The Economic Impact of the University of South Carolina

Developed by:

Division of Research

Moore School of Business

University of South Carolina

November 2011

Study Prepared by:

Dr. Joseph C. Von Nessen

Research Economist, Division of Research

joey.vonnessen@moore.sc.edu

Prepared for the University of South Carolina Office of Business and Finance

Executive Summary

The University of South Carolina (USC) is a major economic driver in the state of South Carolina. As an educational institution, USC currently has over 44,000 students enrolled across eight campuses in South Carolina and has graduated over 154,000 alumni who currently live within the state.

Current and future working alumni earn higher average incomes than their non-college educated counterparts, which provide not only individual benefits, but also economic spillover effects resulting from a generally higher educated population. There are also direct benefits to the state through increased income tax revenue. Furthermore, although it receives annual state appropriations, the majority of USC expenditures (approximately 89.1%) come from non-state funded resources. These non-state funded expenditures result in a further net gain in jobs and income for South Carolina.

This report analyzes the economic impact of USC (including the impact of each individual campus) on the South Carolina economy. Using a detailed structural model of South Carolina and data provided by the Division of Development and Alumni Relations and the Office of Business and Finance, this study finds that:

- The total economic impact of the University of South Carolina (including all eight campuses throughout the state) is over $4.1 billion when measured in terms of annual state output – the total annual dollar value of goods and services associated with increases in alumni wages and business activity resulting from non-state funded expenditures. This total state impact also supports approximately 52,872 jobs.
- The University of South Carolina has an annual net contribution to the state's economy of approximately $2.3 billion. This net contribution – also known as the value added to the state – is a measure of the university's contribution to South Carolina gross domestic product.
- USC's economic impact on South Carolina supports approximately $200 million in annual state tax revenue. This exceeds the current annual state appropriations USC receives by approximately $75 million, implying that the University of South Carolina is a net contributor to the state of South Carolina's general funds.

Thus, the economic impact of the University of South Carolina is far reaching and has both individual and social components. The lives of individual alumni are improved through earning higher wages and a lifetime of better job opportunities, while the community at large also benefits through economic spillover effects and a net increase in tax revenue for the state of South Carolina.

Table of Contents

Introduction

From its founding in 1801, the University of South Carolina (USC) has maintained as its primary mission "…the education of the state's diverse citizens through teaching, research, service, and creative activity."[1] In 2011 this mission is clearly evident through record in-state enrollment figures consisting of more than 44,000 graduate and undergraduate students across eight campuses throughout the state and more than 154,000 living alumni who currently reside in South Carolina. USC educates students who become leaders in South Carolina and contribute to its social, economic, and political goals through their work and leadership in business, government, and the local community.

The economic returns to higher education are widely cited and well known in the economics literature. In fact, the percentage of the population with a college degree is the best predictor of a state's national ranking in personal per capita income levels.[2] In South Carolina, the average annual difference between a college educated worker's wages and a high school graduate worker's wages is $14,837. Higher education also helps to reduce poverty, which in turn lowers state and local government costs. Approximately 14.7% of South Carolina's population without a college degree lives in poverty, compared to only 4.1% of those with a college degree. The Great Recession exacerbated this poverty gap, as unemployment rates among college educated workers nationwide have risen by just 2.1% since 2008, compared to 5.1% for non-college educated workers (as of October 2011).

In addition to individual wage benefits, higher education also provides spillover effects in the local community. The sharing of knowledge and skills through formal and informal interaction often generates positive externalities across workers, which has been

[1] http://www.sc.edu/caseforcarolina/mission.php
[2] Baum, et. al (2010); Yu (2010)

shown to result in higher wages even for non-college educated workers. Higher percentages of college-educated workers in a region are also correlated with improved community health, increased education aspirations, lower crime, and more community engagement for both college and non-college educated workers in that region.

Through its mission as an educational institution, the University of South Carolina provides many of these economic benefits to South Carolina and is one of the state's major economic drivers. In addition, the University of South Carolina receives the majority of its funding (approximately 89.1%) from non-state funded resources. These non-state funded expenditures support jobs and income to South Carolinians that would not exist otherwise.

