Financial Aid, Vol 37, NO. 1, 2007. The U.S. Bureau of Labor Statistics' consumer price index for all urban consumers was used to convert $2005 to $2008. The number of degrees conferred (2008) was obtained from the National Center for Education Statistics' Integrated Postsecondary Education Data System.

Bachelor's degree, or $3.68 million for the average worker with a Master's degree, or $4.91 million for the average worker with a Doctoral degree (PhD), or $6.18 million for the average worker with a Professional Degree.

Incremental work-life earnings per degree are reported in the second column of Table 2:

- Incremental work-life earnings for graduates with an Associate's degree are defined as the difference in synthetic work-life earnings between workers with a high school diploma and an Associate's degree.
- Incremental work-life earnings for graduates with a Bachelor's degree are defined as the difference in synthetic work-life earnings for workers with a high school diploma and a Bachelor's degree.
- Incremental work-life earnings for graduates with a Master's degree are defined as the difference in synthetic work-life earnings between workers with a Bachelor's degree and a Master's degree.
- Incremental work-life earnings for graduates with a Doctoral degree are defined as the difference in synthetic work-life earnings between workers with a Bachelor's degree and a Doctoral Degree.
- Incremental work-life earnings for graduates with a Professional degree are defined as the difference in synthetic work-life earnings between workers with a Bachelor's degree and a Professional degree.

Synthetic work-life earnings of all graduates can be obtained by multiplying the number of degrees conferred by estimated synthetic work-life earning per degree. These amounts are reported in the fourth column of Table 2. Similarly, incremental work-life earnings of all graduates can be obtained by multiplying the number of degrees conferred by estimated incremental work-life earnings per degree. These amounts are reported in the fifth column of Table 2.

Results

The analysis expects that the 948 graduates of FSU can expect work-life earnings of $3.0 billion ($ 2008), which is $1.2 billion more than they could expect to earn had they not earned their college degrees. Thus, in terms of incremental (additional) work-life earnings, the collective worth of the degrees granted by FSU is $1.2 billion, or about $1.23 million per graduate. The economic worth of higher education over the course of a graduate's working life thus is considerable.

The 775 graduates who received bachelor's degree will account for 89 percent of the collective increase in work-life earnings. On average, the work-life earnings of graduates with a bachelor's degree will be $1.33 million more than for persons with a high school degree. The 13 graduates who earned doctoral degrees will account for 2 percent of the collective increase in work-life earnings. On average, the work-life earnings of graduates with a doctoral degree will be $1.89 million more than for persons with a bachelor's degree. The 160 graduates who received a master's degree will account for 9 percent of the collective increase in work-life earnings. On average, the work-life earnings of graduates with a master's degree will be $0.66 million more than for persons with a bachelor's degree.

Although average earnings rise considerably with educational attainment, individual earnings within each specific education level can vary substantially. These differences result from a variety of factors, including occupational choice and labor force experience. Nonetheless, most graduates of FSU will realize significantly higher work-life earnings when they earn a college degree, and those completing an advance degree will increase their total earnings even more. For example, persons with profession degree can expect to earn about twice as much as those with a bachelor's degree and about almost five times more than a high school graduate.

Conclusions

In the simplest terms, the collective or rolled-up economic impact of FSU on its host community was $198 million in 2007. This amount represents the impact of spending by the institution, spending by its faculty and staff, and spending by students. FSU added $83 million in labor income to the local economy and 2,440 jobs.

Although this study measures $198 billion in annual economic impact on the Fayetteville MSA, the actual annual impact of university-related spending is much higher. The study's limited scope did not include the short-term impacts of spending by visitors, retirees, and non-university-related income received by employees of the institutions.

In addition to the annual impacts of university related spending, the 2008 graduates of FSU can expect to realize work-life earnings of $3.0 billion, of which $1.2 billion (39%) represents the incremental work-life earnings that can be attributed to their college degrees. That amounts to an additional $1.23 million in work-life earnings per degree conferred. On average, that's what a college degree is worth.

Limitations

Several types of short-term university-related expenditures were not estimated, including spending by visitors and spending by retirees who live in the Fayetteville MSA. Expenditures supported by employees of the FSU non-institutional income also were not estimated. Such income may result from an employee's consulting, investments, and other personal business activities, and often would not come to the Fayetteville MSA if that person's job at FSU did not exist.

