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Economic Impact: Special Edition of the Border Business Review

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THE UNIVERSITY OF TEXAS AT EL PASO

ECONOMIC IMPACT

Special Edition of the
Border Business
Review

January 2003

INSIDE

- Data on UTEP's Economic Impact on Individuals, Business, and Government
- Projected Impacts
- Human Capital Investments

Introduction

The University of Texas at El Paso (UTEP) continues to be a significant contributor to the regional economy. In its 89th year, the University currently provides educational opportunities for more than 17,000 students. UTEP employs more than 2,300 faculty and staff and has an annual operating budget approaching \$200 million. Thus, UTEP is one of the larger economic forces in El Paso. The presence of the University impacts, directly and indirectly, local business volume, household income, the lending capacity of local depository institutions, employment opportunities, and revenue/expenditure levels of local government units. In addition to these immediate or short-term economic



effects, graduates of UTEP enhance the stock of human capital at regional and national levels. This report, prepared by UTEP's Institute for Policy and Economic Development (IPED), examines these components of the University's economic impact.

Survey Methodology

UTEP employees and students were surveyed in the spring of 2002. All faculty and staff received a questionnaire. Students, both undergraduate and graduate, were sampled across colleges primarily in core courses during peak morning and evening class periods. Members of the UTEP community were asked to respond to a series of questions concerning their status at UTEP, their income/expenditure/saving levels, and

about any dependents in their households. In addition, students were asked about the impact on them if UTEP's educational opportunities were not available.

A total of 895 usable responses from faculty and staff were received, for a 42 percent overall response rate, with appropriate proportions of faculty and staff. Faculty respondents were distributed in a representative fashion across colleges and

among faculty ranks. Staff replies were distributed across over 100 departments and offices. There was some under-representation in the higher paid staff categories, resulting in conservative economic impact figures.

The student sample totaled 549, with graduate students responding at a relatively low rate. Given that these students are older and/or tend to work in career-oriented jobs, the reported impact values are also conservative.

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 containing data, survey questionnaires and responses, references, as well as the Caffrey-Isaacs Impact Model (CIM) equations and calculations, is available from IPED (contact: Dr. David Schauer at dschauer@utep.edu or Dr. Dennis L. Soden at desoden@utep.edu).



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. The model 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 IPED Regional Impact Forecast model is employed to evaluate the economic /demographic impacts of 23,621 students or 7,400 incremental students attending UTEP beginning with the 2003 academic year through 2015; and, the effects of an additional \$45.5 million in capital/construction expenditures by UTEP over the 2003 through 2005 period.
3. 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.

Results

Local Business Effects

The first component of the CIM assesses local business effects as a result of UTEP's presence in the region (Table 1). The business effects (BUS) are considerable and include:

(BUS-1) Total impact of UTEP-Related Expenditures on Local Business Volume	\$348,885,438
(A) Purchases by UTEP Community	\$130,229,125
(B) El Paso Firms' Purchases from Local Sources.....	\$199,471,951
in Support of UTEP-Related Business Volume	
(C) Business Volume Generated by Expenditure of UTEP-Related	\$28,634,761
Income Received by Households not Part of UTEP Community	
(D) Local Business Volume Unrealized Given UTEP Competing Enterprises	\$9,450,399

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 that compete with local firms. Examples include bookstore sales of education-related items and food sales.

(BUS-2) Value of Local Business Property	\$102,544,616
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	\$ 35,224,863
Credit Base Resulting from the Presence of UTEP	
This effect results from demand/savings/time deposits held by the UTEP community in local financial institutions.	

Table 1
Local Business Effects

UTEP-Related Local Business Volume.....	\$349 million
Value of Local Business Property Committed to UTEP-Related Business.....	\$103 million
Expansion in Local Depository Institutions' Credit Base Resulting from UTEP-Related Deposits	\$35 million

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 (Table 2). The individual/household sector (HH) of CIM calculates the following impacts:

(HH-1) Number of Local Jobs Attributable to the Presence of UTEP.....	4,871
The CIM assumes that the ratio of UTEP-related local business volume to gross local sales or 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 then adjusted downward by the number of local jobs held by family members of UTEP faculty and staff. Thus, CIM assumes that UTEP faculty and staff with employed spouse/dependents effectively displace other local individuals from job opportunities. The job figure is a full-time equivalent value.	

(HH-2) Personal Income Resulting from UTEP-Related Jobs and Business Activity	\$227,759,336
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This value is the sum of two factors:

(A) Income of UTEP Community	\$127,808,092
(B) Income of Local Individuals Employed as Result of..... UTEP-Related Business Volume	\$ 99,951,244

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) (Table 3). The overall, net cost to local government and the three components of this figure are:

GOV-1 Net Operating Cost of Local Government

Provided Municipal Services Allocable to UTEP Presence	\$16,494,416
(A) UTEP-Related Revenues Received by Local Government	\$20,173,699
(B) Value of Municipal-Type Services Self-Provided by UTEP	\$ 1,107,839
(C) Operating Cost of Government Provided Municipal Services	\$37,775,954
Allocable to UTEP Presence	

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 that 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	\$34,597,054
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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: (Table 2)3.5%
- UTEP-related income to households relative to El Paso's gross income or Gross Regional Product: (Table 2).....1.5%
- UTEP-related annual sales volume compared to annual net local government outlays: 21 to 1. That is, every \$1 spent by local government to provide municipal services to the UTEP community generated \$21 in incremental sales volume to the region (Table 3).
- 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 of local business property/capital goods is utilized; a benefit to cost ratio of 3 to 1 (Table 3).
- In addition, the State of Texas allocated \$76.5 million to UTEP for the 2001-2002 fiscal year ending August 31. Every state dollar generated \$4.60 in additional sales revenue and \$3.00 in incremental income to the El Paso economy (Table 4).

