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2006 Economic Impact of the University of Texas at El Paso

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Technical Report #2007-06



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Introduction

The University of Texas at El Paso (UTEP) continues to be a significant contributor to the regional economy. In its 93rd year of operation, the University of Texas at El Paso, currently provides educational opportunities for over 19,500 students. In doing so, UTEP employs more than 2,900 individuals and has an annual operating budget of \$265 million, clearly making it a significant contributor to the regional economy of West Texas and the Paso del Norte region. UTEP is one of the largest business concerns in El Paso. The presence of the University impacts, both directly and indirectly, local business volume, household income, the lending capacity for local depository institutions, employment opportunities, and revenue/expenditure levels of local government units. In addition to these immediate or short-term economic effects, graduates from UTEP enhance the stock of human capital at the regional and national levels with consequent effects upon economic development. This report, prepared by UTEP's Institute for Policy and Economic Development (IPED), quantifies the size of these factors.

The following models/methods were employed in developing the economic impact analysis:

- 1) The Caffrey-Isaacs impact model (CIM) was used to assess the immediate effects of the UTEP community upon local economic activity. Developed in 1971, this comprehensive model is generally considered the classic approach for determining the economic effects of a college or university (Caffrey and Isaacs, 1971). The CIM consists of a sophisticated system of equations (technically, linear cash flow formulas) for a variety of sub-sectors of the institution being analyzed. These equations are employed to determine the economic effects on regional business, household and local government sectors.
- 2) The final portion of the analysis focuses upon the long-run benefits of the University on the region and nation's stock of human capital. Specifically,

increased educational levels enhance the productivity of workers, promote the development of new technology, and therefore improve the prospects for economic growth over time. Formal analysis in this area is relatively new. One approach to providing some basic insight to this argument is to compute the incremental earnings' stream of college graduates over their work life. The present study performs such a calculation.

Data

UTEP employees and students were surveyed in the fall of 2006. All faculty and staff received a questionnaire electronically. Students, both undergraduates and graduate, were sampled across all colleges via an electronic survey. The UTEP community of faculty and staff was asked to respond to a series of questions concerning their status at UTEP, information about their income/expenditure/saving levels along with data on any dependents in their household. In addition, students were asked what other educational outlets they might pursue if UTEP's educational facilities were not available.

A total of 834 usable responses from faculty and staff were received; a 28 percent overall response rate with appropriate proportions of faculty versus staff. Faculty respondents were distributed in a representative fashion across colleges and among faculty ranks. Staff replies were distributed across over 110 departments and offices. The student sample totaled 741. Faculty, staff, and student responses in the current study were consistent with those collected in a previous IPED analysis of UTEP's economic impact completed in 2002 (Schauer and Soden, 2002).

Additional data was obtained from: UTEP budgets; UTEP's Center for Institutional Evaluation, Research and Planning; and a variety of local, state, and federal government agencies. A complete file concerning data, survey questionnaires, responses, and references as well as the CIM system of equations and calculations is available from IPED (contact: Dr. David Schauer at dschauer@utep.edu or Mathew McElroy at mmcelroy@utep.edu).

Results

CIM analysis reveals the following impacts of UTEP-related expenditures on local business sales volume (BUS).

Local Business Effects

(BUS-1)

Total impact of UTEP-Related Expenditures on Local Business Volume	\$375,298,028
(A) Purchases by UTEP Community	\$148,909,037
(B) El Paso Firms' Purchases from Local Sources in Support of UTEP-Related Business Volume	\$214,584,326
(C) Business Volume Generated by Expenditure of UTEP-Related Income Received by Households not Part of UTEP Community	\$ 22,850,738
(D) Local Business Volume Unrealized Given UTEP Competing Enterprises	\$ 11,046,073

BUS-1-A computes the direct purchases from local businesses made by UTEP, its faculty, staff, and the incremental student population (that is, those students who are renting in El Paso and would leave the region if UTEP's facilities were not available). BUS-1-B & C estimate the so-called "second round" or multiplier effects on local firms. BUS-1-D nets out local business volume unrealized because of the existence of UTEP enterprises which compete with local firms. Examples include bookstore sales of education-related items and on-campus housing.

(BUS-2) Value of Local Business Property \$130,646,016

This impact component captures the capital and property related to business volume generated by the presence of UTEP. It is assumed that UTEP's share of total local business volume can be applied to the assessed valuation of total local business property.

(BUS-3) Expansion in Local Depository Institutions' Credit Base Resulting from the Presence of UTEP \$ 51,205,579

This effect results from demand/savings/time deposits held by the UTEP community in local financial institutions.

Local Individual Effects

The next portion of the CIM quantifies the increase in employment and income to the region as a result of UTEP's presence in the community. The individual/household sector (HH) of CIM calculates the following impacts:

(HH-1) Number of Local Jobs Attributable to the Presence of UTEP 6,123

The CIM assumes that the ratio of UTEP-related local business volume to gross local sales on business volume is the same as the ratio of local jobs attributable to the presence of UTEP to total local civilian employment. The employment value emerging from this relationship is adjusted to a full-time equivalent value.

(HH-2) Personal Income Resulting from UTEP-Related Jobs and Business Activity \$342,616,719

This value is the sum of two factors:

(A)	Income of UTEP Community	\$250,010,904
(B)	Income of Local Individuals Employed as Result of UTEP-Related Business Volume	\$ 92,605,816

HH-2-B picks up the indirect or multiplier effects of this component of CIM.

