





# ECONOMIC IMPACT OF HIGHER ED IN TENNESSEE

**Tennessee realizes economic benefits  
from our public higher education  
system's ability to attract students and  
dollars from other states.**

**by Rick Brooks**

**T**he existence of higher education in Tennessee affords the citizens of our state a host of benefits. Several studies have clearly documented the positive impact of the state's higher education system and its affiliated institutions on income, output, student earnings, tax revenue, and employment in Tennessee.<sup>1</sup>

Another substantial benefit of the state's system of higher education arises from its ability to attract non-Tennessee funds that might not otherwise have flowed into the state. Two key sources of such funds to be considered here are out-of-state students and federal grant and contract dollars. These funds are drawn into the state as a direct result of our system of higher education.

## **The Notion of "Tourism"**

Each year the state of Tennessee, like many other states, dedicates funds for the express purpose of promoting and developing the state's tourism industry. A 2001 study by the Travel Industry Association of America estimated that in 1999 alone, some 38.7 million visitors to Tennessee had an impact of \$15.7 billion on the state's economy. This level of economic activity was further estimated to support some 316,000 jobs across the state. Using these figures, this equates to an average economic impact of about \$406 per visitor.

In a similar manner, Tennessee also realizes economic benefits from our public higher education system's ability to attract students and dollars from other states. Unlike tourists, however,

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**The short- and long-term benefit-cost ratios for out-of-state student education may be very different.**

**Table 1. Out-of-State Student Economic Impact, 2000-01**

Type of Impact	Direct Impact	Multiplier Impact <sup>1</sup>	Total Impact
Expenditure (Output)	\$246,890,747	\$165,389,846	\$412,280,593

Notes: Dollar figures are in 2001 dollars.<sup>1</sup> Multiplier impact includes the total of *indirect* and *induced* impacts.

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out-of-state students stay longer and spend more. Furthermore, they often remain in the state to work after completing their studies and thus have a prolonged and substantial impact on the state's economy. In short, the average out-of-state student has a substantially larger impact on the state's economy on an annual basis than the average tourist.

#### **The Economic Impact of Out-of-State Students on Tennessee's Economy**

Each year a substantial number of students come from other states and countries to study at Tennessee's public universities. These students bring a variety of backgrounds and experiences with them that contribute to a more culturally enriching educational experience for all of our students. The expenditures made by out-of-state and foreign students while they study here also make a positive contribution to our state's economy.

During the 2000-01 academic year, some 13,930 full-time-equivalent (FTE) out-of-state and foreign undergraduate, graduate, and professional students studied at Tennessee's 11 public universities. During that period, these students directly spent an estimated total of \$246.9 million on tuition and fees, room and board, books and supplies, transportation, and personal items.<sup>2</sup> As Table 1 shows, these direct expenditures generated through the multiplier process an estimated \$165.4 million in additional indirect and induced expenditures. When combined, out-of-state students accounted for a

total output impact of more than \$412.3 million across the state of Tennessee during 2000-01 alone.

Based on the total economic impact of \$412 million, the average FTE out-of-state student had an impact of \$29,597 on Tennessee's economy. Thus, the average impact of an FTE out-of-state student on the state's economy is about 73 times larger than that of the average tourist.

A sizeable part of the higher direct expenditures of out-of-state students as compared to in-state students is accounted for by the higher level of out-of-state tuition they pay. During 2000-01, the average in-state, undergraduate tuition level at the state's four-year public universities was \$2,868, whereas the average out-of-state tuition level was \$8,656. Admittedly, not all out-of-state students pay the full out-of-state tuition rate. The most common case involves graduate students who receive out-of-state tuition waivers as a result of assistantships.

Unfortunately, no clear data exist that detail the number of out-of-state students receiving out-of-state tuition waivers. Because of this data limitation, only the students at each institution who were classified as "out-of-state" for tuition and fee purposes were considered.<sup>3</sup> A sensitivity analysis on the results of this study indicates that even if 100 percent of out-of-state graduate students received an out-of-state tuition waiver, out-of-state students would have had an impact of \$378 million on Tennessee's economy.

#### **Cost Versus Benefit Considerations**

Economically speaking, it makes little sense

**Table 2: Estimated Short-Term State Cost of Educating Nonresident Students, 2000-01**

Type of Institution	Average Per-Student Subsidy	FTE Enrollment	Cost To State
Four-Year	\$ 5,985	3,444	\$ 80,462,340
Specialized	51,744	486	25,147,584
Total Estimated Short-term Cost			\$105,609,924

Note: Subsidy and enrollment data are from THEC.



