

THE ECONOMIC IMPACT OF THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER ON THE STATE OF TENNESSEE

Academic Year 2007-2008

William F. Fox
Director, CBER

Todd R. Yarbrough
Graduate Research Assistant

Melissa O. Reynolds
Research Associate

Carrie B. McCamey
Communications Coordinator

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716 Stokely Management Center
Knoxville, Tennessee 37996
Phone: (865) 974-5441
Fax: (865) 974-3100
<http://cber.bus.utk.edu>

Executive Summary

This study summarizes the estimated impacts of the University of Tennessee Health Science Center (UTHSC) on the Tennessee economy for Fiscal Year 2008 (FY08).¹ The economic impacts estimated in this study include income and jobs created by spending of the center and its employees and students.

Tennessee's economy benefits from the presence of UTHSC in several ways. First, the center provides 6,247 faculty, staff, and student employees with salaries. UTHSC's payroll for FY08, both salary and benefits, was \$357.9 million.² Our estimate indicates that payroll spending impacts the state economy in the amount of \$715.7 million and helps create about 5,055 additional jobs.

Second, the center spends money on goods and services in the state, which creates jobs and income. UTHSC made \$55.4 million in non-payroll expenditures in FY08, which generated \$37.6 million in income and created 866 jobs.

Lastly, spending by students generates significant economic activity in the state. We estimate student expenditures for FY08 to be approximately \$18.7 million, creating \$7.9 million in income and creating 265 jobs.

Combining the effects of payroll (\$715.7), non-payroll (\$37.6), and student spending (\$7.9), we find that UTHSC generates a total of \$761.2 million in income and creates 12,433 jobs for the state of Tennessee, including those currently on center payroll. In addition, we estimate that \$63.6 million is generated in state and local tax revenue from the presence of the center.

I. Introduction

Background

Established in 1911, UTHSC's main campus is located in Memphis, Tennessee. Statewide campuses include colleges of Allied Health Sciences, Dentistry, Graduate Health Sciences, Medicine, Nursing, and Pharmacy. Currently 2,837 students are enrolled statewide. UTHSC offers three undergraduate programs, more than 20 graduate degrees, and three professional programs. The center also includes the Regional Biocontainment Laboratory, Clinical and Translational Science Institute, and the Cancer Research Building (the Mid-South's only adult cancer research facility).

In Knoxville, the Graduate School of Medicine, Department of Family Medicine has graduated 256 residents since its inception in 1970. The Knoxville campus also includes the College of Pharmacy, which has extended to include Clinical Education Centers in Kingsport and Nashville.

The UT College of Medicine (UTCOM) Chattanooga sponsors nine residency and five fellowship programs and has 159 active residents and fellows in training. The UTCOM Chattanooga includes the UT Family Practice Center and the UTCOM Skills and Simulation Lab.³

¹ Fiscal Year 2008 begins on July 1, 2007 and ends on June 30, 2008.

² Employment and expenditure data includes: Memphis Campus, Knoxville Campus, Chattanooga Campus, and UT Medical Center.

³ See http://www.utmem.edu/mews/uthsc_factsheet.pdf for more information.

Summary of Results

This study uses data from various administrative sources to estimate the statewide economic impact of UTHSC. Table 1 summarizes the general findings. We estimate that the center generates about 12,433 jobs and \$761.2 million in economic impacts to the state. In addition, the center creates approximately \$63.6 million in state and local tax revenue.

TABLE 1
Summary of Economic Benefits of UTHSC, FY08

	Amount
Income Generated	\$761,238,186
Tax Revenue Generated	\$63,617,055
Employment Generated	12,433

Although our estimation of the economic impact of the center on the state is significant, it is safe to assume that we are providing a conservative estimate since we do not include any economic impacts from visitor spending. Presumably, a significant amount of economic activity is generated through lodging and food expenses from visitors associated with UTHSC conferences and events.

The study is organized as follows: in the second section, we introduce center spending for FY08 and estimate the direct income associated with those expenses. In section three, we combine the indirect effects associated with spending by UTHSC with the direct effects and estimate the total economic impacts from both income and employment. In section four, we estimate tax revenue created by the center in FY08. Section five describes some qualitative benefits from UTHSC. Section six highlights center enrollment trends.