Perhaps the greatest limitation of this report is that there was no attempt to evaluate the long-term impacts of FSU on the economic development of the Fayetteville MSA, the state, and the nation. FSU not only spends money year by year, but also has long-term impacts on the labor force, business and industry, and government. Businesses benefit from easy access to a large pool of part-time and full-time workers. Moreover, companies and agencies that depend on highly specialized skills often cluster around universities, and this may be particularly true of high-tech and information-based companies – which, despite the recent recession, still are expected to account for a disproportionately high share of future economic growth.

In addition, cultural and educational programs and facilities may be available to the general public and provide intangible benefits to the Fayetteville MSA by improving residents' quality of life.

Methodology

Unit of Analysis

The regional economic area is the host community, including the surrounding counties from which employees and students commute. The effects of expenditures that go to persons, businesses, or governments located outside the regions are not included in the value added, labor income, and employment impact estimates. The definitions of FSU's regional economy (the Fayetteville MSA) was based on the standard metropolitan and micropolitan statistical area definitions released by the Office of Management and Budget and consists of Cumberland and Hoke counties.

The geographic areas corresponding to the regional model that were built for FSU, which include the labor forces directly involved in their economic spheres was based on the standard metropolitan and micropolitan statistical area definitions released by the Executive Office of the President, Office of Management and Budget on June 6, 2003. The geographic area of the regional model for each institution therefore takes into consideration population and commuting patterns from the 2000 Census.

Statistical Mode

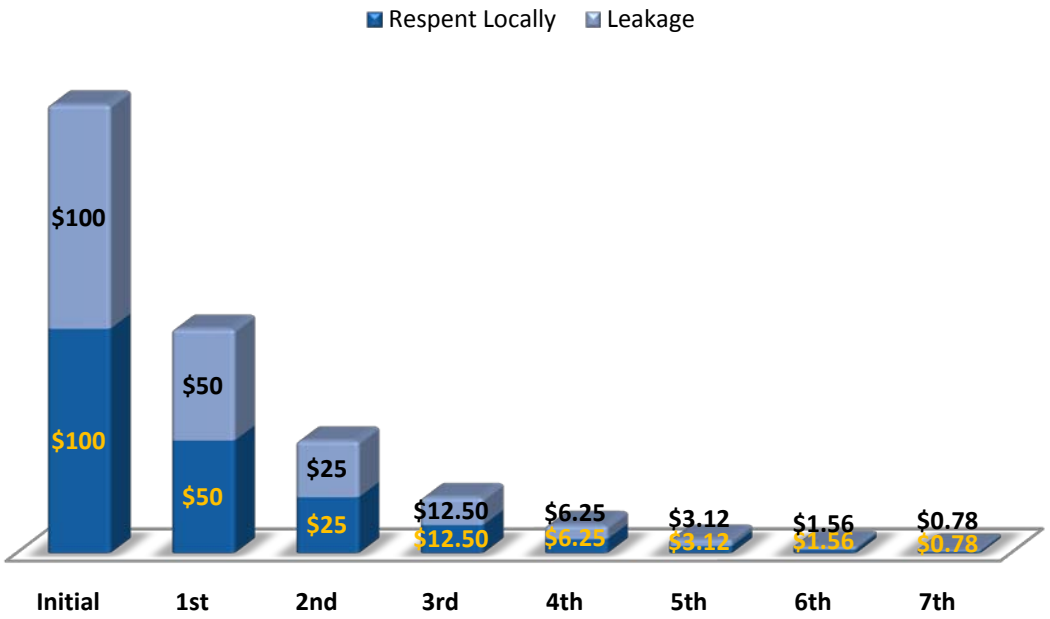
Estimating the economic impact of FSU on its regional economies involved four basic steps. First, the most recent National Center of Education Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS) finance and employment data (fiscal year 2007) were obtained for FSU; and then these institutional expenditures were allocated to industrial sectors recognized by the economic impact modeling system. Second, spending by undergraduate, graduate, and professional students was estimated based on the IPEDS Fall Enrollment Survey and other sources; and then these student expenditures were allocated to industrial sectors recognized by the economic modeling system. Third, the IMPLAN Professional Social Accounting and Impact Analysis Software was used to build a regional economic model specific to FSU. *A detailed discussion of the IMPLAN modeling system, including its structure, methods, and use, can be found in IMPLAN Professional Version 2.0: Users Guide, Analysis*

Guide, and Data Guide (www.IMPLAN.com). Once the economic model was generated, the total economic impacts of all categories of initial spending were estimated.

