

## **The Economic Impact of The University of Tennessee, Knoxville on the State of Tennessee: Academic Year 2006-2007**

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## Executive Summary

This study summarizes the estimated impacts of the University of Tennessee, Knoxville (UT-Knoxville) on the state economy for Fiscal Year 2007 (FY07)<sup>1</sup>.

The economic benefits estimated in this study include income and jobs created directly by the university and income and jobs generated indirectly through spending by the university.

Tennessee's economy benefits from the presence of UT-Knoxville in several ways. First, the university provides 12,723 faculty, staff, and student employees with salaries, which directly impacts the state economy. Payroll spending for UT-Knoxville in FY07 amounted to \$295.8 million in salaries.

Second, the university spends money on goods and services in the state, which creates jobs and income indirectly. We find that non-payroll expenditures made by UT-Knoxville in FY07 created 2,625 jobs and \$86.2 million in income. Payroll spending on salaries and benefits also create income for the state economy indirectly as the income is spent and respent. Our estimates indicate that payroll spending indirectly results in 5,394 jobs and \$381.9 million in income.

Lastly, spending by students generates significant economic activity in the state<sup>2</sup>. We estimate student expenditures for FY07 to be approximately \$156.1 million, creating about 2,205 jobs and \$66.1 million in income.

Combining the direct income effects with the indirect income effects, we find that UT-Knoxville provides a total of \$916.0 million and 22,946 jobs to the state of Tennessee. In addition, we estimate that \$88.9 million is generated in state and local tax revenue from the presence of the university.

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<sup>1</sup> FY07 began on July 1, 2006 and ended on June 30, 2007.

<sup>2</sup> Another major source of income created by UT-Knoxville that is not included in this study comes from visitor spending. A forthcoming study by CBER on the economic impacts of the UT-Knoxville Athletic Department will estimate a significant portion of this component.

## I. Introduction

### *Background*

Founded in 1794, UT-Knoxville has been the flagship institution of the statewide land-grant University of Tennessee System since 1869. More than 300 degree programs are offered at the university and over 300,000 individuals have earned a degree. The U.S. News and World Report placed UT-Knoxville 108<sup>th</sup> in its rankings of “America’s Best Colleges” in 2009<sup>3</sup>.

Currently, enrollment at UT-Knoxville is approximately 26,400, making up more than half of the overall enrollment at the University of Tennessee System (about 45,000). About 20,400 of these students are undergraduates, while the remaining 6,000 are graduate students.

Of the 12,723 employees that work for UT-Knoxville, roughly 1,700 are faculty members, while more than 11,000 are staff or student employees. UT-Knoxville’s campus includes 220 buildings on land that spans about 550 acres.

### *Summary of Results*

This study uses data from various administrative sources to estimate the statewide economic impact of UT-Knoxville. Table 1 summarizes the general findings. We estimate that the university generates about 22,946 jobs and \$916.0 million from direct and indirect income benefits to the state of Tennessee. This represents about 6.5 percent of Knox County’s total personal income. In addition, the university creates approximately \$88.9 million in state and local tax revenue.

**Table 1: Summary of Economic Benefits of the UT-Knoxville, FY07**

Category	Amount
Income Generated	\$915,957,938
Tax Revenue Generated	\$88,914,074
Employment Generated	22,946

Although our estimation of the economic effect of the university 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 UT-Knoxville conferences and athletic events.

The study is organized as follows. In the second section, we introduce university spending for FY07 and estimate the direct income associated with those expenses. In section three, we combine the indirect effects associated with spending by UT-Knoxville with the direct effects, and we estimate the total economic impacts from both income and employment. In section four, we estimate tax revenue created by the university in FY07.

<sup>3</sup> Visit <http://colleges.usnews.rankingsandreviews.com/college> for a complete list of rankings.

## II. Direct Effects

UT-Knoxville provides the state with direct economic benefits in several ways. In addition to the 12,723 jobs provided directly by the university, payroll expenditures offer direct economic benefits to the state through increased personal income. Table 2 summarizes UT-Knoxville expenditures for FY07, including spending on payroll, employee benefits, non-payroll spending in-state, and student spending in-state. Combining these four components, the university spent about \$676.8 million in FY07.

