The University of Alabama 2009-2010 Economic Impacts

Samuel Addy and Ahmad Ijaz

October 2011

Center for Business and Economic Research
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The University of Alabama
2009-2010 Economic Impacts

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Highlights

- For 2009-2010, The University of Alabama (UA) economic impacts on the State of Alabama were $2.033 billion and 10,346 jobs. About $81.4 million in state and local tax revenues were generated; nearly $51 million for the state ($24.4 million sales and $26.6 million income) and about $30.5 million local sales tax.

- For every $1 of state appropriation UA created a $14.68 statewide impact with leveraging. Alabama will realize a 13.4 percent annual rate of return on the $138.5 million state appropriation to UA over the working life of the 2009-2010 graduating class from $1.034 billion in additional income and sales taxes ($725.1 million state and $308.5 million local).

- Alabama home football games had a total impact of $162.7 million on the state for the seven home games in the year, an average of $23.2 million per game.

- The UA economic and fiscal impacts on the three-county Tuscaloosa metro area were $1.408 billion, 9,584 jobs, and $24.4 million in local sales tax. Average impact per home football game was about $16.3 million on the metro area; the 7-game total impact was $113.9 million.

- Expected real annual rates of return for the UA 2009-2010 graduation class range from 10.9 percent to 11.5 percent compared to a high school graduate depending on the degree. Marginal real annual rates of return range from 10.9 percent to 19.0 percent.

- UA presents very attractive public and private investment opportunities and provides many other benefits to its graduates and society.
Introduction

This report presents the economic impacts of The University of Alabama (UA) on the State of Alabama and the three-county Tuscaloosa metro area. Both expenditure and employment impacts are presented. Public and private investment analyses of a UA education are also presented because state appropriations and tuition and other attendance costs can be considered as investments by both the state and the students. The analyses show that those investments are worthwhile and that UA has significant impacts on the state and metro area economies.

Despite continued proration—the state appropriation to UA fell by about $18 million—and smaller economic multipliers for colleges and universities, UA managed to increase its economic impacts on both the state and the Tuscaloosa metro area. The University achieved this through increases in enrollment, research and service, and employment in the 2009-2010 academic year. For the first time, UA’s impacts on the metro area exceeded $1.4 billion and 9,500 jobs. The impacts on Alabama stayed above $2 billion and 10,000 jobs for the second year in a row.

Through its teaching, research, and service activities, UA provides numerous benefits that have lasting impacts on the general public and its graduates. The University provides jobs, generates large tax revenues, promotes innovation, assists in business creation and growth, and facilitates economic development by making the region and state attractive for business and industry location and expansion. UA also improves workforce skills and the general quality of life in the Tuscaloosa metro area, the state, and the nation. Graduates’ learning abilities and intellectual growth are enhanced, enabling them to earn higher incomes, and contribute significantly in various ways to society. Higher incomes result in more tax revenues for the state and other tax jurisdictions. UA has an extensive outreach program and links with communities, business, industry, and government, through which it is involved in economic development and social programs at all levels—community, region, and state.

The University employed 5,366 faculty and staff and hundreds of students in the 2009-2010 academic year. We estimate that student employment translates into a 1,549 UA faculty/staff equivalent. Total UA expenditure for 2009-2010 was $969.3 million, up 7.1 percent (about $64.2 million) from the previous year. The University spent $312.3 million on payroll and $368.1 million on purchases; students spent $288.9 million on off-campus housing, food, books, clothing, etc. The state appropriation of $138.5 million represents 20.4 percent of the $680.5 million UA payroll and purchases, but just 14.3 percent of the $969.3 million total UA spending for the year.
In addition to the above-mentioned $969.3 million, visitors to the University also make expenditures that add to the UA spending impact. Football alone had a visitor expenditure impact of about $16.3 million per game in the Tuscaloosa metro area and $23.2 million per game statewide. UA visitors include athletic event spectators, parents and relatives, other institutions’ academic personnel, business representatives, and others. Visitors are drawn to activities such as honors day, commencement ceremonies, homecoming, band competitions, and alumni weekends and reunions. Academic and business visitors attend conferences, seminars, lectures, and other educational programs. Other business visitors include media representatives, education officials, vendors, research sponsors, and candidates for faculty and staff positions.