**Table 3: Benefit versus Appropriated Cost for Out-of-State Student Education in Tennessee, 2000-01**

Category	Total Estimated Benefit	Total Estimated State Cost	Benefit-Cost Ratio
Out-of-State Students	\$412,280,593	\$105,609,924	3.90

to analyze the extent of any benefit without also considering the cost of achieving it. To that end, an investigation of the per-student state subsidies to higher education shows that the average per-student state subsidy during 2000-01 was \$5,985 and \$51,744 to the four-year and specialized institutions, respectively.<sup>4</sup> As Table 2 shows, considering out-of-state enrollment at each institution type, this equates to an estimated \$105 million in short-term state subsidies dedicated to out-of-state students.

As Table 3 demonstrates, based on the \$105 million in state appropriations dedicated to out-of-state students and the \$412 million in total economic benefits derived from them, the state of Tennessee enjoys about \$3.90 in economic benefit for every short-term dollar of state appropriation dedicated to them.

It is important to note that while the cost of educating an out-of-state student can be approximated from the per-student state subsidy for all students, this measure cannot fully capture the cost of out-of-state student education. In the short-term, out-of-state students represent the filling of excess capacity—they occupy desks and dorm rooms that have gone unfilled by in-

state students—but at least part of the capacity they fill may have been the result of the state’s efforts in earlier periods to accommodate an overall level of enrollment that included both in-state and out-of-state demand. Hence, the state’s fixed cost of educating students may remain unchanged in the short run while variable costs respond to changes in enrollment, but over the longer term the fixed portion will vary with growing or shrinking overall enrollment levels that include all sources of demand. Because of this fact it is important to recognize that, over the long term, the cost of educating out-of-state students may increase if the state has to build larger facilities to accommodate them. In simple terms, the short- and long-term benefit-cost ratios for out-of-state student education may be very different.

**The Economic Impact of Federal Research Grants**

In addition to providing educational services to students, Tennessee’s public universities provide a host of other important services to vari-

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**Table 4: Economic Impact of Federal Grant and Contract Dollars, 1999-2000**

Type of Impact	Direct Impact	Multiplier Impact <sup>1</sup>	Total Impact
Expenditure (Output)	\$227,832,891	\$174,231,057	\$402,063,948

Notes: <sup>1</sup> Multiplier impact includes the total of *indirect* and *induced* impacts. Dollar figures are in year 2000 dollars.

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**Changes in funding methods and social priorities have decreased the inflow of state funds to the nation's public colleges and universities.**

ous groups each year. In the course of their work, they also provide a broad spectrum of local research, educational, and public service activities designed to benefit citizens and businesses located within their respective communities. Additionally, they provide a host of research, development, and contract services to interested parties from across the nation.

Many businesses and not-for-profit organizations, as well as local, state, and the federal government, provide research funding to explore a variety of issues and ideas and contract with the universities or their faculty for specialized services. This process is a natural use of the specialized pool of talent embodied in a university's faculty and the unique research resources available to them.

As these research and contract dollars flow into the university, they also flow out from it through salaries and expenditures generated by the activities they fund. Such research-related expenditures can also have a powerful economic impact on the university's local and regional economy.

Like out-of-state students, out-of-state funded research activity represents an annual inflow of non-state dollars from which the state of Tennessee benefits. The total magnitude of this benefit depends on the amount of direct expenditures generated by out-of-state funded research and the indirect and induced expenditures they further generate through the multiplier process.

The most significant source of non-Tennessee funding for this type of activity comes from the federal government. Each year, the state's universities receive significant revenue from the federal government in the form of grants and contracts.

Federal grants provide dollars for research, educational, and public service activities related to a wide variety of issues and topics. Additionally, on an annual basis the institutions themselves or individual faculty and staff members provide services under contractual agreement with the federal government.

During the 1999-2000 academic year, Ten-

nessee's 11 public universities received more than \$227.83 million in federal grant and contract revenue.<sup>5</sup> As Table 4 indicates, after accounting for the additional indirect and induced expenditures generated through the multiplier process, the total economic impact on Tennessee's economy of federal research grants in higher education equates to an estimated \$402 million in economic activity.

The direct expenditures generated by out-of-state students and federally funded grants and contracts considered by this study occurred in two different time periods and hence should not be considered together without some degree of caution. However, since the two levels of expenditure occurred in very near time periods and there is no evidence to suggest that a structural change occurred in either source of expenditure, it would seem that these two sources of non-state funds can be combined for the purpose of understanding their overall magnitude. Doing so would indicate that these two sources of non-state funds accounted for a combined \$814 million in economic activity in Tennessee. Furthermore, this activity likely would not have occurred in the absence of the state's higher education system.