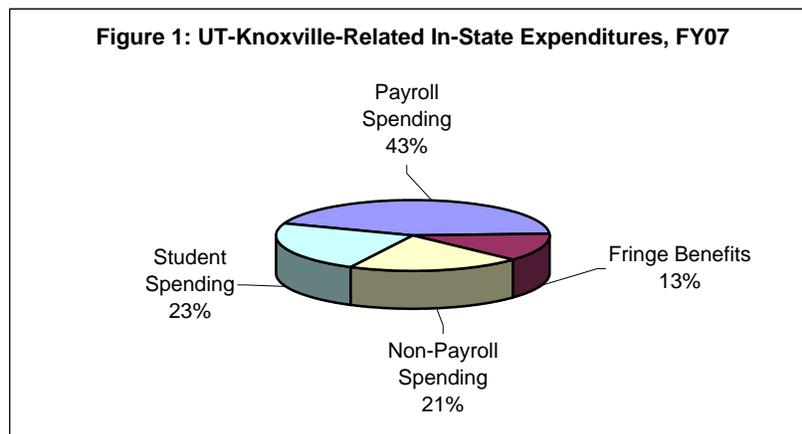
**Table 2: UT-Knoxville Related In-State Expenditures, FY07**

Category	Amount
Payroll Spending	\$295,807,389
Fringe Benefits	\$86,047,531
Non-Payroll Spending	\$138,834,406
Student Spending	\$156,061,168
<b>Total FY07 In-State Expenditures</b>	<b>\$676,750,494</b>

The university generates income directly through payment of \$295.8 million on faculty, staff, and student salaries. Employee fringe benefits, such as retirement and health insurance, cost the university \$86.0 million in FY07. Together, salaries and benefits make up about 56 percent of all UT-Knoxville-related spending, as shown by Figure 1.

Non-payroll expenditures made within the state on items like construction, utilities, maintenance services, and equipment also made up a significant portion of UT-Knoxville expenditures. In FY07, \$138.8 million was spent in-state on non-payroll goods and services, representing approximately 21 percent of all in-state university spending.

Finally, there are direct effects associated with off-campus student spending. In FY07, 26,476 students were enrolled at UT-Knoxville. For the purposes of this study, we only include spending by full-time students since part-time students presumably would already have initiated economic activity, enrolled or not. Only 3,428 students were part-time in FY07, leaving more than 23,000 students in the analysis. We estimate that students spend \$156.1 million annually on transportation, off-campus living, and miscellaneous expenditures, which makes up about 23 percent of in-state, university-related spending.



### III. Combining the Indirect Effects

#### *Estimated Income Impacts*

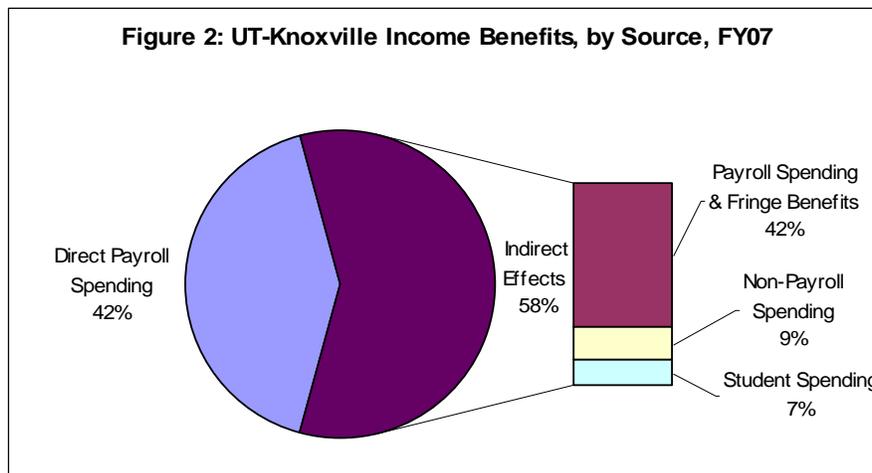
In addition to the income created through direct payroll spending, the university also creates income for the state indirectly. When university-related expenditures are made on goods and services within the state, this creates more jobs and income indirectly for owners and employees of the vendors. In addition, jobs and income are created through the multiplier process – where money is spent and re-spent such that each dollar in expenditures generates more than one dollar in economic activity.

Table 3 outlines the indirect/multiplier effects from four main sources of spending, along with the direct effects from payroll salaries as discussed above. University expenditures on payroll, benefits, non-payroll goods and services in-state, and student spending in-state generates a significant indirect income effect. In FY07, \$534.1 million was generated in indirect/multiplier income. Combining both the direct and the indirect sources of income, we estimate the overall income benefit of the university to be \$916.0 million.