The direct UA expenditure generates more rounds of spending in the area and the state that are captured by multipliers determined from the Regional Input-Output Modeling System (RIMS II). RIMS II is an input-output model developed and maintained by the U.S. Department of Commerce’s Bureau of Economic Analysis; the model is available for every state and metro area in the nation and also for many counties. An economic and fiscal impacts model that uses RIMS II multipliers for the State of Alabama and the Tuscaloosa metro area was developed and used in this study. Fiscal impacts focus on income and sales taxes only; examples of other fiscal impacts not reported here include property and utility taxes and car tags and fees.

Fiscal impacts are derived from earnings impacts, recognizing that not all of the earnings impact is taxable; expenditures on sales taxable items constitute 42.4 percent of earnings and state taxable income is about 66 percent of earnings. The state income tax rate is 5.0 percent on net income; actually the first $500 and the next $2,500 are taxed at 2 percent and 4 percent, respectively, for single persons, head of family, and married persons filing separately. For married persons filing joint returns the first $1,000 and the next $5,000 are taxed at 2 percent and 4 percent, respectively. Excess net income is taxed at the 5 percent rate. Sales tax rates of 4.0 percent for the state and 5.0 percent for local (combined county and city)
jurisdictions are used. Combined county and city sales tax rates vary between 2.0 to 7.0 percent among the 67 Alabama counties, but are most frequently at 5.0 percent.

**UA Economic Impacts on Alabama**

Not all of the total $969.3 million UA expenditure was made within the state; a portion went to vendors outside Alabama. About 80 percent of payroll, 90 percent of purchases, and all student expenditures are assumed to be spent in Alabama. The total 2009-2010 UA expenditure in Alabama is thus $870.0 million (Table 1). In addition, there is a visitor impact of $218.2 million that comprises about $170.4 million from athletics and $47.9 million from other visitor spending. Football alone had a $162.7 million visitor expenditure impact from seven home games at about $23.2 million per game. Basketball, baseball, gymnastics, swimming, etc. are conservatively estimated to have a $7.6 million expenditure impact.

Table 1 shows that the total economic impacts of UA on the state for the academic year were $2.033 billion and 10,346 jobs. These impacts are up by $10 million and 283 jobs from the previous year. Fiscal impacts generated are estimated to be nearly $51 million in state tax revenues ($24.4 million sales and $26.6 million income) and about $30.5 million in local sales taxes for a total of $81.4 million. The 2009-2010 economic and fiscal impacts on the state are only part of what Alabama gets in return for a state appropriation of $138.5 million. Many public benefits of education are hard to measure—innovation promotion, direct and indirect new business development and job creation, general improvements in the quality of life, public service, etc.—but others such as additional tax receipts can be determined. From a public investment perspective, these additional tax revenues are what the state derives from making the appropriation. We consider the 2009-2010 appropriation as an investment by the state in that graduating class assuming that 30 percent of the class will reside permanently out of state, and also that state sales and income tax rates remain unchanged over the working life of the class.

**Table 1. The University of Alabama 2009-2010 Expenditure Impacts on Alabama**

<table>
<thead>
<tr>
<th>Source</th>
<th>Direct Spending</th>
<th>Spent in Alabama</th>
<th>Indirect Impact</th>
<th>Total Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>The University of Alabama Payroll</td>
<td>$312.3</td>
<td>$249.9</td>
<td>$271.4</td>
<td>$521.2</td>
</tr>
<tr>
<td>Purchases</td>
<td>$368.1</td>
<td>$331.3</td>
<td>$359.8</td>
<td>$691.2</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$680.5</td>
<td>$581.2</td>
<td>$631.2</td>
<td>$1,212.4</td>
</tr>
<tr>
<td>Student Spending</td>
<td>$288.9</td>
<td>$288.9</td>
<td>$313.7</td>
<td>$602.6</td>
</tr>
<tr>
<td>Visitor Spending</td>
<td>$218.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$969.3</td>
<td>$870.0</td>
<td>$945.0</td>
<td>$2,033.2</td>
</tr>
</tbody>
</table>

