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Impact of the College of Allied Health Professions on the Local Economy

Semoon Chang

United States

Professor of Economics and Director

Center for Business & Economic Research

University of South Alabama

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Abstract

Contributions made by allied health programs to the local community extend beyond quality health care. Estimated in this paper are the economic contributions that the College of Allied Health Professions at the University of South Alabama makes to the economy of Mobile County, Alabama, in which the College is located. Economic impact is defined as only those expenditures that are brought to the local economy from outside by the existence of the College, excluding any expenditures that simply change hands in the local economy. Expenditures generated by the existence of the College have the following three groups: expenditures made by out-of-town students, expenditures generated by the College for its operation as well as salaries of its employees who reside in the local area, and external grants generated by the College faculty. In addition to these direct expenditures impact, an estimate is also made for the long-term economic impact of the College on the local economy through the supply of educated health care workers. Total impact is obtained on the basis of RIMS II regional input-output multipliers estimated specifically for Mobile County by the U.S. Bureau of Economic Analysis. The total amount of the annual direct expenditures impact of the College of Allied Health Professions on the local economy is \$29,852,490.43. Including the multiplier effect, the amount of total expenditures generated by the College of Allied Health Professions for the local economy is \$60,290,089.67 per year. The total number of jobs that are created or maintained in Mobile County by the College-generated expenditures is 1,248. In addition to the direct and indirect economic impact from new expenditures, the College also contributes to the local economy through education and training of its workers. The College of Allied Health Professions contributes \$4,424,398.39 in increased earnings annually to the state of Alabama of which \$2,145,335.30 is to Mobile County through its education and training.

Introduction

The term "allied health" was first coined in 1966 when staff members of the U.S. Department of Health Education and Welfare (HEW) used the phrase "allied health" in the landmark legislation, *The Allied Health Professions Training Act of 1966*. The Association of Schools of Allied Health Professions (ASAHP) was founded in 1967 with 13 representatives from universities, colleges, schools, and divisions across the country. "Allied health schools and programs expanded greatly between 1967 and 1980, largely due to more than \$300 million in federal funds (Karni 1995, p. 189)." Numerous allied health educational

programs are organized into one college or school to encourage and facilitate interdisciplinary collaboration around teaching, research, and service involving basic health care outside the role of medical students, physicians, and nurses, providing an "extremely broad range of basic health services" (Finocchio 1994, p. 30). Additional reports in the early 1990s further defined the scope of allied health as a profession: "Healthy America: Practitioners for 2005" and "Health Professionals for the Future: Schools in Service to the Nation" by the Pew Health Professions Commission, and "Report of the National Commission on Allied Health" by the National

Commission on Allied Health established by the Health Professions Education Extension Amendments of 1992 (PL 102-408). Practitioner competencies envisioned for 2005 in the first report by the Pew Health Professions Commission clearly suggested the wide-ranging scope of allied health professions (Finocchio 1994, p.30).

The primary objective of this paper is to estimate the impact of the College of Allied Health Professions, University of South Alabama, on the local economy. The diversity in disciplines that all stress practical health care services poses a special challenge in estimating the impact of colleges of allied health on the local economy. The local economy in this paper is defined as the economy of Mobile County, Alabama in which the College is located.

The College of Allied Health Professions has a number of programs at both the undergraduate and graduate levels. These programs are: (a) certificate program in radiologic technology; (b) bachelor of science in biomedical sciences, cardiorespiratory sciences, clinical laboratory sciences, radiologic sciences, and speech and hearing sciences; (c) master's degree programs in health science, physician assistant studies, occupational therapy, and speech-language pathology and (d) doctoral degree in audiology and communication sciences and disorders. These programs are accredited by the Committee on Accreditation for Respiratory Care, Accreditation Council for Occupational Therapy Education, Commission on Accreditation in Physical Therapy Education of the American Physical Therapy Association, American Speech-Language and Hearing Association, Joint Review Committee on Education in Radiologic Technology, and the National Accreditation Agency for Clinical Laboratory Sciences.

The College had a fall 2004 enrollment of 195 graduate students and 1,088 undergraduate students. A survey was administered to these students to gather data for this study. Of 1,283 total students, 319 responded to the questionnaire that was completed with the assistance of classroom teachers.