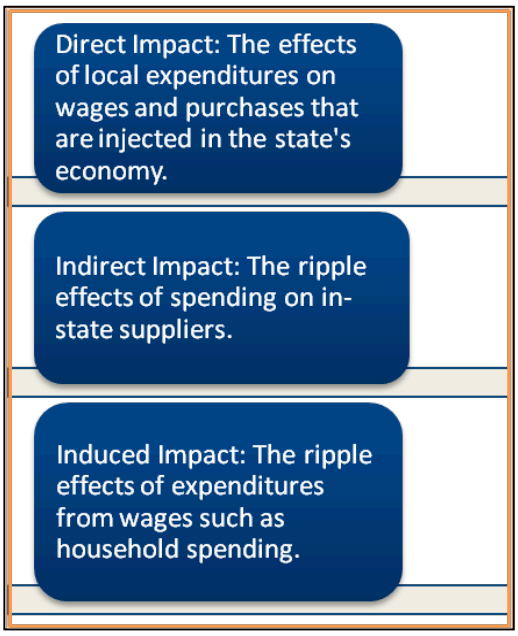
The purpose of this study is to estimate the economic impact of the University of South Carolina through: (1) examining the impact of the higher wage levels that working alumni earn beyond what they would have earned without their USC degree; (2) identifying the impact of the increase in wages for all workers in South Carolina due to education spillover effects; (3) estimating the economic impact of non-state funded expenditures made by the university; (4) quantifying the increased state tax revenue that results from impacts (1) through (3). This study begins with a discussion of the economic impact methodology used, including a description of direct, indirect, and induced impacts. The study then presents the statewide impact estimates and the estimates for each USC campus. Finally, this study concludes with a brief summary of these results.

Assessing the Economic Impact of the University of South Carolina

The economic impact of any organization is measured by how expenditures of that organization increase the demand for various goods and services in the local region over what it would have been otherwise. A university has the additional impact of

providing its local region with a more highly educated workforce that results in increased wages for graduates *and* increased wages for the entire local workforce through educational spillover effects.

In a standard economic impact analysis, there are three types of economic impacts that can be identified: *direct, indirect,* and *induced* effects. The direct effect represents the initial change in economic activity. The direct effect of the University of South Carolina reflects non-state funded expenditures made directly by the university within the state of South Carolina. This includes, for example, new construction and remodeling, lab equipment, athletic vendors, and other overhead and administrative costs. This spending increases demand and leads to the creation of new jobs and more income for employees and suppliers of the university.



The indirect effect reflects all of the additional economic impacts resulting from inter-industry linkages between local firms in South Carolina. For example, if the university spends funding on the remodeling of a classroom building, the remodeling vendor must then purchase additional inputs from its suppliers – such as additional staff and equipment. Suppliers of staff and equipment must then purchase additional supplies as well. These indirect effects ripple through the economy and affect many sectors of South Carolina.

The induced effect reflects all of the additional economic impacts resulting from increases in the spending of household income. For example, when part of the university's budget is spent on remodeling a building and the demand for these remodeling services rise, some of the remodeling staff will see a rise in their income levels. Part of this income will then be spent locally on, for example, food, entertainment,

or housing. These industries will then also see an increase in demand for their goods and services, which will lead to higher income levels of some of their employees, part of which will also be spent locally. The induced effect is also where the economic impact of increased wages from a more highly educated workforce is measured. Increased wages lead to increases in household expenditures, which again will primarily be spent locally and increase the demand for goods and services in many local industries.

Of course, the successive rounds of indirect and induced spending do not go on forever, which is why a specific value can be calculated for each of them. In each round, money is "leaked out" for a variety of reasons. For example, employees will save some of their additional income and part of the money they do spend will go to businesses located outside of South Carolina. In order to determine the total economic impact, economic multipliers are used.

An economic multiplier can be used to determine what the total economic impact is (direct, indirect, and induced) from an initial change in economic activity (the direct impact). For example, if $10,000 was spent on remodeling a classroom building at the University of South Carolina and this expenditure ultimately resulted in a total income increase of $15,000 in the South Carolina economy, then the economic income multiplier would be 1.5. Multipliers are different in each sector of the economy and are largely determined by the size of the local supplier network. Multipliers also depend on the region being examined. For example, a $10,000 remodeling expenditure would have a larger impact on South Carolina than on Richland County alone.