II. Total In-State Expenditures for UTHSC

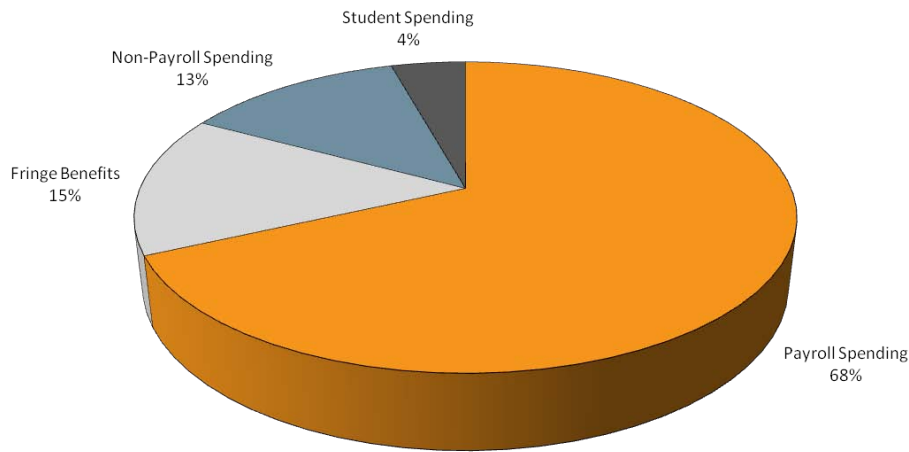
UTHSC provides the state with economic benefits in several ways. The direct economic benefits are 6,247 people who are hired by UTHSC and the associated income. Table 2 summarizes UTHSC expenditures for FY08, including spending on payroll, employee benefits, non-payroll spending in-state, and student spending in-state. Combining these four components, the center was responsible for about \$432.0 million in spending in FY08.

TABLE 2
UTHSC Related In-State Expenditures, FY08

	Amount
Payroll Spending	\$294,584,492
Fringe Benefits	\$63,280,838
Non-Payroll Spending	\$55,353,871
Student Spending	\$18,745,325
Total FY08 In-State Expenditures	\$431,964,526

The center generates income through payment of \$294.6 million in faculty, staff, and student salaries. Employee fringe benefits, such as retirement and health insurance, cost the center \$63.3 million in FY08. Together, salaries and benefits make up about 83 percent of all UTHSC-related spending, as shown by Figure 1. Salaries and benefits are analyzed together in the estimates provided below.

FIGURE 1
UTHSC Related In-State Expenditures, FY08



Non-payroll expenditures made within the state on items like construction, utilities, maintenance services, and equipment also made up a significant portion of UTHSC expenditures. In FY08, \$55.4 million was spent in-state on non-payroll goods and services, representing approximately 13 percent of all in-state center spending.

Finally, there are impacts associated with off-campus student spending. In FY08, 2,655 students were enrolled at UTHSC. We estimate that students spend \$18.7 million annually on transportation, off-campus living, and miscellaneous expenditures, which makes up about 4 percent of in-state, center-related spending.

III. Total Economic Impact on Tennessee from UTHSC

Estimated Income Impacts

In addition to the income created through direct payroll spending, the center also indirectly creates income for the state. These center-related purchases of goods and services from vendors within the state are responsible for more jobs and income. Jobs and income are also created through the multiplier process - where money is spent and re-spent such that each dollar in expenditures can generate more than one dollar in economic activity.

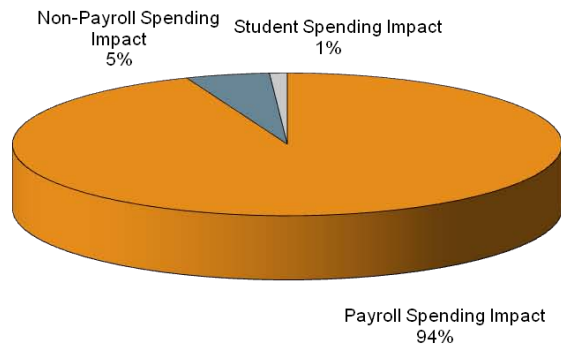
Table 3 outlines the economic impact from the three main sources of spending described above, center expenditures on payroll and benefits, non-payroll goods and services in-state, and student spending in-state. In FY08, payroll generated \$715.7 million in income, while \$37.6 million was generated by non-payroll income, and \$7.9 million from student spending. Combining all three effects, we estimate the overall economic impact of the center to be \$761.2 million.

TABLE 3
UTHSC Economic Impact by Source, FY08

	Amount
Payroll Spending Impact	\$715,730,660
Non-Payroll Spending Impact	\$37,570,755
Student Spending Impact	\$7,936,771
Total FY08 Income Benefit	\$761,238,186

As illustrated by Figure 2, 94 percent of all income was created through payroll spending. Non-payroll spending and student spending generated approximately 5 percent and 1 percent of income, respectively.

FIGURE 2
UTHSC Income Benefit, by Source, FY08



Estimated Employment Impacts

When UTHSC spends money on goods and services, many jobs are created in addition to the 6,247 employed by the center in FY08. We estimate that an additional 6,186 jobs result from UTHSC-related spending. Combining UTHSC employment with jobs created, we estimate that the center is responsible for a total of 12,433 jobs in the state.