The Model

The methodology employed in this study is traditional in that estimation is limited to local expenditures that the existence of the College brings to the community from outside, excluding any money that simply changes hands within the community or any money that is leaking out of the community. The direct expenditures impact of the College of Allied Health Professions (ET) is comprised of the following:

$$ET = E^S + E^C + E^G + E^L$$

$$IMP = ET \times m$$

in which E^S = local expenditures made by out-of-town students excluding expenditures made by local students who lived in the Mobile metro prior to their admission to the College, E^C = local expenditures generated by the College operation and the College faculty and staff who live in Mobile County, excluding those who live outside the Mobile County, E^G = external grant money generated by the College faculty, E^L = long-term impact of the College graduates on the local economy, IMP = total economic impact, and m = multiplier. Economic impact is measured in jobs, wages, local expenditures, and tax revenues.

Student Expenditures Impact (ET)

The estimation procedure of direct expenditures by students is a little complicated. All students of the College of Allied Health Professions are divided into eight groups:

- (1) undergraduate - single paying in-state tuition
- (2) undergraduate - single paying out-of-state tuition
- (3) undergraduate - married paying in-state tuition
- (4) undergraduate - married paying out-of-state tuition
- (5) graduate - single paying in-state tuition
- (6) graduate - single paying out-of-state tuition
- (7) graduate - married paying in-state tuition
- (8) graduate - married paying out-of-state tuition

Four comments are in order. First, the classification between in-state tuition and out-of-state tuition is needed because students from Escambia and Santa Rosa counties of Florida and students from George, Greene, Harrison, Jackson, Perry, and Stone Counties of Mississippi are allowed to pay in-state tuition even if they are from out-of-state. Therefore, out-of-state students from these counties are assumed to pay in-state tuition. Second, the estimation of direct expenditures net of tuition is limited to those students who come from places other than the Mobile metro since students in the Mobile metro can safely be assumed to spend the same amount with or without the College of Allied Health Professions. Note that this assumption may lead to an underestimation of the impact to the extent that some of the local students may leave the area without the existence of the College. There is no credible way of calculating the percentage of local students who may be leave the area without the College, however. Third, it is assumed that single out-of-town students do not stay in Mobile during summer while married out-of-town students stay in Mobile during the summer even if they do not take classes. Finally, full-time tuition and fees, rather than part-time tuition and fees, are calculated based on the assumption that out-of-town students are more likely to be full-time students.

Annual direct expenditures that students make are estimated according to the following formula separately for each of the eight groups of students:

Number of undergraduate (or graduate) students:

x % of single (or married) students found from the survey
 x % of students subject to in-state (or out-of-state) tuition found from the survey

x monthly living expenditures for single (or married) undergraduates (or graduates) found from the survey
 x 8 months (or 12 months) for single (or married) out-of-state students
 + in-state (or out-of-state) full time tuition & fees
 X 2 for two semesters per year

Total direct expenditures impact of students is obtained in table 1 by adding the eight figures derived in the above.

Table 1. Direct Expenditures Impact of Students

expenditures by single undergraduates in-state tuition	\$11,995,863.17
expenditures by single undergraduates out-of-state tuition	2,656,790.15
expenditures by married undergraduates in-state tuition	5,318,876.75
expenditures by married undergraduates out-of-state tuition	1,117,942.36
expenditures by single graduate students in-state tuition	2,080,442.65
expenditures by single graduate students out-of-state tuition	597,497.74
expenditures by married graduate students in-state tuition	2,247,133.51
expenditures by married graduate students out-of-state tuition	<u>603,242.10</u>
total	\$26,617,788.43

College Expenditures Impact (E^c)

The total College salary & wage expenditures during FY 2004-05 are \$5,069,923.89 of which \$4,101,309 is faculty salary and \$968,615 is staff salary, while the total non-wage operational expenditures of the College during FY 2004-05 are \$479,915.65. Operational expenditures can safely be assumed to be all local expenditures. Salary & wage expenditures are different, however, because all staff members and many faculty members live in the adjacent Baldwin County, not in Mobile County. All staff salaries, therefore, are treated as non-local expenditures and excluded from impact estimation, while the Mobile County share of the College faculty salary is calculated on the basis of the residence of full-time faculty as follows:

$Share = faculty\ salary \times 28/41 = \$4,101,309 \times 0.68293 = \$2,800,894$ in which 41 is the total number of faculty and 28 is the number of faculty who live in Mobile County. To summarize, the College expenditures that relate to local economic impact are summarized in table 2.