**Employment Impact (Jobs)**

10,346

**Statewide Fiscal Impact**

- State Sales Tax: $24.4
- State Income Tax: $26.6
- Local (City and County) Sales Tax: $30.5

**Note:** Rounding effects may be present.

Source: Center for Business and Economic Research, The University of Alabama.
The $138.5 million state funding for 2009-2010 is offset in the same year by the statewide sales and income tax receipts noted previously. Thus, net investment by the state is $87.6 million if just state tax receipts are considered, but $57.1 million if both state and local tax receipts are considered. Over the working life of the 2009-2010 graduating class, a UA education will enable them to generate $1.034 billion additional income and sales taxes; $725.1 million in state only sales and income tax collections and another $308.5 million in local sales taxes. These additional tax collections yield annual rates of return on the state’s investment that are multiples of the current 10-year U.S. Treasury Bond rate. The $725.1 million of state tax receipts translate into a 10.4 percent annual rate of return on a net investment of $87.6 million if just state revenues are considered. The total $1.034 billion in additional state and local tax receipts yields annual rates of return of 13.4 percent on an $87.6 million net investment and 18.5 percent on a $57.1 million net investment. There are additional tax and other government revenues that are not considered here such as property taxes and vehicle registration and tag fees.

UA Economic Impacts on Tuscaloosa Metro Area

Of the total $969.3 million UA expenditure, we estimate that 70 percent of payroll, 60 percent of purchases, and all student expenditures were spent in the Tuscaloosa metro area. Thus, adjusting for leakages out of the area, UA expenditures in the metro area totaled $728.4 million (Table 2). This resulted in an expenditure impact of $1.408 billion, including a visitor expenditure impact of $152.7 million that consists of about $119.2 million from athletics and $33.5 million from other visitor expenditures. The University also had an employment impact of 9,584 jobs for the metro area. The total impacts on the metro area are up $76 million and 949 jobs from the previous year. Football provided a visitor expenditure impact of $113.9 million from the seven home games played in Tuscaloosa. The average impact per game was about $16.3 million. Basketball, baseball, gymnastics, swimming, etc. are estimated to have had a $5.3 million impact. The $1.4 billion expenditure impact is estimated to have generated $24.4 million in local sales tax revenues for the area’s counties and cities.
Table 2. The University of Alabama 2009-2010 Expenditure Impacts on Tuscaloosa Metro Area

<table>
<thead>
<tr>
<th>Source (Millions)</th>
<th>Direct Spending</th>
<th>Spent in Tuscaloosa Metro Area</th>
<th>Indirect Impact</th>
<th>Total Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>The University of Alabama</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payroll</td>
<td>$312.3</td>
<td>$218.6</td>
<td>$158.2</td>
<td>$376.9</td>
</tr>
<tr>
<td>Purchases</td>
<td>$368.1</td>
<td>$220.9</td>
<td>$159.9</td>
<td>$380.7</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$680.5</td>
<td>$439.5</td>
<td>$318.1</td>
<td>$757.6</td>
</tr>
<tr>
<td>Student Expenditures</td>
<td>$288.9</td>
<td>$288.9</td>
<td>$209.0</td>
<td>$497.9</td>
</tr>
<tr>
<td>Visitor Expenditures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$969.3</td>
<td>$728.4</td>
<td>$527.1</td>
<td>$1,408.2</td>
</tr>
</tbody>
</table>

Employment Impact (Jobs)          9,584

Local (City and County) Sales Tax  $24.4

Note: Rounding effects may be present.
Source: Center for Business and Economic Research, The University of Alabama.

