

# William Carey University College of Osteopathic Medicine Economic Impact Study



Presented By



# **William Carey University's College of Osteopathic Medicine Economic Impact Study**

## **Executive Summary**

William Carey University's College of Osteopathic Medicine will substantially impact the economics of the Hattiesburg Metropolitan Statistical Area (MSA) during the facility's start-up phase and throughout its full enrollment and staffing levels. The College will admit its first class of 100 students in the 2010-2011 academic year. Enrollment is expected to reach 400 students in the 2013-2014 academic year. At this point, the College will have a total of 51 direct employees with a payroll of approximately \$5 million annually. In our local economy, the operational dollars of this facility will have an annual impact of \$4,538,191.00 on the Hattiesburg MSA.

Each student is estimated to spend \$22,000.00 in the local economy annually, accounting for \$6.6 million in housing and retail sales by the 2013-2014 academic year. This consumer spending level will generate an additional \$3.6 million annually to the local economy, creating 53 jobs.

Once this facility reaches full enrollment and is fully staffed, it will have a total annual economic contribution of \$8,178,515.00 to the Hattiesburg MSA. Facility operations and student spending for this facility will sustain an additional 150 jobs in our area, while generating \$932,217.00 in state and local taxes.

Furthermore, to accommodate the enrollment increase and new program, William Carey will make significant capital investments into its Hattiesburg campus. These investments will come in three (3) phases totaling \$11,119,458.00. In addition, construction projects will create 170 jobs and generate \$7,972,198.00 in the regional economy.

Each year the College of Osteopathic Medicine at William Carey is in operation, it will have a remarkable economic impact on our area. What started as two (2) employees in 2007 is developing into an economic driver that will pump millions of dollars into our community. This endeavor presents our region with incredible economic opportunities and sustainable growth.

## **William Carey University's College of Osteopathic Medicine Economic Impact Study**

William Carey University has held a storied past. Since its founding in 1906 as South Mississippi College, William Carey has endured fires, hurricanes, and the hardships of the Great Depression. Nevertheless, the institution has always managed to reinvent and reinvigorate itself against seemingly insurmountable odds. With each renaissance that the school experienced, enrollment increased, capital investment grew, and ultimately, the small college transformed itself into a university. With each rebirth, William Carey became an increasingly important economic driver to the Hattiesburg Metropolitan Statistical Area (MSA), which includes Forrest, Lamar, and Perry Counties.

Today William Carey is yet again experiencing a renaissance with the addition of the College of Osteopathic Medicine. The multi-year start-up of this project began in 2007-2008 academic year; the first class is to be admitted in the 2010-2011 academic year. The College will achieve full enrollment and be fully staffed in the 2013-2014 academic year.

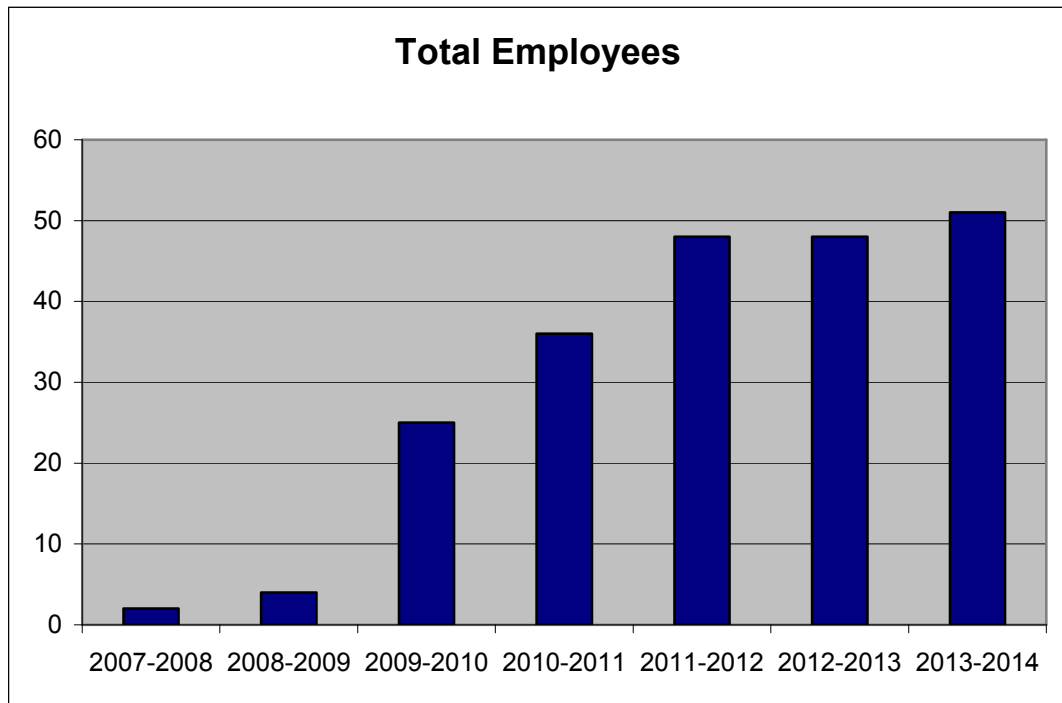
As in times passed, this new venture will lead to increased employment, additional operational expenses, additional capital investments, increased enrollment, and additional student spending. The effects of this growth on the William Carey campus will reverberate and amplify the positive impact to the local economy and tax revenue to our governments.