**Table 3: UT-Knoxville Income Benefit, by Source, FY07**

Category	Amount
<b>Direct Effects</b>	
Payroll Spending & Fringe Benefits	\$381,854,920
<b>Indirect/Multiplier Effects</b>	
Payroll Spending & Fringe Benefits	\$381,854,920
Non-Payroll Spending	\$86,171,800
Student Spending	\$66,076,299
<b>Total FY07 Income Benefit</b>	<b>\$915,957,938</b>

As illustrated by Figure 2, 42 percent of all income was created through direct payroll spending, while 42 percent arose indirectly through payroll spending and fringe benefits. Non-payroll spending and student spending generated approximately 9 percent and 7 percent of income, respectively.



*Estimated Employment Impacts*

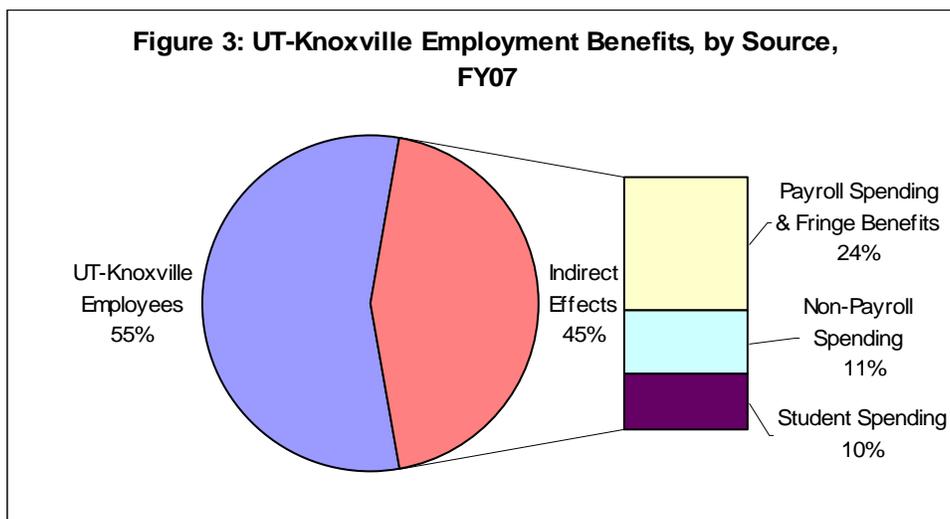
When UT-Knoxville spends money on goods and services, many jobs are created in addition to the 12,723 provided directly by the university in FY07. We estimate that 10,223 jobs are generated indirectly from UT-Knoxville-related spending. Combining the direct and indirect employment numbers, we estimate that the University is responsible for a total of 22,946 jobs in the state.

Table 4 summarizes the employment benefits for FY07. When UT-Knoxville employees spend their personal income on goods and services, another 4,179 jobs are generated indirectly. Combining this with indirect/multiplier effects from fringe benefits (1,216 jobs) suggests that 5,394 jobs are created from payroll spending and fringe benefits. Also, non-payroll expenditures made by the university created 2,625 jobs in-state. Student spending created 2,205 jobs.

**Table 4: UT-Knoxville Employment Benefit, by Source, FY07**

Category	Amount
<b>Direct Effects</b>	
UT-Knoxville Employees	12,723
<b>Indirect/Multiplier Effects</b>	
Payroll Spending & Fringe Benefits	5,394
Non-Payroll Spending	2,625
Student Spending	2,205
<b>Total FY07 Employment Benefit</b>	<b>22,946</b>

Of the total number of employees, 55 percent were directly hired by UT-Knoxville, and about 45 percent were indirectly created, as shown by Figure 3. Payroll spending and fringe benefits indirectly created about 24 percent of all jobs, while non-payroll spending accounted for about 11 percent. Student spending indirectly generated about 10 percent of all UT-Knoxville-related jobs.