Of course, multipliers are available to calculate more than just the indirect and induced impacts on income. Multipliers also exist to determine the total impact in terms of economic output, value added, and employment. These are the four standard economic measures of the economic impact of an organization. In simple terms, these metrics are defined as:

- *Total Impact (Economic Output):* This is the contribution to overall economic activity. It measures the annual value of goods and services associated with the University of South Carolina.
- *Value Added:* This is the net contribution to the state's economy. Value added is similar to gross domestic product for the state.
- *Income (Labor Income):* This is the contribution to wages and salaries.
- *Employment:* This is the total number of jobs associated with the measured economic activities tied to the University of South Carolina.

To estimate the impact of the University of South Carolina in this study, the Division of Research used a detailed structural model (known as an input-output model) of the South Carolina economy containing specific information on economic linkages between different industries. This study also utilized the input-output modeling software *IMPLAN* in calculating estimates.

Methodology

The University of South Carolina makes its largest economic contribution to the state of South Carolina through the impact of its alumni. A college education provides graduates with opportunities for higher paying jobs and with marketable skill sets to help them stay employed. For example, the average South Carolina county-level unemployment rate for college graduates is 4.6 percent, compared to 13.2 percent for those with only a high school diploma (as of October 2011).

The impact of USC alumni can be specifically quantified by estimating the marginal wage increase of each alumnus over what he or she would have earned without the USC degree. For example, if the average South Carolinian with a bachelor's degree in business administration earns $44,825 annually and the average South Carolinian with a high school diploma earns $25,200 annually, the difference - $19,625 – represents the marginal wage increase associated with that college degree. This wage increase leads to an induced economic impact in which household spending rises and increases the demand for goods and services in the local economy.

A second impact of USC alumni comes about through economic spillover effects. There is an extensive body of research documenting social returns to higher education. For example, the median incomes of *all* workers in a region (both college and non-college educated) tend to rise as the percentage of college educated workers rise in that region.[3] The most common explanation for such a phenomenon is the sharing of knowledge and skills in both formal and informal settings across workers.[4] In addition, a more highly educated population is associated with non-financial benefits, such as increased voting and volunteering, better health, and improved child educational attainment.[5] This study estimates the social returns of USC alumni by assuming that for each percentage point increase in the supply of college graduates in South Carolina, the wages of high school dropouts rise by 1.9 percent, the wages of high school graduates rise by 1.6 percent, and the wages of college graduates rise by 0.4 percent. This assumption is based off of empirical results from economist Enrico Moretti of UCLA, a leading expert in the estimation of the social returns of higher education.[6]

TABLE 1 – SOCIAL RETURNS TO HIGHER EDUCATION

Impact of a 1% increase in the supply of college graduates[7]	
Education Level	**Wage Increase**
High School Dropout	+1.9%
High School Graduate	+1.6%
College Graduate	+0.4%

There are currently 154,902 alumni of the University of South Carolina living in the state of South Carolina in 2011.[8] Data were provided by USC's Division of Development and Alumni Relations, which show in which county each alumnus currently resides and the most recent degree he or she obtained from USC. Using the latest data

[3] Moretti (2004)
[4] Lucas (1988); Acemoglu (1998)
[5] Oreopoulous and Salvanes (2009); Grossman (2006); Cutler and Lleras-Muney (2006); Angrist and Lavy (1996)
[6] See Moretti (2004) for the derivation of these estimates.
[7] The impact of an increase in the supply of college graduates was also assumed to take effect among advanced degrees. In other words, a person earning a doctorate degree is assumed to produce an economic spillover effect just as a person earning a bachelor's degree would.
[8] The University of South Carolina Division of Development and Alumni Relations provided this figure and all other alumni data used in this study.

available from the U.S. Census Bureau and the National Association of Colleges and Employers, wage estimates were obtained for each alumnus based on their county of residence and their degree type and specialization. This wage estimate was then compared to the average county wage for a South Carolinian with the next lowest degree type.[9] The marginal wage difference for each alumnus was calculated and adjusted to reflect the county labor force participation rate.

Alumni of the University of South Carolina currently comprise approximately 3.35 percent of the total South Carolina population. Thus, the economic spillover effects of USC alumni were estimated by calculating the increase in wages for the population at each education level based on percentages listed in Table 1.