Starting in 2007 with the hiring of the first employee, the economic impact of this project has been building. Including operations and student spending, by the 2013-2014 academic year, the College of Osteopathic Medicine will contribute nearly \$8.2 million dollars to the economy of the Hattiesburg MSA and will be responsible for 150 direct, indirect, and induced jobs.

This program will further solidify William Carey as an economic driver for our region. While substantial, the economic benefits do not have to cease with the creation of the College of Osteopathic Medicine. Opportunities to maximize the economic benefits of this facility exist.

## Direct Employment

The first two (2) employees of the College of Osteopathic Medicine were hired in 2007 and by the 2008-2009 academic year the number of employees had grown to four (4). In preparation for the first class, the 2009-2010 year will welcome 21 additional employees, bringing the total number of personnel to 25. The 2010-2011 school year will welcome the first class with 32 full-time positions and four (4) part-time positions. Part-time employment is expected to represent less than 20 percent of total employment. For the 2011-2012 and the 2012-2013 school years, employment remains steady at 48 total employees. At full enrollment in 2013-2014, the facility will have a total of 51 direct employees, with 42 being full-time.



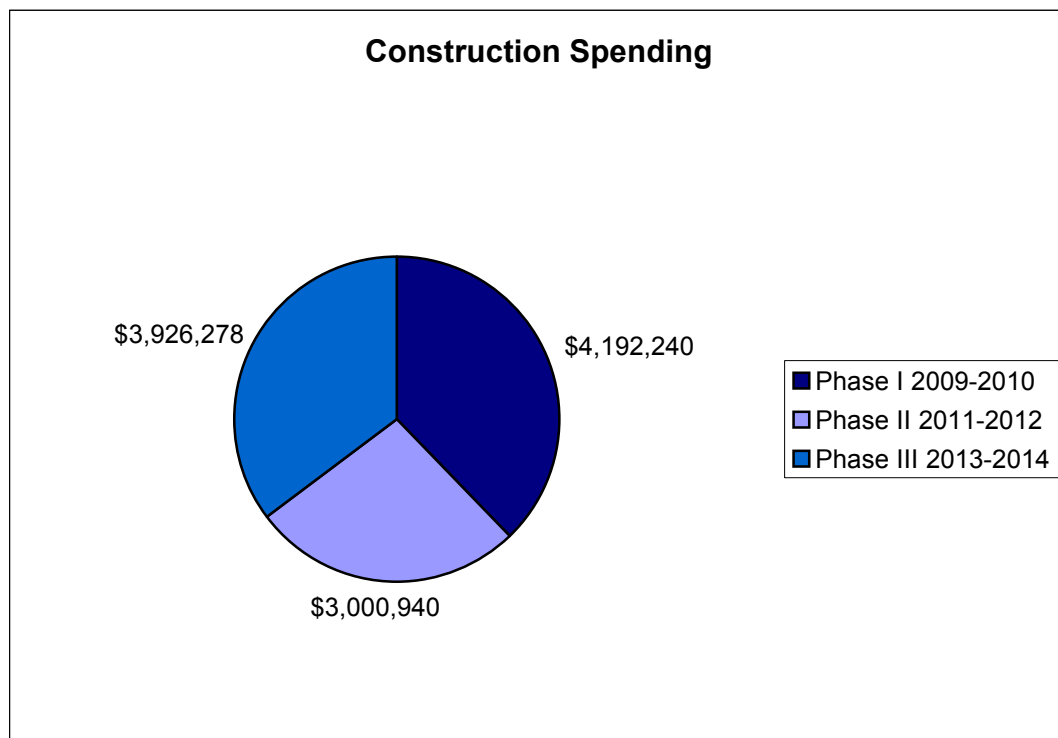
## Operations Impact

Payroll is the most significant portion of the College of Osteopathic Medicine's operation expenses. In fact, during the start-up, the 2007-2008 through 2013-2014 academic years, total operating expenses are budgeted to be \$27,679,819.00. Of that, over \$19 million is projected to be payroll cost. For this "start-up" period, the total value added to the Hattiesburg MSA economy will be \$17,317,429.00, which includes all direct, indirect, and induced economic impacts for the operation of the facility. This phase of operations will create state and local tax revenues of \$1,290,259.00.