Table 2

Individual Effects

Number of Local Jobs
Attributable to UTEP Presence.....**4,871**

Personal Income of Local
Individuals**\$228 million**

UTEP-Related Income/El Paso
Gross Income**1.5%**

UTEP-Related Sales Volume/
El Paso Total Retail and
Wholesale Sales.....**3.5%**

Table 3

Government Effects

Net Operating Cost of Local
Government Provided
Municipal Services
Allocable to UTEP-Related
Influence.....**\$16 million**

Capital Required by Local
Government to Provide
UTEP-Related Municipal
Services**\$35 million**

UTEP-Related Sales
Volume/Net Local Government
Outlays**21 to 1**

Increased Local Business
Property Utilization/Capital
Requirements by
Local Governments**3 to 1**

Table 4

Leveraging of State Funds

UTEP-Related Sales Volume/UTEP
State Funding**4.6 to 1**

UTEP-Related Income/UTEP
State Funding**3 to 1**

Table 5

Projected Impacts

Incremental Construction Impact through 2005

\$45.5 Million in Construction, 606 New Jobs, \$23 Million in Additional Real Gross Regional Product

Incremental Student Impact at 100% of Enrollment Estimate (23,621 by 2015)

18,000 New Jobs, \$97 Million in Additional Real Gross Regional Product

Table 6

Human Capital Investments

Addition to Global Stock of Human Capital per 2,000 UTEP Graduates**\$838 million**

Incremental Human Capital per Graduate.....**\$419,000**

Incremental Global Human Capital/UTEP State Funding**15 to 1**

Addition to Regional Stock of Human Capital per 2,000 UTEP Graduates**\$729 million**

Incremental Human Capital per Graduate.....**\$364,000**

Incremental Regional Human Capital/UTEP State Funding**13 to 1**

This Impact Analysis does not consider the impact of visitors attracted to the region by UTEP (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. These impacts are being assessed in separate analyses presently being conducted by IPED.

Projected Impacts

The next portion of the economic impact analysis employed the IPED Regional Impact Forecast Model to assess the effects of incremental construction spending by UTEP and an increase in the University's student population (Table 5). Specifically:

New construction for several projects between 2002 and 2005 amounting to \$45.5 million will result in creation of 606 new jobs and provide \$23 million in additional Real Gross Regional Product. UTEP is expected to continue to improve its physical facilities through new structures, renovations and fulfillment of its masterplan. The impact on the local construction sector will continue to provide employment opportunities and growth for the local economy.

In its report, *Closing the Gap*, the Texas Higher Education Coordinating Board has developed a guide for increasing the number of college graduates statewide and regionally. Based on estimates of an enrollment growth to 23,621 by 2015, UTEP's expansion will result in 18,000 new jobs and an increase of \$97 million in the regional economy.

Human Capital Investments

The last section of the analysis quantifies the incremental earnings stream of UTEP graduates (Table 6), properly distributed for bachelor's, master's and doctoral degrees, over their work life compared to individuals with "some college" or an "associate's" 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 United States) of human capital per 2,000 UTEP graduates is \$838 million. This converts to an incremental value of \$419,000 per graduate.
- Recall that the State allocates \$76.5 million per year to UTEP at present. This translates to approximately \$4,750 per student. Assuming a six-year period to acquire a degree, the State allocates \$28,500 to "produce" a UTEP degree. When this "cost" figure is compared to the \$419,000 incremental benefit per graduate, a benefit to cost ratio of 15 to 1 results.
- The relevant values for UTEP graduates remaining in the El Paso region are \$729 million per 2,000 students, \$364,000 per graduate, and a 13 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 earning 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 \$600,000. Clearly, the amounts presented in this report, while conservative, are impressive.



Facts

UTEP-Related Local Business Volume	\$349 million
Value of Local Business Property Committed to UTEP-Related Business	\$103 million
Expansion in Local Depository Institutions' Credit Base Resulting from UTEP-Related Deposits	\$35 million
Number of Local Jobs Attributable to UTEP Presence	4,871
Personal Income of Local Individuals	\$228 million
Net Operating Cost of Local Government Provided Municipal Services Allocable to UTEP-Related Influence	\$16 million
Capital Required by Local Government to Provide UTEP-Related Municipal Services	\$35 million
UTEP-Related Sales Volume/El Paso Total Retail and Wholesale Sales.....	3.5%
UTEP-Related Income/El Paso Gross Income.....	1.5%
UTEP-Related Sales Volume/Net Local Government Outlays	21 to 1
Increased Local Business Property Utilization/Capital Requirements by Local Governments	3 to 1
UTEP-Related Sales Volume/UTEP State Funding	4.6 to 1
UTEP-Related Income/UTEP State Funding	3 to 1
Addition to Global Stock of Human Capital per 2,000 UTEP Graduates	\$838 million
Incremental Human Capital per Graduate	\$419,000
Incremental Global Human Capital/UTEP State Funding	15 to 1
Addition to Regional Stock of Human Capital per 2,000 UTEP Graduates...	\$729 million
Incremental Human Capital per Graduate	\$364,000
Incremental Regional Human Capital/UTEP State Funding.....	13 to 1
Incremental Construction Impact through 2005	\$45.5 million in construction 606 new jobs \$23 million in additional Real Gross Regional Product
Incremental Student Impact at 100% of enrollment estimate	18,000 new jobs (based on 23,621 enrollment by 2015) \$97 million in additional Real Gross Regional Product

This Impact Analysis does not consider the impact of visitors to the region attracted by 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.