Table 2. College Expenditures Impact

faculty salary	\$2,800,894.00
staff salary	0.00
operational expenditures	<u>479,915.65</u>
total	\$3,280,809.65

The portion of the total College expenditures (\$3,280,809.65) that relates directly to local economic impact, however, is smaller since the local impact should be limited to only the portion of these expenditures that represent the percentage of students who would not be in Mobile relative to total College enrollment. That is:

DIE – Direct Impact Expenditures

$$D.I.E. = \$3,280,809.65 \times (100\% - 26.33\% - 7.52\%) \\ = \$2,170,256$$

in which 26.33 percent is the portion of students who live in Mobile County and 7.52 percent of the portion of students who live in the adjacent Baldwin County. Assumption implicit to this calculation is that students who live in Mobile County would still live in Mobile County without the College of Allied Health Professions and students who live in Baldwin County would not be spending money in Mobile County with or without the College of Allied Health Professions.

External Research Grants (E^g)

During Fall 2004, faculty members of the College were working on a number of external grants. Since this study is intended to estimate annual economic impact, however, the amount of external research funds employed in this study is based on the average (\$1,064,446) of annual grants that the College faculty had received from 1999 to 2003.

Direct Expenditures Impact: Summary

Direct expenditures impact of the College of Allied health Professions is summarized in table 3.

Table 3. Summary of the Direct Expenditures Impact

expenditures by students	\$26,617,788.43
expenditures by faculty & College	\$2,170,256.00
external grants generated	<u>\$1,064,446.00</u>
total	\$29,852,490.43

Total Economic Impact with Multipliers

Economic events of a sustaining nature such as the operation of the College of Allied Health Professions generate spill-over effects as students, faculty and the College spend money in the local economy, and as those who receive the money will in turn spend the same money on the local economy after taxes are paid. Multipliers employed in this study are the ones developed by the U.S. Bureau of Economic Analysis specifically for Mobile County, known as RIMS II multipliers. RIMS II multipliers for the specific category of interest to this study, i.e., colleges/universities/professional, for Mobile County are 1.6968 for earnings and 1.5208 for employment. Including the multiplier effect, the amount of total expenditures generated by the College of Allied Health Professions for the local economy is \$60,290,089.67 per year.

Tax Impact

The tax revenues generated each year by expenditures made by students, faculty & staff, and general operation of the College of Allied Health Professions are estimated separately for the City of Mobile, Mobile County, and the state of Alabama. For the City of Mobile and the Mobile County, annual tax revenues are estimated for sales tax, auto tax, gasoline tax, and property tax. For the state of Alabama, annual tax revenues are estimated for income tax as well as sales tax, auto tax, gasoline tax, and property tax. Annual tax revenues generated by the College are \$575,807 for the City of Mobile, \$327,933 for Mobile County, and \$1,611,446 for the State of Alabama.

Long-Term Impact of the College

The long term impact of the College of the Allied health Professions on the local health care industry is difficult to quantify, but is just as important as the earnings, employment, and tax impact estimated so far in this report. There are some indications that demonstrate the importance of the College on the local health care industry. One such indicator is the high percentage of graduates who found employment within six months of their graduation. The percentages are shown in table 4.

Table 4. Percent of Students Employed within 6 Months of Graduation

	2001	2002	2003	2004
Cardiorespiratory Care	100	83	92	91
Clinical Laboratory Sciences	86	50	100	100
Occupational Therapy	100	100	100	n.a.
Physical Therapy	90	100	100	100
Physician Assistant Studies	82	69	58	79
Radiologic Sciences	96	100	95	100
Speech Pathology & Audiology	100	100	100	100

Source: College of Allied Health Professionals 2004; note that BMD students continue their education in another program.

The high percentage of students who find employment upon graduation may be due in part to the high first-time

pass rates on national certifying examinations in the fields of their study. The pass rates are shown in table 5.

Table 5. First-Time Pass Rates on National Certifying Examinations

	2001	2002	2003	2004
Cardiorespiratory Care	100	80	75	80
Clinical Laboratory Sciences	100	60	100	100
Occupational Therapy	100	100	82	n.a.
Physical Therapy	93	78	80	82
Physician Assistant Studies	88	100	94	93
Radiologic Sciences	100	100	95	n.a.
Speech Pathology & Audiology	95	100	81	78

Source: College of Allied Health Professionals 2004; note that BMD students do not take professional tests because they continue their education in another program.

Although it is difficult to estimate the long-term impact of the College of Allied Health Professions on the local health care industry, it is possible to approximate the impact by estimating how much more money the College's graduates may be making in the area by completing their programs at the College.