Government Effects

The final segment of the CIM is designed to reveal the effects of the presence of UTEP upon local government revenues and expenditures (GOV). The overall, net cost to local government and the three components to this figure are:

(GOV – 1)	Net Operating Cost of Local Government Provided Municipal Services Allocable to UTEP Presence	\$ 17,399,943
(A)	UTEP-Related Revenues Received by Local Government	\$ 27,273,767
(B)	Value of Municipal-Type Services Self-Provided by UTEP	\$ 1,459,053
(C)	Operating Cost of Government Provide Municipal Services Allocable to UTEP Presence	\$ 46,132,763

GOV-1-A sums UTEP-related property and sales tax revenues received/paid to local government units plus federal aid dollars to local government allocable to the presence of UTEP.

GOV-1-B estimates the value of municipal services provided by UTEP instead of relying on provision of such services by local government; security for example. GOV-1-A and B represent amounts which reduce the net costs to local government.

GOV-1-C measures the annual operating costs of government services provided to UTEP and/or to individuals related to UTEP. These costs include municipal services allocable to UTEP-related activities and costs for local public schools allocable to UTEP faculty/staff along with their spouse and dependents.

The last portion of the GOV sector determines the dollar value of local government owned capital facilities (land, buildings, equipment, etc.) utilized to support services provided to UTEP and to UTEP-related individuals. Specifically:

GOV-2	Capital Required by Local Government to Provide UTEP-Related Municipal Services	\$33,504,418
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A variety of percentage and benefit to cost ratios may be determined given the results of the CIM analysis. For example:

- UTEP-related sales volume relative to total retail and wholesale revenues in El Paso: 3.1%
- UTEP-related income to households relative to El Paso's gross income or Gross Regional Product: 1.7%
- UTEP-related annual sales volume compared to annual net local government outlays: 21.5 to 1. That is, every \$1 spent by local government to provide municipal services to the UTEP community generated \$21.50 in incremental sales volume to the region.
- As noted local government must acquire and allocate additional capital goods given the presence of UTEP. But for every \$1 required by local government, an additional \$3.90 of local business property/capital goods is utilized; a benefit to cost ratio of approximately 4 to 1.

- The State of Texas allocated \$81.75 million to UTEP for the 2005-2006 fiscal year ending August 31. Every state dollar generated \$4.59 in additional sales revenue and \$4.19 in incremental income to the El Paso economy.

Human Capital Investments

The last section of the analysis quantifies the incremental earnings stream of UTEP graduates, properly distributed for bachelors, masters, and doctoral degrees, over their work life compared to individuals with “some college” or an “associates” degree over their work life. Figures are calculated for graduates locating throughout the United States and also for those who remain in the El Paso region. The calculations reveal the following:

- The addition to the global stock (that is, throughout the U. S.) of human capital per 2,850 annual UTEP graduates is \$1.345 billion. This converts to an incremental value of \$472 thousand per graduate.
- Recall that the State allocates \$81.75 million per year to UTEP at present. This translates to approximately \$4,120 per student. Assuming a six-year period to acquire a degree, the State allocates roughly \$25,000 to “produce” a UTEP degree. When this “cost” figure is compared to the \$472,000 incremental benefit per graduate in terms of additional earning capacity, a benefit to cost ratio of 18.9 to 1 results.
- The relevant values for UTEP graduates remaining in the El Paso region are \$1.169 billion per 2,850 students, \$410 thousand per graduate, and a 16.4 to 1 benefit to cost ratio. The figures are somewhat lower than the global values given the lower earnings’ level in the El Paso region.

A final note concerning the net increase in earnings to UTEP graduates. The U. S. Bureau of Census recently released a study concluding that the incremental effect on an individual’s stock of human capital was over \$600 thousand (Day and Newburger, 2002). Clearly, the amounts presented in this report are conservative in relative terms but no less impressive.

Works Cited

Caffrey J. and H.H. Isaacs, 1971. "Estimating the Impact of a College or University on the Local Economy," American Council on Education.

Day, J.C. and E.C. Newburger, 2002. "The Big Pay-off: Educational Attainment and Synthetic Estimates of Work-Life Earnings," **Current Population Reports**, P23-210 (July).

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Fact Sheet
UTEP Economic Impact: 2006



UTEP-Related Local Business Volume	\$375 million
Value of Local Business Property Committed to UTEP-Related Business	\$131 million
Expansion in Local Depository Institutions' Credit Base Resulting from UTEP-Related Deposits	\$51 million
Number of Local Jobs Attributable to UTEP Presence	6,123
Personal Income of Local Individuals	\$343 million
Net Operating Cost of Local Government Provided Municipal Services Allocable to UTEP-Related Influence	\$17 million
Capital Required by Local Government to Provide UTEP-Related Municipal Services	\$34 million
UTEP-Related Sales Volume/ El Paso Total Retail and Wholesale Sales	3.1 %
UTEP-Related Income/EI Paso Gross Income	1.7%
UTEP-Related Sales Volume/Net Local Government Outlays	21.5 to 1
Increased Local Business Property Utilization/Capital Requirements by Local Governments	3.9 to 1
UTEP-Related Sales Volume/UTEP State Funding	4.6 to 1
UTEP-Related Income/UTEP State Funding	4.2 to 1
Addition to Global Stock of Human Capital per 2850 UTEP Graduates	\$1.3 billion
Incremental Human Capital per Graduate	\$472 thousand
Incremental Global Human Capital/UTEP State Funding	18.9 to 1
Addition to Regional Stock of Human Capital per 2,850 UTEP Graduates	\$1.2 billion
Incremental Human Capital per Graduate	\$410 thousand
Incremental Regional Human Capital/UTEP State Funding	16.4 to 1

This Impact Analysis does not consider the impact of visitors to the region given UTEP presence (e.g.: Sporting Events and other ticket events), the impact of UTEP retirees in the region, the value of UTEP presence with respect to externally funded research, contributions to technological change/innovation, and industry partnerships.