In addition to the alumni impact, the University of South Carolina also has an economic impact on the state of South Carolina through its *non-state funded expenditures*. USC receives approximately 89.1 percent of its funding from non-state funded revenue. Thus, these expenditures represent real contributions to the state of South Carolina in terms of new jobs, income, and output. This study used data from in-state expenditures on labor (employees), construction, research and development, and education foundations to determine the direct, indirect, and induced impacts on South Carolina. Industry appropriate economic multipliers were applied to all expenditures, ensuring that the proper effects were estimated in the regional economic model.

[9] Wages for bachelor's and associate's degree alumni were measured against S.C. average high school graduate wages. Wages for master's degree alumni were measured against S.C. average bachelor's degree wages. Wages for doctorate and professional degree alumni were measured against S.C. average master's degree wages.

The economic impact of the alumni and of the non-state funded expenditures each has implications for state income tax revenue as well. Increases in the income levels of workers in South Carolina clearly have a direct impact on state income tax revenue – more income means more taxable income.

University expenditures can also lead to increases in sales and business tax revenue through direct, indirect, and induced sales and business activity that result from the expenditures. In order to determine the total impact on state tax revenue, a ratio of general funds revenue (from the U.S. Census Bureau) to South Carolina's nominal GDP (from the U.S. Department of Commerce, Bureau of Economic Analysis) was estimated. This ratio was then used to determine increased tax revenue arising from new local economic value added generated from the direct, indirect, and induced alumni and non-state funded expenditure impacts of the University of South Carolina.

…the University of South Carolina contributes over $4.1 billion in annual state output to South Carolina…

Statewide Impact

Through the alumni impact (including economic spillover effects) and the impact from non-state funded expenditures, the University of South Carolina contributes over $4.1 billion in annual state output to South Carolina, as Table 2 illustrates below.

TABLE 2 – STATEWIDE IMPACT OF THE UNIVERSITY OF SOUTH CAROLINA

	Value Added	Income	Employment	Output
Total Alumni Impact	$756,017,990	$399,976,429	11,417	$1,297,183,063
Economic Spillover Effects	$946,009,476	$500,492,717	14,286	$1,623,172,319
USC Expenditure Effects	$603,964,429	$490,615,283	27,169	$1,236,108,108
Totals	$2,305,991,896	$1,391,084,429	52,872	$4,156,463,490

…the annual tax revenue generated by the alumni and the expenditures (e.g., employees, research and development) of the university *exceeds* the annual state appropriations that USC receives by over $74 million.

Specifically, this $4.1 billion in economic output represents the total dollar value of all goods and services associated with the University of South Carolina, including both increases in alumni wages and business activity resulting from non-state funded expenditures. In addition, the university contributes over $1.3 billion towards personal income, approximately $2.3 billion towards gross state product (value added), and supports approximately 52,872 jobs, 13,967 of which are employees working directly for USC.

Of course, increases in personal income and expenditure activity also contribute to state tax revenue as outlined earlier in this study. Using the aforementioned ratio of general funds revenue to South Carolina nominal GDP, the estimated total annual contributions to state tax revenue approximate $200 million, as listed in Table 3. Also listed is the annual tax revenue received by the University of South Carolina through state appropriations.[10]

TABLE 3 – STATEWIDE TAX REVENUE ESTIMATES

Total Value Added	$2,305,991,896
Annual Tax Revenue Generated through USC's Value Added	$199,929,497
Annual Tax Revenue Received by USC through State Appropriations	$124,967,630

What is especially striking about these results is that the annual tax revenue generated by the alumni and the expenditures (e.g., employees, research and development) of the university *exceeds* the annual state appropriations that USC receives by over $74 million. This is a key finding of this study. On average, the University of

[10] This figure, along with all other expenditure data used in this study, was provided by the University of South Carolina's Office of Business and Finance.

South Carolina is a net contributor to the state of South Carolina's general funds primarily because of the marginal wage increases of USC alumni that come about from their increased education (and the associated economic spillover effects). These additional wages translate into higher levels of income tax revenue for the state of South Carolina.