When fully operational in the 2013-2014 academic year, the College of Osteopathic Medicine will have a total value-added economic impact of \$4,538,191.00 annually. At this point, total operational expenses will surpass \$7.5 million annually and will have a total 97 direct, indirect, and induced jobs. Annual state and local taxes will be \$338,124.00 from operations of the facility.

### Capital Investment

A new facility will be required to house classrooms, offices, and labs. This facility is projected to be constructed in three (3) phases. The first phase will be built in the 2009-2010 school year at an estimated cost of \$4,192,240.00 and will be 17,508 square feet, heated and cooled. The second phase will cost an estimated \$3,000,940.00 and is scheduled to begin in 2011-2012, adding an additional 12,300 square feet to the facility. The final phase should start in 2013-2014 at an estimated cost of \$3,926,278.00 for 15,870 square feet. The \$11,119,458.00 facility will total 45,678 square feet, heated and cooled.



Construction projects associated with the College of Osteopathic Medicine are estimated to create 170 jobs through a capital investment of \$11,119,458.00. These construction impacts will contribute \$7,972,198.00 to the Hattiesburg MSA economy and create \$607,022.00 in tax revenue.

## Enrollment

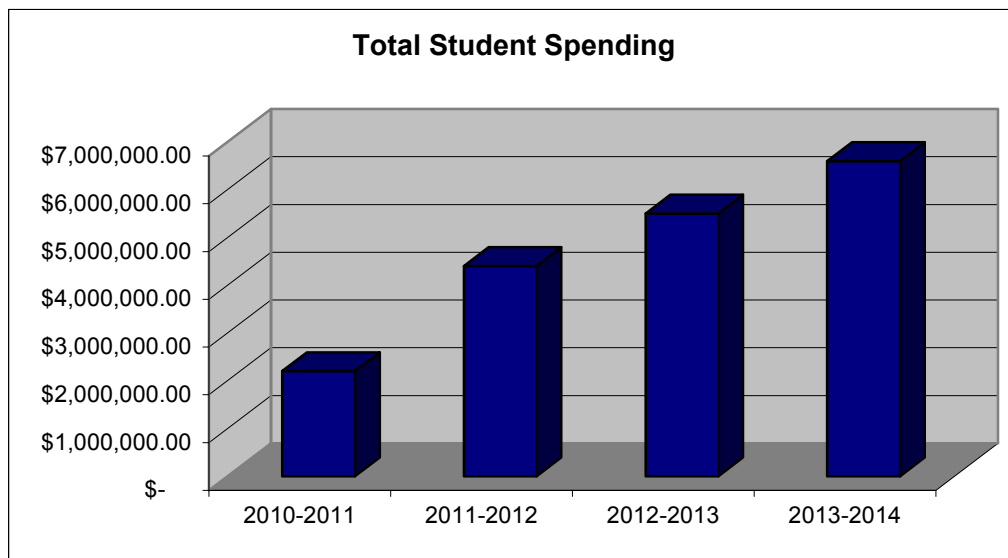
William Carey will admit the first 100 students in the 2010-2011 academic year. The University will add 100 students per year through 2013-2014 which will achieve the College of Osteopathic Medicine's target of 400 students. All of the 400 students will be full-time.