According to table 591 on page 387 of the *Statistical Abstract of the United States 2003* (123rd edition published in 2004), the percentages of U.S. civilian labor force by the level of education in 2002 are as follows:

- 10.3 percent – less than high school diploma
- 30.8 percent – high school graduate
- 27.4 percent – less than a bachelor's degree
- 31.4 percent – college graduate

Another way of looking at these numbers is that a median worker in the U.S. has an education level of some college without a bachelor's degree. Table 631 on page 416 of the same publication indicates that the average hourly wage of health care and social assistance workers was \$15.33 in 2002. Converting the hourly wage to an annual wage:

$$\$15.33 \times 40 \text{ hours} \times 52 \text{ weeks} = \$31,886$$

Table 695 on page 462 of the *Statistical Abstract* indicates that average earnings of those with "bachelor's degree or more" are higher by 80.7 percent for male and 58.4 percent for female than average earnings of those with "some college, no degree." Averaging the two, average earnings increase by 69.55 percent when the worker's level of education increases from some college to a bachelor's degree or more:

$$\$31,886 \times 0.6955 = \$22,176.71$$

Returning to the College of Allied Health Professions, the total number of students enrolled at the College in the fall

2004 was 1,283. Multiplying the earnings increase by the number of students:

$$\$22,176.71 \times 1,283 = \$28,452,722.78$$

Note that this figure represents the College's contribution in earnings to the health care industry over four years for all areas of students' origin. Note also that when some students drop out, there are others joining the College through transfer. Our survey of the College students indicates that 30.16 percent of all students of the College are from Mobile County and 62.20 percent are from Alabama including Mobile County. The annual contribution of the College to the health care industry, measured in increased earnings, can then be estimated for Mobile County and for Alabama:

- *Mobile County*
 $\$28,452,722.78 \times 0.3016 / 4 = \$2,145,335.30$
- *Alabama*
 $\$28,452,722.78 \times 0.6220 / 4 = \$4,424,398.39$

To summarize, the College contributes \$4,424,398.39 in increased earnings annually to the state of Alabama of which \$2,145,335.30 is to Mobile County, through its education and training. The present value of the annual contributions at five percent discount rate is \$88,487,967.80 to Alabama of which \$42,906,706 is the share of Mobile County. The present value of \$42,906,706 at five percent discount rate means that a deposit of \$42,906,706 at five percent interest rate is needed to generate \$2,145,335.30 each year.

Summary

The direct expenditures impact of the College of Allied Health Professions has three components: (a) local expenditures made by out-of-town students excluding expenditures made by students who live in Mobile and Baldwin counties, (b) local expenditures made by the College for operation as well as the College faculty and staff who live in Mobile County only and prorated for the ratio of out-of-town students relative to total students of the

College, and (c) external funds generated by the College faculty. Direct expenditures impact of the College of Allied Health Professions is comprised of \$26,617,788.43 by out-of-town students, \$2,170,256.00 for operation of the by College and by College employees prorated for local residence and out-of-town students, and \$1,064,446.00 for annual average amount of external funds generated by the College.

The total amount of the annual direct expenditures impact of the College of Allied Health Professions on the local economy is \$29,852,490.43. Including the multiplier effect, the amount of total expenditures generated by the College of Allied Health Professions for the local economy is \$60,290,089.67 per year, which leads to \$30,674,241.10 of after-tax retail expenditures in the local economy. The total number of jobs that are created or maintained in Mobile County by the College-generated expenditures is 1,248.

Annual tax revenues generated by the College are \$575,807 for the City of Mobile, \$327,933 for Mobile County, and \$1,611,446 for the State of Alabama. Any tax impact generated by the College employees residing in the neighboring Baldwin County is not estimated and thus excluded.

The long-term impact of the College on the local economy may be stated as follows: The College contributes \$4,424,398.39 in increased earnings annually to the state of Alabama of which \$2,145,335.30 is to Mobile County through its education and training. The present value of the annual contributions at five percent discount rate is \$88,487,967.80 to Alabama of which \$42,906,706 is the share of Mobile County.

The present value of \$42,906,706 at five percent discount rate means that a deposit of \$42,906,706 at five percent interest rate is needed to generate \$2,145,335.30 each year. Impact estimated in this study represents net economic impact which is equivalent to attracting new businesses to the local economy, excluding any impact that represents re-circulation of existing economic activities.

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