Economic Impact by Campus

The University of South Carolina has eight campuses throughout the state: Upstate, Aiken, Beaufort, Lancaster, Salkehatchie, Sumter, Union, and the flagship campus – Columbia. The university's total economic impact can be broken down by campus and is done so in Tables 4-11 below. County-level alumni impacts (and accompanying economic spillover effects) appear in the Appendix.[11]

TABLE 4 – ECONOMIC IMPACT SUMMARY: USC-COLUMBIA[12]

	Value Added	Income	Employment	Output
Total Alumni Impact	$573,999,673	$303,678,407	8,668	$984,874,254
Economic Spillover Effects	$718,248,953	$379,994,471	10,847	$1,232,378,584
USC Expenditure Effects	$556,907,092	$460,899,385	24,173	$1,148,426,938
Totals	$1,849,155,719	$1,144,572,263	43,688	$3,365,679,775

TABLE 5 – ECONOMIC IMPACT SUMMARY: USC-UPSTATE

	Value Added	Income	Employment	Output
Total Alumni Impact	$89,876,264	$47,549,645	1,357	$154,210,574
Economic Spillover Effects	$112,462,665	$59,499,134	1,698	$192,964,541
USC Expenditure Effects	$21,453,860	$14,981,679	1,075	$41,374,072
Totals	$223,792,789	$122,030,459	4,130	$388,549,187

[11] County-level alumni impacts will not necessarily sum to the statewide totals reported in Table 2. County-level results were estimated independently and thus may incorporate minor regional differences not present in the statewide estimates.

[12] These estimates also include the impact of the University of South Carolina School of Medicine.

TABLE 6 – ECONOMIC IMPACT SUMMARY: USC-AIKEN

	Value Added	Income	Employment	Output
Total Alumni Impact	$42,294,712	$22,376,303	638	$72,569,682
Economic Spillover Effects	$52,923,607	$27,999,592	799	$90,806,843
USC Expenditure Effects	$9,671,713	$5,425,327	725	$17,279,834
Totals	$104,890,033	$55,801,223	2,163	$180,656,359

TABLE 7 – ECONOMIC IMPACT SUMMARY: USC-BEAUFORT

	Value Added	Income	Employment	Output
Total Alumni Impact	$15,860,517	$8,391,113	239	$27,213,631
Economic Spillover Effects	$19,846,352	$10,499,847	299	$34,052,566
USC Expenditure Effects	$7,090,324	$4,248,994	471	$13,339,795
Totals	$42,797,194	$23,139,955	1,011	$74,605,991

TABLE 8 – ECONOMIC IMPACT SUMMARY: USC-LANCASTER

	Value Added	Income	Employment	Output
Total Alumni Impact	$12,839,466	$6,792,806	193	$22,030,082
Economic Spillover Effects	$16,066,095	$8,499,876	242	$27,566,363
USC Expenditure Effects	$3,836,348	$2,315,166	310	$6,942,537
Totals	$32,741,910	$17,607,849	746	$56,538,982

TABLE 9 – ECONOMIC IMPACT SUMMARY: USC-SALKEHATCHIE

	Value Added	Income	Employment	Output
Total Alumni Impact	$10,573,678	$5,594,075	159	$18,142,420
Economic Spillover Effects	$13,230,901	$6,999,898	199	$22,701,711
USC Expenditure Effects	$1,742,468	$948,118	190	$3,015,506
Totals	$25,547,048	$13,542,092	550	$43,859,638

TABLE 10 – ECONOMIC IMPACT SUMMARY: USC-SUMTER

	Value Added	Income	Employment	Output
Total Alumni Impact	$6,042,102	$3,196,615	91	$10,367,097
Economic Spillover Effects	$7,560,515	$3,999,942	114	$12,972,406
USC Expenditure Effects	$2,404,565	$1,320,155	212	$4,202,085
Totals	$16,007,182	$8,516,712	417	$27,541,589

TABLE 11 – ECONOMIC IMPACT SUMMARY: USC-UNION

	Value Added	Income	Employment	Output
Total Alumni Impact	$4,531,576	$2,397,461	68	$7,775,323
Economic Spillover Effects	$5,670,386	$2,999,956	86	$9,729,305
USC Expenditure Effects	$858,058	$476,459	13	$1,527,341
Totals	$11,060,021	$5,873,877	167	$19,031,969

As expected, the flagship campus (Columbia) has by far the greatest economic impact in terms of total economic output, value added, income, and employment. Nevertheless, these results show that each USC campus makes significant contributions to the state of South Carolina and provides continuing opportunities for South Carolinians to continue their education, enrich their own lives, provide themselves with better job opportunities with higher wages, and contribute to the overall health of South Carolina's economy.