Data collected on 2008 student applications from the American Association of Colleges of Osteopathic Medicine (AACOM) for all 24 colleges of osteopathic medicine across the United States suggest that 73% of applicants will be between the ages of 21-45. Moreover, based on the AACOM data, over 26% of applicants are estimated to be over the age of 25.

## Student Spending

Off-campus student spending is estimated to be an average of \$22,000.00 per student annually. Off-campus student spending includes the following goods and services: electricity, automotive, groceries, gas, general merchandise, insurance, housing, restaurants, and personal services.

Based on the enrollment schedule, off-campus student spending will be \$2.2 million for the 2010-2011 academic year and \$4.4 million for 2011-2012. Students in their third and fourth year of studies will begin clinical rotations. One half of these students are expected to receive this training outside the Hattiesburg MSA. Therefore, student spending is expected to be \$4.4 million for 2012-2013, and will grow to \$6.6 million in the 2013-2014 academic year.

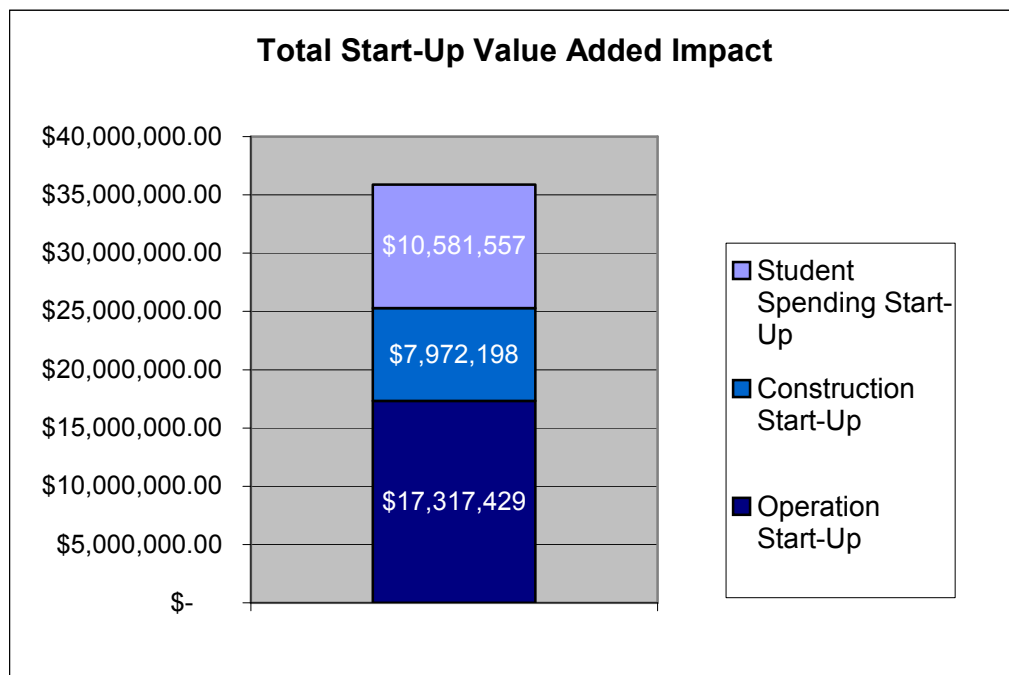


This level of consumer spending will have a significant economic impact on the local economy. In the 2013-2014 academic year, student spending will have a total value-added impact of \$3,640,324.00 on the Hattiesburg MSA economy. This spending will create an additional 53 jobs throughout our area with an estimated labor income of nearly \$1.4 million.