**UA Direct 2009-2010 Economic Impact on Tuscaloosa Metro Area**

- Employment Impact: 9,584 Jobs
- Expenditure Impact: $1,408.2 million
- Visitors 11%
  - $152,704,044
- Students 35%
  - $497,901,052
- Payroll 27%
  - $376,855,042
- Other Expenses 27%
  - $380,734,181

**UA Education as Private Investment**

A University of Alabama education is also an investment by students. Every year thousands of new students enroll in UA degree programs. The benefits for these students are manifold. First, education is its own reward. Additionally, the ability to learn and grow intellectually increases the graduate’s earning potential. However, the college degree comes at a cost that includes the obvious cost of the education (tuition, room and board, books, etc.), as well as forgone earnings while in school.
The forgone earnings, often called the opportunity cost, is taken to be the earnings potential of the educational level immediately below the graduate’s highest degree. For example, the opportunity cost of pursuing a master’s degree is the earnings potential of a bachelor’s degree holder. The cost of study is therefore the opportunity cost plus the direct expenditure to obtain the degree. This cost is the actual marginal cost of pursuing the degree, which can be compared to the marginal benefit or addition to value (called value added) for the graduate, to determine whether the decision to obtain a UA degree is prudent. Value added is the difference in salaries of a particular degree graduate with that of a specified reference. The reference for marginal value added is a person with the degree level immediately below.

Only half the opportunity cost is included in the marginal cost of the UA degree since many students work an average of 20 hours a week to support their education. A category of people with “some college” is included in the study to capture individuals who began college but did not complete the bachelor’s degree requirements. These individuals will earn more income in their working lives than high school graduates will without college experience.

In the marginal analysis, the average doctoral degree salary is compared to that of the master’s degree, a master’s is compared to a bachelor’s, and a bachelor’s to a high school graduate with some college experience. The value added of people with some college is obtained by comparing their income to that of high school graduates. Table 3 shows the results of the investment analysis with the assumption that graduates will retire at 67 years of age. The table also shows lifetime earnings in both current and real (year 2010) dollars. Expected lifetime earnings increase from about $2.3 million for a high school graduate to $7.8 million for the doctoral degree; the corresponding real lifetime earnings range is $1.0 million to $4.1 million.

Table 3. UA Education as Private Investment (Class of 2010)

<table>
<thead>
<tr>
<th>Degree/Diploma</th>
<th>High School</th>
<th>Some College</th>
<th>Bachelor’s</th>
<th>Master’s</th>
<th>Doctorate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Starting Salary ($)</td>
<td>18,398</td>
<td>24,047</td>
<td>36,861</td>
<td>52,870</td>
<td>82,888</td>
</tr>
<tr>
<td>Total Cost of Degree (2010 $)</td>
<td>58,962</td>
<td>161,526</td>
<td>243,367</td>
<td>390,142</td>
<td>405,623</td>
</tr>
<tr>
<td>Incremental Income (2010 $)</td>
<td>380,156</td>
<td>726,721</td>
<td>734,862</td>
<td>1,088,947</td>
<td></td>
</tr>
<tr>
<td>Real Annual Return on Investment</td>
<td>10.9%</td>
<td>13.3%</td>
<td>19.0%</td>
<td>18.3%</td>
<td></td>
</tr>
<tr>
<td>Real Return Relative to High School</td>
<td>10.9%</td>
<td>10.8%</td>
<td>11.5%</td>
<td>11.3%</td>
<td></td>
</tr>
<tr>
<td>Lifetime Earnings (Current $)</td>
<td>2,256,900</td>
<td>3,053,897</td>
<td>4,450,691</td>
<td>5,678,831</td>
<td>7,773,980</td>
</tr>
<tr>
<td>Incremental Income (Current $)</td>
<td>796,997</td>
<td>1,396,793</td>
<td>1,318,141</td>
<td>2,005,149</td>
<td></td>
</tr>
</tbody>
</table>

Note: Rounding effects may be present. Total cost of degree is the direct cost of the education (tuition, room and board, books, etc.), as well as forgone earnings while in school.