### **Some Observations**

Over the past several decades, a host of factors have combined nationwide to increase the need for funding at institutions of higher education. During this same period, changes in funding methods and social priorities have decreased the inflow of state funds to the nation's public colleges and universities. As a result, states are increasingly relying on higher tuition rates to bridge the gap.<sup>6</sup>

Unfortunately, the state of Tennessee has not been immune to such problems. As evidence of this fact, consider the following:

- As a result of the state's continued budget woes, higher education tuition levels increased by 15 percent for 2001-02.
- According to TBR, the adoption of a proposed downsized state budget would result in higher education funding cuts of as much as \$113 million for 2002-03.
- A 2000 study by the National Center for Public Policy and Higher Education notes



that the state is impaired economically because a low proportion Tennessee's residents have bachelor's degrees.<sup>7</sup>

- According to the *Statistical Abstract of Tennessee Higher Education for 2000-01*, average faculty salaries at the state's public four-year universities are continuing to fall further below average salaries for other southeastern universities. The average faculty salary in Tennessee for 1999-2000 was \$51,806, as compared to the average of \$55,022 for other southeastern universities.

These observations highlight at least two important implications for the results of this and other economic impact studies of higher education in Tennessee. First, consider the impact of the 15 percent tuition increase for 2001-02. This increase raised the average in-state undergraduate student's tuition bill by \$389. By contrast, the average out-of-state undergraduate student saw his tuition bill increase by \$1,232—an amount roughly three times as large.

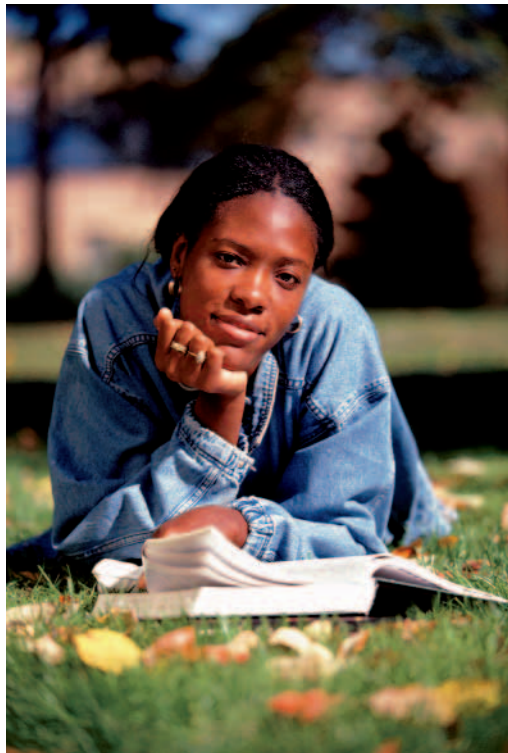
Numerous studies have documented an inverse relationship between tuition rates and enrollment.<sup>8</sup> Because most out-of-state students already pay significantly higher tuition rates than in-state students, out-of-state enrollment may be more sensitive to overall tuition changes. Should the trend toward higher tuition levels continue, it is possible that the state will lose a portion of the economic benefits realized from out-of-state students.

Higher tuition rates could translate into declining enrollment of in-state students as well. Should this materialize, it is possible that the state will lose some portion of the economic benefits derived from higher education in general. Based on the findings of other economic impact studies of higher education in Tennessee, a decrease in the overall number of college-educated students would translate into lower income levels, lower tax revenues, lower employment, and a decrease in economic activity across the state.

Should faculty salaries at Tennessee's public universities continue to fall behind the average for other universities, the state may begin to lose existing faculty members and find it increasingly difficult to attract well-qualified faculty in the future. Such a trend would diminish the state's ability to draw in federal and other research-related funding and result in some loss of the economic benefits arising from those funds.

## Conclusion

Tennessee's public higher education system has a substantially positive overall impact on economic activity across the state. Several studies have shown that Tennessee residents, either



directly or indirectly, benefit economically from our public higher education system.

An added benefit of higher education in Tennessee lies in the system's ability to attract non-Tennessee funds into the state in the form of out-of-state students and federal grants and contracts. As has been shown here, expenditures arising from out-of-state students and federal grant and contract revenue have a substantial impact on the state's economy each year. ■

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## Notes

<sup>1</sup> These studies include economic impact studies conducted by UT, the University of Memphis, TBR, and THEC.

<sup>2</sup> These data were obtained from THEC and the National Center for Education Statistics (NCES). Since there are no existing data that detail the numbers of out-of-state and foreign students living off campus, it was assumed that all such students lived in on-campus housing and purchased a university meal plan. Based on NCES data, this yielded a conservative estimate for such expenditures.

<sup>3</sup> These data were obtained from THEC.

<sup>4</sup> Specialized institutions include East Tennessee State University College of Medicine, UT Health Sciences Center, the UT veterinary medicine program, and UT Space Institute. Appropriation data were obtained from THEC.

<sup>5</sup> These data were obtained from FY 2000 audited financial statements at the Tennessee comptroller's office.

<sup>6</sup> See M. P. McKeown-Moak, "Financing in Higher Education: An Annual Report from the States, 1999" for a discussion of these trends.

<sup>7</sup> This study is entitled "Measuring Up 2000: The State-by-State Report Card for Higher Education."

<sup>8</sup> See Donald E. Heller (1996), "Tuition, Financial Aid, and Access to Public Higher Education: A Review of the Literature," for a summary of several such studies.

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