The multiplier concept is common to virtually all economic impact studies. Multipliers measure the response of the local economy to a change in demand or production. In essence, multipliers capture the impact of the initial round of spending (for final consumption) plus the impacts generated by successive rounds of re-spending of those initial dollars. The magnitude of a particular multiplier depends upon what proportion of each dollar spent leaves the region during each round of spending. Multipliers therefore are unique to the region and to the industry that receives the initial round of spending. Economic multipliers are model-based and dependent on the specific spending patterns of the industry and applicable regional economies.

Figure 5 illustrates the successive rounds of spending that might take place if a person buys an item locally. Assume that the amount spent is $100 and that the appropriate regional output multiplier is 2.0. The initial injection of spending to the region is $100, which creates a direct economic impact of $100 to the regional economy. Of that $100, only $50 is re-spent locally; the rest flows out of the region through non-local taxes, non-local purchases, and income transfers. After the first round of re-spending, the total economic impact to the region is $150. During the second round of re-spending, $25 is re-spent locally and $25 leaks out of the region, a 50 percent leakage. Now, the total economic impact to the region is $175. After seven rounds of re-spending, less than one dollar remains in the local economy, but the total economic impact has reached almost $200. The induced (multiplier effect) impact to the region ($100) equals the total impact ($200) minus the direct impact ($100).

Figure 5: How multipliers capture the impact of respending initial impacts if the output multiplier equals 2.0



Initial Direct or Indirect Impact	$100	
First Round of Respending	$50 respent locally	$50 leakage[4]*
Second Round of Respending	$25 respent locally	$25 leakage
Third Round of Respending	$12.50 respent locally	$12.50 leakage
Fourth Round of Respending	$6.25 respent locally	$6.25 leakage
Fifth Round of Respending	$3.12 respent locally	$3.12 leakage
Sixth Round of Respending	$1.56 respent locally	$1.56 leakage
Seventh Round of Respending	$.78 respent locally	$.78 leakage
Total Economic Impact:	**$200**	
Total Leakage:		**$100**

The multiplier traces the flows of re-spending that take place throughout the region until the initial dollars have completely leaked from it to other regions. Obviously, multiplier effects within large, self-sufficient areas are likely to be larger than those in small, rural, or specialized areas that are less able to capture spending for necessary goods and services. Multiplier effects also vary greatly from industry to industry, but in general, the greater the interaction with the local economy, the larger the multiplier for that industry. For example, personal services, business services, and entertainment industries have

[4] Leakage indicates amounts spent outside area and not recirculated locally.

intricate relationships with local supporting industries, and therefore have relatively high multiplier values. Conversely, electric, gas, and sanitary services usually are less intertwined with local supporting industries, and their multipliers are lower.

Type SAM (Social Accounting) multipliers from the IMPLAN modeling system were used to estimate the economic impacts associated with all categories of spending. Type SAM multipliers capture the original expenditures resulting from the impact, the indirect effects of industries buying from industries, and the induced effects of household expenditures based on information in the social account matrix. The multipliers account for Social Security and income tax leakage, institutional savings, commuting, and inter-institutional transfers, and people-to-people transfers.

Wherever appropriate, the IMPLAN software applied margins to convert purchaser prices to producer prices. In input-output models, all expenditures are in terms of producer prices, which allows all spending to be allocated to the industries that actually produce the good or service. The margins are derived from U.S. Bureau of Economic Analysis data. The margins used differed depending on the consumer. For example, households pay transportation, wholesale, and the full retail margin. In contrast, FSU may pay little or no retail margin as they have typically more buying power than a household. Also, some sectors of the model do not have margins. For example, because there are no wholesalers or retailers involved when someone rents a room, hotels and lodging do not have margins.

The model's default estimates of the local economy's regional purchase coefficients were used to derive the ratio of locally purchased to imported goods. The regional purchase coefficient represents the proportion of the total demands for a given commodity that is supplied by the region to itself. The regional purchase coefficients were estimated with an econometric equation that predicts local purchases based on each region's unique characteristics. In addition, the entire analysis was conducted using the full range of industrial sectors in order to avoid aggregation bias.

It should be noted that the economic models are designed to measure the total economic impact of university-related spending on its host community, but if FSU were to close or otherwise cease to exist, economic activity might not drop as much as the models indicate. The net drop in economic activity might be less than indicated by the models because some spending might be directed toward other

activities within the region. For example, a portion of the displaced students might transfer to other colleges or universities within the region. Since it is extraordinarily difficult to predict such adjustments, the total rather than net economic impacts of university-related spending are reported. Thus, the economic impact estimates should be considered an upper bound on the true economic impact of university-related spending. This approach is consistent with the vast majority of studies of the economic impact of institutions of higher education that have been produced.