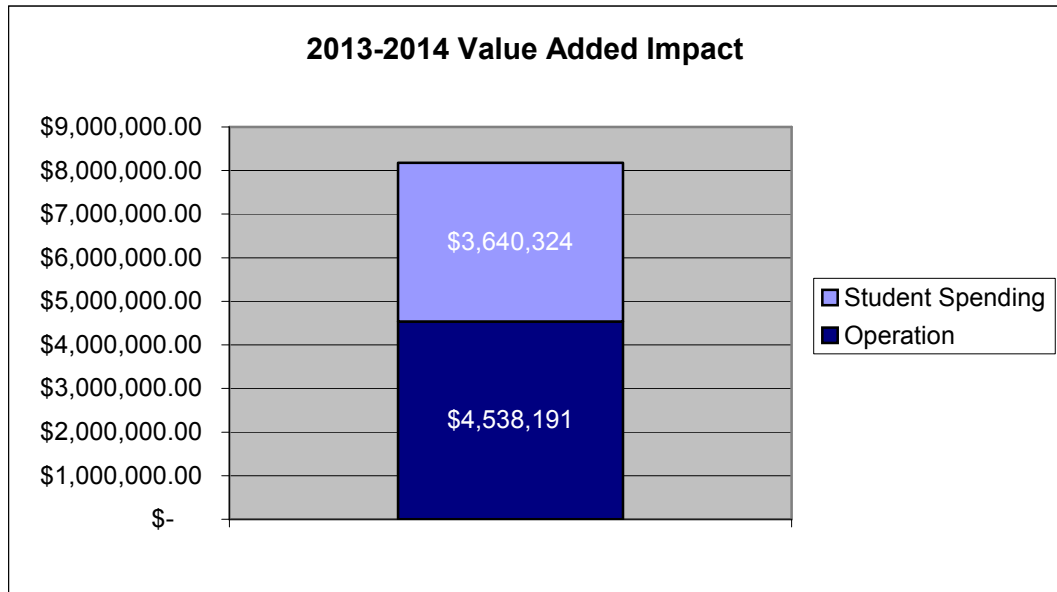
With \$6.6 million in recurring annual sales, our state and local government will also benefit. Student spending will contribute nearly \$600,000.00 to our state and local coffers annually. In fact, impacts on state and local tax collections from student spending are 1.8 times greater than the tax impacts from the facility operations.

### Total Economic Benefit

While the facility is in the start-up phase [the 2007-2008 through the 2013-2014 academic years], it will add \$35,871,183.00 in total value to the local economy through student spending, construction activities, and operation expenses. Student spending will account for \$10,581,557.00 in start-up economic impact. Construction activities will contribute an additional \$7,972,198.00. Operations activities will account for the remaining \$17,317,429.00 in start-up impact. Collectively, these economic factors will generate \$23,996,651.00 in labor income and \$3,624,459.00 in state and local taxes.



By the 2013-2014 academic year, the College of Osteopathic Medicine will contribute nearly \$8,178,515.00 to the economy of the Hattiesburg MSA. Off-campus student spending will have an annual impact of \$3,640,324.00, and operations of the program will have an annual impact of \$4,538,191.00. The facility will be responsible for 150 direct, indirect, and induced jobs. Impacts to the state and government will grow to \$932,217.00



### **Additional Impacts**

Beyond the scope and depth of this study, the potential does exist for additional social and economic impacts:

#### Increased Visibility of William Carey University

A College of Osteopathic Medicine will serve as a distinguishing factor among higher education facilities and increase William Carey University's visibility on the national stage. This will benefit the entire university in recruiting new students. Enrollment increases bring additional dollars into the regional economy.

#### Health Clinic

William Carey University may pursue opening a health clinic utilizing the skills of its students and staff. This facility would provide hands on experience to students and benefit the campus and surrounding neighborhoods.

### Medical Residency Programs

Developing residency programs at area clinics and hospitals may prove profitable for area healthcare providers. Given that residencies are paid positions, development of these programs will create jobs that pay significantly higher than area per capita wages.

### Retained Physicians

William Carey University's College of Osteopathic Medicine will provide our community with an excellent opportunity. Instead of recruiting primary care physicians, our community can focus our efforts on retaining the ones that we produce. Of the 100 students that graduate annually, all will have spent two (2) years in our community and many will have spent four (4) years in our community. Given the significant population of students entering the program over the age of 25, many may be married and have children. With family established, our region should be able to retain much of the talent that this program produces.