Conclusion

The economic benefits of higher education in South Carolina are far reaching for both individual citizens and for the state as a whole. Graduates earn higher wages and have better job opportunities, while the local community benefits from economic spillover effects that result in wage increases for all workers as well as other intangible benefits such as improved community leadership, improved community health, and lower crime rates. The state also benefits from additional tax revenue that accrues from citizens earning higher wages.

As an institution whose primary goal is to provide higher education for the citizens of South Carolina, the University of South Carolina is a major economic driver that provides all of these economic benefits in addition to the economic impacts it has through its non-state funded expenditures in South Carolina.

The economic impact of the University of South Carolina can be clearly measured by estimating the marginal increase in the wages of working alumni within the state that result from their USC degrees. In addition, the economic spillover effects can be estimated using well-established parameters in the economics literature that specifically quantify the impact that an increase in the education of the working population has on worker wages within a region. Together, these impacts represent a total economic impact of $2.9 billion in economic output, approximately $900 million in income, and 25,703 jobs.

When combined with the new jobs and income supported by the non-state funded expenditures on labor (employees), new construction, research and development, and education foundations, the total impact of the University of South Carolina exceeds $4.1 billion in economic output, $1.3 billion in income, and 52,000 jobs.

These economic impacts also translate into higher tax revenue for the state of South Carolina through the higher wages earned and additional economic activity supported by USC expenditures. The $4.1 billion economic impact of the university is estimated to support approximately $200 million in annual state tax revenue, which exceeds the annual state appropriations to USC by approximately $75 million. Thus, the University of South Carolina is a net contributor to the state of South Carolina's general funds.

Appendix

TABLE 12 - COUNTY-LEVEL ALUMNI IMPACT (INCLUDING ECONOMIC SPILLOVER EFFECTS)

Aiken/Augusta Region	Value Added	Income	Employment	Output
Aiken	$78,050,152	$41,292,960	1,179	$133,919,216
Allendale	$3,050,507	$1,613,892	46	$5,234,091
Bamberg	$4,131,606	$2,185,854	62	$7,089,050
Barnwell	$7,403,856	$3,917,060	112	$12,703,609
Edgefield	$5,345,014	$2,827,816	81	$9,171,027
Augusta-Aiken Total	**$97,981,135**	**$51,837,582**	**1,480**	**$168,116,993**
Charleston Region	Value Added	Income	Employment	Output
Berkeley	$22368,460	$11,834,186	338	$38,380,024
Charleston	$136,127,632	$72,019,240	2,056	$233,569,120
Dorchester	$22,137,914	$11,712,213	334	$37,984,452
Charleston Total	**$180,634,006**	**$95,565,639**	**2,728**	**$309,933,596**
Charlotte-Rock Hill Region	Value Added	Income	Employment	Output
Chester	$5,415,405	$2,865,056	82	$9,291,804
Lancaster	$18,732,178	$9,910,386	283	$32,140,854
York	$46,330,124	$24,511,264	700	$79,493,680
Charlotte-Rock Hill Total	**$70,477,707**	**$37,286,706**	**1,065**	**$120,926,338**
Grand Strand Region	Value Added	Income	Employment	Output
Georgetown	$23,998,980	$12,696,823	362	$41,177,684
Horry	$55,827,752	$29,536,050	843	$95,789,800
Grand Strand Total	**$79,826,732**	**$42,232,873**	**1,205**	**$136,967,484**
Lowcountry Region	Value Added	Income	Employment	Output
Beaufort	$40,393,112	$21,370,250	610	$69,306,896
Colleton	$9,571,612	$5,063,926	145	$16,423,066
Hampton	$6,126,451	$3,241,240	93	$10,511,824
Jasper	$2,961,676	$1,566,895	45	$5,081,672
Lowcountry Total	**$59,052,851**	**$31,242,311**	**893**	**$101,323,458**
Midlands Region	Value Added	Income	Employment	Output
Calhoun	$3,691,904	$1,953,227	56	$6,334,605
Clarendon	$7,794,358	$4,123,658	118	$13,373,636
Fairfield	$8,239,093	$4,358,948	124	$14,136,716
Kershaw	$28,496,260	$15,076,140	430	$48,894,164
Lee	$2,536,694	$1,342,055	38	$4,352,484
Lexington	$217,387,056	$115,010,096	3,283	$372,994,848
Newberry	$13,345,415	$7,060,482	202	$22,898,194