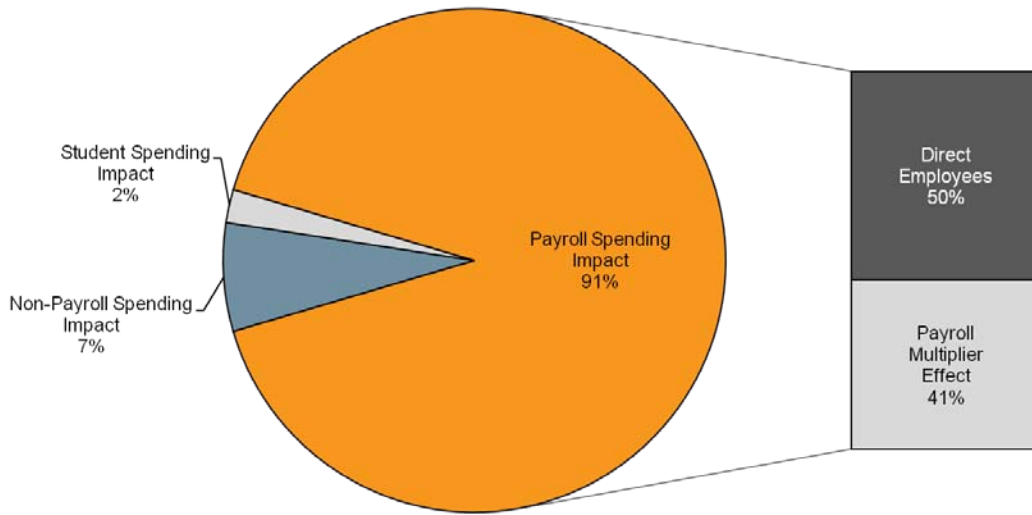
Table 4 summarizes the employment impacts for FY08. The payroll spending effect combines the 6,247 employees and another 5,055 jobs that are generated when employees spend income on goods and services. Also, non-payroll expenditures made by the university created 866 jobs in-state. Student spending was responsible for 265 jobs.

TABLE 4
UTHSC Employment Impact, by Source, FY08

	Amount
Payroll Spending Impact	11,302
Direct Employees	6,247
Payroll Multiplier Effect	5,055
Non-Payroll Spending Impact	866
Student Spending Impact	265
Total FY08 Employment Impact	12,433

Of the total employment impact, 91 percent was due to payroll spending—50 percent UTHSC employees and 41 percent created by the payroll multiplier effect as shown by Figure 3. Non-payroll spending accounted for about 7 percent. Student spending generated about 2 percent of all UTHSC-related jobs.

**FIGURE 3
UTHSC Employment Impacts, by Source, FY08**



IV. Tax Effects

UTHSC also benefits the state through increased tax revenue. We estimate that the center generates a total of \$63.6 million in state and local tax revenue - \$31.9 million in sales tax revenue and \$31.7 million in other tax revenue. Table 5 summarizes these results.

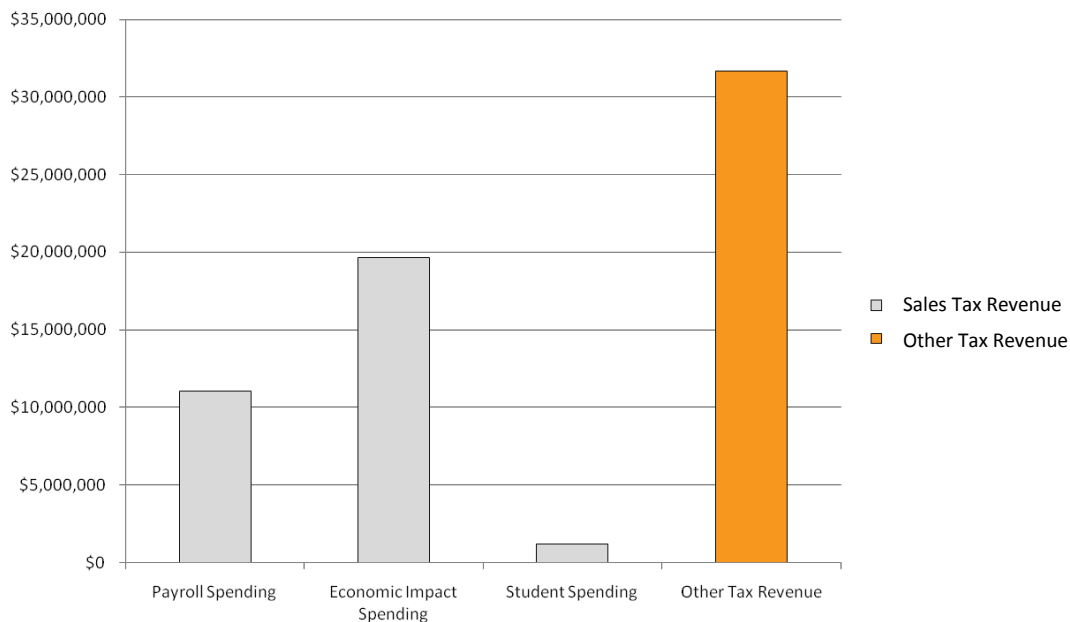
**TABLE 5
State and Local Tax Revenue Generated by UTHSC, by Source, FY08**