#### IV. Tax Effects

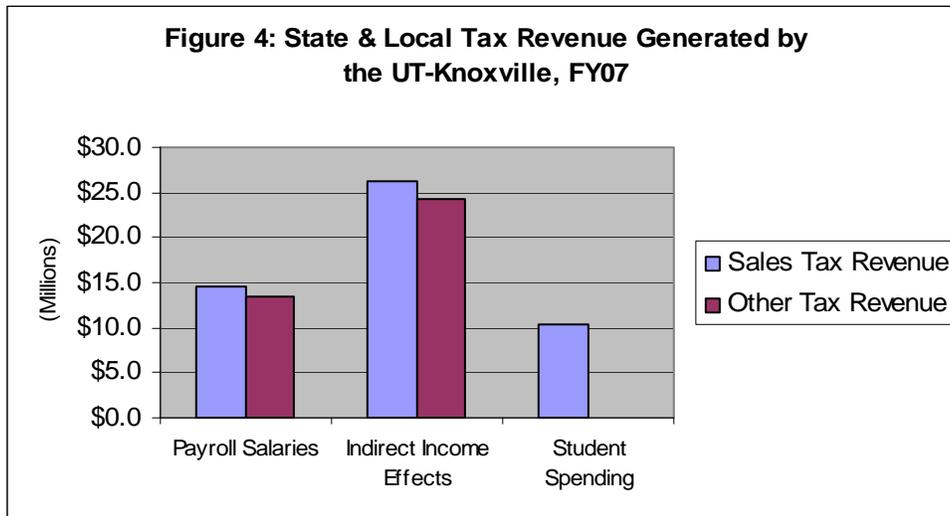
UT-Knoxville also benefits the state through increased tax revenue. We estimate that the university generates a total of \$88.9 million in state and local tax revenue - \$51.2 million in sales tax revenue and \$37.7 million in other tax revenue. Table 5 summarizes these results.

**Table 5: State & Local Tax Revenue Generated by UT-Knoxville, FY07**

Category	Amount
<b>Sales Tax Revenue</b>	
Payroll Salaries	\$14,598,095
Indirect Income Effects	\$26,357,984
Fan Spending	\$10,268,825
<b>Other Tax Revenue</b>	
Payroll Salaries	\$13,433,661
Indirect Income Effects	\$24,255,510
<b>Total FY07 State &amp; Local Tax Revenue Generated</b>	<b>\$88,914,074</b>

About \$14.6 million in state and local sales tax revenue arises from UT-Knoxville employees spending the income that they earn. When students purchase goods and services, sales tax revenue rises by about \$10.3 million. Another \$26.4 million in sales taxes arises from income generated indirectly.

Other tax revenue, which includes all state and local taxes except for the sales tax, was approximately \$13.4 million from payroll salaries and \$24.3 million from indirect income in FY07. Figure 4 provides a graphical representation of the estimated tax revenue generated. It is evident that the payroll and indirect income components generate the largest tax impacts for the state.



## V. Qualitative Impacts

There are significant qualitative benefits from UT-Knoxville that though difficult to quantify, may be as important or more important than the quantitative effects describe above. These qualitative impacts include benefits from an educated workforce, 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 UT-Knoxville 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. Perhaps the most transparent of these benefits comes in the form of higher wages and lower unemployment rates for UT-Knoxville graduates. Recent research in the Center for Business and Economic Research evidences that more than 60 percent of UTK graduates stay and work in Tennessee after graduation.<sup>4</sup>

UT-Knoxville's faculty and students consistently work on an array of research projects that enhance the overall wellbeing of the state. Among the notable areas are several partnership ventures between UT-Knoxville and the Oak Ridge National Laboratory such as biological sciences, computational sciences, and other areas of research<sup>5</sup>. Collaborating with the Oak Ridge National Laboratory provides UT-Knoxville's faculty and students with unique research endeavors that separate it from other public colleges and universities and collaborating with UTK allows the Oak Ridge National Laboratory the ability to create synergy with some of the finest researchers in the country.

Individuals, companies, and alumni donate money to the University for research or construction of new campus facilities in addition to that provided by the State of Tennessee. These large discrete projects create even more jobs and income for the state. Also, charitable donations through several UT-Knoxville organizations are made on a consistent basis.

Faculty and students enrolled in the university often provide benefits that are 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 where the people live and the state.

In many cases, students and faculty members involved in local community organizations may be perceived as role models for younger Tennessean's. In addition, because the University attracts such a diverse range of students and faculty, Tennessean's can discover a broad variety of cultural and social activities that would not otherwise prevail in the state.

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<sup>4</sup> See [http://cber.bus.utk.edu/THEC/thec\\_pt2.pdf](http://cber.bus.utk.edu/THEC/thec_pt2.pdf)

<sup>5</sup> For more information on collaborations between UT-Knoxville and ORNL, visit <http://www.utk.edu/features/rankings.shtml>.

Another one of the many examples is UT-Knoxville's effort to be a leader in environmental awareness by adopting the "Make Orange Green" program<sup>6</sup>. Informing students, faculty, and the general public on how to preserve the environment provides the state with environmental benefits that illustrates the type of learning by doing activities available from a national caliber university.

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<sup>6</sup> For more on the "Make Orange Green" program, visit <http://environment.tennessee.edu/>.