### **Conclusion**

William Carey University has been a pillar of the education industry and an economic driver for Hattiesburg for over a century. The University has always managed to manipulate itself, maintaining relevance and expanding the scope of its educational offerings. Today is no exception. In the 2010-2011 academic year, William Carey University will welcome the first 100 doctor of osteopathic medicine students. Adding 100 students per year, the four (4) year program will reach maximum attendance of 400 students.

The Hattiesburg MSA economy began to benefit from the College of Osteopathic Medicine in 2007 with the hiring of the program's first employees. The economic benefits will continue to grow and develop. Upon completion in the 2013-2014 academic year, including operations and student spending, the College will have an annual contribution of nearly \$8.2 million dollars to the economy of the Hattiesburg MSA and will be responsible for 150 direct, indirect, and induced jobs.

As with all transformations, William Carey University and the Hattiesburg MSA will be faced with many possibilities and opportunities as this new venture matures and comes to life. The benefits of this program are substantial and will have long-term social and economic implications. As a community, we must maximize the economic impacts of this project by helping William Carey University strengthen its visibility, encourage our medical community to develop residency programs, and work diligently to retain the 100 new physicians that will pass through our community annually.

# Technical Appendix

## Scope of Study

The scope of this impact study is limited solely to the economic impact of the College of Osteopathic Medicine at William Carey University and includes operation and construction of the facility and the economic impact generated by off-campus student spending.

## Defining Geography

Geography is an important consideration when analyzing economic impacts due to the fact that economic impacts are determined based on the amount of economic linkages. Larger economies produce larger economic impacts than do smaller economies. For example, the economic impact of a school district is larger on the state, than on the county, than on the city. Essentially in a larger geography, there is greater room (more people and industries) in the economy for dollars spent to turnover, thus creating greater economic impacts. In the case of this study, the Hattiesburg MSA, consisting of Forrest, Lamar, and Perry counties, is the geographical area used to determine the economic impacts.

## Data Estimation

William Carey University provided all capital investment, employment, enrollment, tuition, and wage data based on the feasibility plan for the College of Osteopathic Medicine. However, estimations were necessary for off-campus consumer spending levels of students. Off-campus consumer spending was estimated for the following spending types: electricity, automotive, groceries, gas, general merchandise, insurance, housing, restaurants, and personal services. Spending levels assume all students are unmarried without children. One half of students in their third and fourth year of studies were assumed to leave the Hattiesburg MSA for clinical rotations.

Average Annual Off-Campus Student Spending	
Electric Power	\$ 1,542.00
Motor Vehicle & Parts Dealers	\$ 1,139.00
Food and Beverage Stores	\$ 1,800.00
Gasoline Stations	\$ 2,080.00
General Merchandise Stores	\$ 800.00
Miscellaneous Store Retailers	\$ 800.00
Insurance	\$ 806.00
Real Estate	\$ 10,433.00
Restaurants	\$ 1,800.00
Personal Services	\$ 800.00

## **Data Analysis**

Economic impacts in this study are analyzed using Implan Professional Version 2.0 software with 2006 County Data. Implan is an input-output model. Much of the data used by Implan is local data. However, trade flows from one (1) industry and region to the next are based on a national model. For simplicity, the model divides the economy into 509 industries (inputs) with 509 commodities (outputs). All new construction and remodeling were classified in Implan as commercial and institutional buildings. Estimations of off-campus student consumer spending were classified by their appropriate spending category.

Additionally, given that the study was measuring impacts for the 2008-2014 academic years, adjustments for inflation were made to the 2006 base data for each year.

## **Assumptions**

As with any economic analysis, Implan makes several assumptions. First, production is considered linear, meaning that as additional output is required, inputs increase proportionally. The model assumes that there are no industry supply constraints for raw materials, meaning output is limited only by demand. Additionally, the model assumes that price changes do not cause a firm to seek substitute goods, thereby requiring the same mix of industries and commodities needed to produce a unit of product. Another assumption is that there is homogeneous sector output. Basically, an industry will not increase output of one product without increasing output of all other products within the sector. The fifth and final assumption is that an industry uses the same technology to produce all its products.