	Amount
Sales Tax Revenue	\$31,929,791
<i>Payroll Spending</i>	\$11,046,918
<i>Economic Impact Spending</i>	\$19,664,427
<i>Student Spending</i>	\$1,218,446
Other Tax Revenue	\$31,687,264
Total FY08 State & Local Tax Revenue Generated	\$63,617,055

About \$11.0 million in state and local sales tax revenue arises from UTHSC employees spending the income that they earn. Another \$19.7 million in sales taxes arises from spending of income generated by the center. When students purchase goods and services, sales tax revenue rises by about \$1.2 million.

Other tax revenue, which includes all state and local taxes except for the sales tax, was approximately \$31.7 million in FY08. Figure 4 provides a graphical representation of the estimated tax revenue generated.

FIGURE 4
State and Local Tax Revenue Generated by UTHSC, FY08



V. Qualitative Impacts

There are significant qualitative benefits from UTHSC that, though difficult to quantify, may be as important as or more important than the quantitative effects described above. These qualitative impacts include benefits from an educated workforce, patient care services, distinguished research projects, and increased community engagement through an array of activities.

The state of Tennessee benefits from an educated workforce, including faculty and students who are currently enrolled at UTHSC and retired faculty and alumni who reside or work in-state. Describing these impacts in detail would be beyond the scope of this study, but it is well-documented that there are substantial qualitative benefits that arise from an educated population/workforce.⁴ Perhaps the most transparent of these benefits comes in the form of higher wages and lower unemployment rates for UTHSC graduates. Recent research in the Center for Business and Economic Research evidences that more than 56 percent of UTHSC graduates stay and work in Tennessee after graduation.⁵

UTHSC faculty, students, and residents in all colleges provide patient care services throughout Memphis and the Mid-South. UTHSC faculty provide patient care services through affiliated physician practice plans including the UT Medical Group, UT Cancer Institute, Campbell Clinic, and

⁴ Murray, M. N. (December 2007). *Education Crossroads*. Knoxville, TN: University of Tennessee, Center for Business and Economic Research.

⁵ Fox, W. F., Kiser, B., & Thacker, A. (October 2007). *School-to-Work: Do Tennessee's Higher Education Graduates Work in Tennessee? Part 2. Employment and Earnings Trends by Institutions*. Knoxville, TN: University of Tennessee, Center for Business and Economic Research.

Semmes-Murphy Spinal Institute. Its academic and strategic hospital partners include Methodist University Hospital, LeBonheur Children's Medical Center, The Regional Medical Center of Memphis, University Health System (Knoxville), Erlanger Health System (Chattanooga), Baptist Memorial Health System, West Tennessee Health Care (Jackson), St. Francis Hospital, St. Jude Children's Research Hospital, and Veterans' Medical Center in Memphis. UTHSC, through its physician practices and affiliated teaching hospitals, provides more than one million days of inpatient services and more than two million outpatient visits annually.

In addition to the strategic partnerships listed above, affiliations with organizations such as Memphis Bioworks Foundation and Oak Ridge National Laboratory help support UTHSC's strong commitment to excellent research, a primary area of focus for growth and development. Through these research efforts, UTHSC faculty have created several start-up companies to take the intellectual property developed through the commercialization stage. Most notably in this area is GTx Healthcare which is currently working through the FDA approval process for several new drugs. Companies started by UTHSC faculty, such as GTx, RxBio, ED Labs, Luminetx, and others bring new employment opportunities to the Mid-South region, expanding the economic impact of the campus.

Faculty and students enrolled in the center often provide benefits that are fiscally immeasurable to the local community. For example, the faculty and students are involved in churches, schools, charities, and many other off-campus social events that greatly impact the local communities and the state.

VI. Growing Economic Impact

Since 2003, UTHSC has seen 5.4 percent annual growth. Growing student counts are helping expand the already large effect of UTHSC statewide. The increase in enrollment results largely from an expansion of the College of Pharmacy from 125 students per class to a goal of 200 students per class. In 2010, enrollment reached 185 per class. At the same time, changes in the curriculum for the College of Nursing to address the shortage of nurses nationally lead to a doubling of their enrollment.

FIGURE 5
UTHSC Enrollment Trends