Initial Spending for Wages and Salaries

The primary data resource was IPEDS, established by the NCES. Specifically, the *Fall Staff Survey* and the *Finance Survey* provided all of the institution-level data regarding staffing and spending for wages and salaries. The most recent surveys reported staffing and expenditure levels for the 2007 fiscal year. Spending for wages and salaries is reported in the first column of Table 1. This amount was allocated to various economic sectors recognized by the IMPLAN software based on the typical expenditure pattern for households of moderate income.

Initial Spending for Non-Wage and Salary (Other) Items

In addition to expenditures for wages and salaries, the IPEDS Finance Survey provided institution-level expenditure data for all other major categories of spending, including instruction, research, public service, academic support, student services, institutional support, operation and maintenance of plant, transfers, independent organizations, and other expenditures.

To eliminate the potential for double counting, expenditures for auxiliary enterprises, scholarships, fellowships, and net grant aid to students were not included in initial spending. Spending associated with these budget items is largely accounted for in the spending amounts attributed to faculty, staff, and students. Auxiliary Enterprises are essentially self-supporting operations of the institution that exist to furnish a service to students, faculty, or staff, and that charge a fee that is directly related to, although not necessarily equal to, the cost of service. Similarly, scholarships and fellowships transfer income to students, and students' spending of these funds is reflected in the amounts attributed to students' personal expenditures.

Budgeted expenditures were allocated to various economic sectors based on a typical expenditure (consumption) pattern for US colleges and universities that was developed by the IMPLAN modelers at MIG, Inc. This specific expenditure pattern was imported into the model from the IMPLAN Pro Library. Initial spending by FSU for items other than wages and salaries is reported in column 1 of Table 1.

Students Personal Expenditures

The students who attend an educational institution spend significant amounts of money in the local economy as a part of their living expenses, so the dollar value of this spending also was estimated. Since a detailed survey of students' spending habits was not feasible, typical expenditure levels per student and the pattern of spending by industry were estimated based on data obtained from several sources, including: (1) various *Consumer Expenditure Surveys* that are conducted annually by the U.S. Bureau of Labor Statistics (BLS); (2) a special BLS study that appeared in the July 2001 issue of the *Monthly Labor Review* that examined the expenditures of college-age students and non-students; and (3) a nationwide (not North Carolina specific) sample of the estimated costs of attendance prepared by individual institutions. Although the estimated costs of attendance prepared by individual institutions were not detailed enough to be used in the IMPLAN modeling system, they did provide information that was used to develop a profile of average expenditures for some of the items typically purchased by undergraduates, graduate students, and professional students.

Although the Bureau of Labor Statistics' *Consumer Expenditure Surveys* cover consumer units consisting of one person at low income levels, no recent data are available expressly for college students; therefore, in order to adapt the data for this study, spending estimates for several categories of goods or services were increased, decreased, or eliminated. For example, compared to a weighted average of consumer units at lower income levels, students' expenditures for books and food consumed away from home were increased substantially, while students' expenditures for grocery stores, cash contributions, insurance and pensions, and health care were reduced. Because expenditures for vacation and travel do not take place locally, such expenditures were eliminated entirely. After adjustment, the average local expenditure per undergraduate student per academic year was estimated at $12,250. Similarly, the average local expenditure per graduate or professional student was estimated at $13,650. These amounts include spending for some items that were purchased locally by others (e.g., parents) on behalf

of the students. For example, parents may pay landlords directly for shelter (rent). It should be noted that these amounts do not include tuition and fees. The economic impact of economic activities supported through tuition and fees is already captured in the impact estimates attributed to spending by the institution.

Students' expenditures were distributed to the IMPLAN sectoring scheme based on national average expenditure patterns, data provided by various *Consumer Expenditure Surveys*, and estimated costs of attendance prepared by a sampling of institutions. Part-time students were assumed to spend one-half the amount of full-time students, or $6,125 per part-time undergraduate and $6,825 per part-time graduate or professional student. Initial spending by students is reported in column 1 of Table 1.

The North Carolina Institute of Minority Economic Development

(The Institute)

is a statewide nonprofit organization representing the interest of underdeveloped and underutilized sectors of the state's economic base. The Institute's working philosophy is that--information and business development are critical to wealth creation and to building the asset base among low-wealth sectors of the population.

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