## **Types of Economic Effects**

There are three (3) types of economic effects on the economy that are combined and used to calculate the multipliers used in this study.

### *Direct effects*

Direct effects represent the initial impact on final demand. A \$2,000.00 investment would have a \$2,000.00 direct impact.

### *Indirect effects*

Indirect effects are the result of industries purchasing from other industries as a result of the direct investment. If that \$2,000.00 were spent on stationery, the stationery store would have to purchase additional ink and supplies from related industries. The purchase of additional ink and supplies would be an example of an indirect effect.

### *Induced effects*

Some of the stationery store's revenues are paid to its employees, who in turn, spend their income at other establishments and pay taxes that lead to increased government spending. These economic impacts are known as induced effects. Induced effects are the result in a change in household and government spending.

### **Multipliers**

The sum of the direct, indirect, and induced effects equals the total effects of the investment. The effects are used to calculate the multipliers. A multiplier is the number of times that the economic output, in this case dollars, turns over in the economy. There are several types of multipliers. In the case of this study, a type SAM (Social Account Matrix) multiplier is used. SAM multipliers attempt to capture economic impacts from the direct investment, industry to industry transaction, household spending, and government spending. SAM multipliers are calculated by dividing the total from all types of effects by the direct effect.

### ***Example:***

Direct effect	0.567143
Indirect effect	0.070428
Induced effect	+ 0.206965
<u>Total effects</u>	<u>0.844536</u>

### Type SAM multiplier

Total effects/Direct effect = SAM Multiplier

$$0.844536/0.567143 = 1.489106$$

In the example above, a type SAM multiplier of 1.489106 on \$1,000,000.00 would have an economic impact \$1,489,106.00. Of the \$1,489,106.00, \$1,000,000.00 is the direct impact from the initial investment. The remaining \$489,106.00 is caused by indirect effects and induced effects.

When analyzing multipliers, it is important to note that the multiplier includes the initial investment and the investment's effects on the economy. In the example above, the total impact of \$1,489,106.00 includes the initial investment of \$1,000,000.00. Therefore, the amount of new revenues being generated is \$489,106.00.

Multipliers exist for output, indirect taxes, employment, and total value-added to name a few. In the same example above, if it were an employment multiplier and the investment was 100 jobs and the multiplier remained 1.489106, the total impact would be 149 jobs. Of the total, 100 jobs are the result of the initial investment. The remaining 49 jobs are a result of the secondary impacts.

Every industry within Implan has its own effects and type SAM multiplier for a given geography. Just as regional economies vary, effects and multipliers change as the economic composition and size change. Employment effects and multipliers for the operation and construction activities related to the College of Osteopathic Medicine within the Hattiesburg MSA are as follows:

<b>Employment Multipliers Hattiesburg MSA</b>					
<b>Facility Type</b>	<b>Direct Effects<sup>^</sup></b>	<b>Indirect Effects<sup>^</sup></b>	<b>Induced Effects<sup>^</sup></b>	<b>Total Effects<sup>^</sup></b>	<b>Type SAM Multiplier</b>
Colleges, Universities, and Junior Colleges	10.352760	2.140451	2.723218	15.216429	1.469795
Commercial and Institutional Buildings	11.280429	2.288274	2.944367	16.513070	1.453869

<sup>^</sup> Per million of output

Using survey data collected from the 2006 Education Impact Study participants, the regional data for the Hattiesburg MSA was adjusted within each educational category Implan to reflect the accurate employment size, employment compensation, and industry outputs. Since detailed financial information was not included in the regional data survey, proprietary income, other proprietary income, and indirect business taxes were adjusted proportionally based on the number of employees. Due to data constraints, regional data for the category "Other Education Services" was adjusted proportionally based on state level data.

### **Conclusion**

In measuring economic impacts, scope and geography must be defined, assumptions must be made, and estimations are sometimes necessary. In the case of this study, the sole estimation was the consumer spending of students at the College of Osteopathic Medicine. Although economic impact modeling techniques used to complete this impact study do require a number of assumptions, the resulting impact study provides estimations with a solidly justifiable and repeatable methodology.