Orangeburg	$21,091,022	$11,158,347	319	$36,188,180
Richland	$407,085,632	$215,371,408	6,148	$698,481,472
Saluda	$3,776,883	$1,998,186	57	$6,480,413
Sumter	$38,899,156	$20,579,862	587	$66,743,556
Midlands Total	**$752,343,473**	**$398,032,409**	**11,362**	**$1,290,878,268**
Pee Dee Region	Value Added	Income	Employment	Output
Chesterfield	$6,483,734	$3,430,264	98	$11,124,855
Darlington	$12,192,861	$6,450,716	184	$20,920,632
Dillon	$3,710,403	$1,963,014	56	$6,366,346
Florence	$39,614,464	$20,958,300	598	$67,970,888
Marion	$5,888,619	$3,115,414	89	$10,103,749
Marlboro	$3,035,599	$1,606,004	46	$5,208,510
Williamsburg	$5,925,589	$3,134,973	89	$10,167,184
Pee Dee Total	**$76,851,269**	**$40,658,685**	**1,160**	**$131,862,164**
Upstate Region	Value Added	Income	Employment	Output
Abbeville	$2,778,798	$1,470,142	42	$4,767,889
Anderson	$24,151,936	$12,777,745	365	$41,440,128
Cherokee	$10,029,255	$5,306,045	151	$17,208,294
Greenville	$163,995,312	$86,762,832	2,477	$281,384,768
Greenwood	$16,092,330	$8,513,756	243	$27,611,378
Laurens	$9,893,364	$5,234,151	149	$16,975,130
McCormick	$1,466,181	$775,693	22	$2,515,687
Oconee	$7,579,263	$4,009,860	114	$13,004,574
Pickens	$19,889,008	$10,522,415	300	$34,125,756
Spartanburg	$117,456,408	$62,141,108	1,774	$201,532,848
Union	$9,828,111	$5,199,629	148	$16,863,170
Upstate Total	**$383,159,966**	**$202,713,376**	**5,785**	**$657,429,622**

References

Acemoglu, D. "Why Do New Technologies Complement Skills? Directed Technical Change and Wage Inequality," *Quarterly Journal of Economics* 113 (1998): 1055-1090.

Angrist, J.D., and Lavy, V. "The Effect of Teen Childbearing and Single Parenthood on Childhood Disabilities and Progress in School," *Working Paper 5807*, (1996). National Bureau of Economic Research: http://www.nber.org/

Baum, S., Ma, J., and Payea, K. "Education Pays: The Benefits of Higher Education for Individuals and Society," *College Board, Trends in Higher Education Series* (2010).

Cutler, D.M., and Lleras-Muney, A. "Education and Health: Evaluating Theories and Evidence," *Working Paper 12352*, (2006). National Bureau of Economic Research: http://www.nber.org/

Grossman, Michael. "Education and Nonmarket Outcomes," *Handbook of the Economics of Education* Vol. 1 (2006). Eds. Eric A. Hanushek and Finis Welch. Oxford, UK: Elsevier.

Lucas, R.E. "On the Mechanics of Economic Development," *Journal of Monetary Economics* 22 (1988): 3-42.

Moretti, Enrico. "Estimating the Social Return to Higher Education: Evidence from Longitudinal and Repeated Cross-Sectional Data," *Journal of Econometrics* 121 (2004): 175-212.

Oreopoulous, P., and Salvanes, K. "How Large are Returns to Schooling? Hint: Money Isn't Everything," *Working Paper 15339*, (2009). National Bureau of Economic Research: http://www.nber.org/

Yu, Yihua. "Determinants of Variations in State per Capita Personal Income: A Panel Data Approach," *Applied Economics Letters* 17, no. 3 (2010): 235-239.