Source: Center for Business and Economic Research, The University of Alabama.
The investment analysis was performed using real or constant year 2010 dollars. The real annual rate of return on private investment in a UA education is determined by generating the annual cost and income streams over the different lifetimes of the categories being considered. People who attend some college will have real lifetime earnings of about $1.4 million, $380,156 more than a high school graduate, and result in a 10.9 percent real annual rate of return on their UA investment. Bachelor and master’s degree holders will earn marginal value added of $726,721 (a real annual return of 13.3 percent) and $734,862 (a real annual return of 19.0 percent), respectively. A doctorate will earn $1,218,253 more than a master’s, an 18.3 percent real annual rate of return.

The positive real rates of return and their magnitude indicate that the decision to pursue a UA degree is very sensible. The master’s degree has the highest marginal return on investment, but the doctoral degree earns the most, even over the shorter working life. These real investment returns are better than the long term returns on investment in U.S. equity markets.

One may also consider the rate of return on attending college relative to stopping with high school graduation. The master’s degree yields the greatest real annual rate of return again with 11.5 percent, followed by the doctorate at 11.3 percent. The bachelor’s and some college yield returns of 10.8 percent and 10.9 percent, respectively.

**Conclusions and Discussions**

The 2009-2010 University of Alabama economic impacts on the State of Alabama are $2.0 billion expenditure impact and 10,346 jobs. The University is also an excellent investment opportunity for the state, providing a 13.4 percent annual rate of return on state appropriations to UA. The economic impacts on the Tuscaloosa metro area are $1.4 billion and 9,584 jobs.
An education at The University of Alabama is a very high-yielding investment for its students. The real annual rate of return on some college attendance is 10.9 percent over a high school graduate. The bachelor’s degree has a 13.3 percent real annual rate of return over some college attendance, and the master’s degree yields a 19.0 percent return over a bachelor’s degree. The doctorate provides an 18.3 percent marginal return over the master’s and has the highest lifetime earnings.

Any study of this kind has some uncertainties. The real rates of earnings growth may change. So can income and sales tax rates, student enrollment, rate of alumni residence in the state, etc. However, under the assumptions of this report, a UA education is a very sound investment for students (better than most stocks and stock indexes) and a better investment for the state than most bonds.

In addition, there are several intangible benefits of a UA education that cannot be measured. The University produces skilled and knowledgeable people; provides valuable research, adding to the stock of knowledge; enhances graduates’ ability to learn and grow intellectually and to contribute in various ways to society; facilitates economic development; and provides valuable service to Alabama and its counties and communities. Thus UA delivers tangible and intangible benefits to its graduates and the state economy; there are also benefits to the national economy that are not highlighted here.

It is important to note that there is no economic development without education. Higher education, in particular, plays a real and critical role in the modern high-tech economy. This is because economic growth is attributable mostly to the knowledge economy which is characterized by increasing returns, rather than the physical economy with its diminishing returns. Physical products depreciate and become obsolete. Knowledge builds on prior knowledge and does not depreciate and become obsolete. The physical products and services consumed in society are made better mainly with the gains in knowledge provided by higher education. This makes UA essential to the economic development of the metro area, the state, and the nation. The 2009-2010 economic impacts of The University of Alabama on Alabama and the Tuscaloosa metro area certainly exceed by far those we have presented in this report.

Acknowledgments

The staff of the Center for Business and Economic Research (CBER), Financial Accounting and Reporting (FAR), and the Office of Institutional Research and Assessment (OIRA) provided valuable assistance to the completion of this report. Ms. Sherry Lang and Ms. Deborah Hamilton of CBER, Ms. Melissa Barnett of FAR, and Dr. Khoi To of OIRA were especially helpful.