

1-1-2004

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IPED Technical Report: 2004-8

Recommended Citation

Schauer, David A.; Soden, Dennis L.; and Coronado, David, "The Expansion of Texas Tech University School of Medicine: Economic Impact on El Paso, Texas Over 2004-2013" (2004). *IPED Technical Reports*. Paper 36.

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**The Expansion of Texas Tech University
School of Medicine:
Economic Impact on El Paso, Texas Over 2004-2013**



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**Technical Report #2004-08
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SUMMARY SHEET

The Expansion of Texas Tech University School of Medicine: Economic Impact on El Paso, Texas Over 2004-2013

	2004 TTMC Current Presence	2013 Fully Expanded TTMC
- Local Business Volume (\$ mill)	\$ 55.9	\$ 325.1
- Local Business Property Utilization (\$ mill)	\$ 17.6	\$ 102.6
- Expansion in Credit Base of Local Depository Institutions (\$ mill)	\$ 2.2	\$ 4.1
- Increase in Local Employment Level Due to TTMC	964	5,611
- Household Income (\$ mill)	\$ 55.0	\$ 152.1
- Net Operating Revenues to Local Government (\$ mill)	\$ 0.6	\$ 3.0
- Local Government Utilization of Capital Goods and Property (\$ mill)	\$ 4.2	\$ 5.6
- Table presented in body of report details incremental economic effects per year over the 2004 through 2013 period.		
- Over the 10 year period analyzed, local business revenues will increase \$ 1.313 billion on a present value basis.		
- Over the 10 year period, income to El Paso households will increase \$ 462 million on a present value basis.		
- Over the 10 year period, net operating revenues to local government units will increase \$ 12 million on a present value basis.		
- A fully expanded TTMC will generate an additional 4,647 jobs in the region over-and-above the current employment attributable to the medical center.		
- The present study does not consider nor attempt to quantify another very real benefit to the El Paso community from an expanded TTMC: the increase in the quantity and quality of medical care services to the region.		
- Additional detail concerning this study is available from IPED upon request. Contact Dr. David A. Schauer at dschauer@utep.edu or Dr. Dennis L. Soden at desoden@utep.edu .		

**The Expansion of Texas Tech University
School of Medicine:
Economic Impact on El Paso, Texas Over 2004-2013**

Introduction

In 2003, the Institute for Policy and Economic Development (IPED) at The University of Texas at El Paso completed a study of the economic impact of the Texas Tech University Medical Center (TTMC) in El Paso, Texas. This report, IPED Technical Report # 2003-10 is provided in the Appendix. The analysis identified and quantified seven impact areas as follows:

- Annual Increase in Local Business Volume Due to Direct and Indirect Influence of TTMC Presence	\$ 56.6 million
- Additional Utilization of Local Business Capital Goods and Property Given TTMC Presence	\$ 16.6 million
- Expansion in Local Depository Institutions' Credit Base Given TTMC Presence	\$ 2.2 million
- Number of Local Jobs Attributable to TTMC Presence	1,028
- Annual Increase in Personal Income to Local Households Resulting from TTMC-Related Jobs and Business Activity	\$ 56.4 million
- Annual Increase in Net Operating Revenue of Local Government Units	\$ 505 thousand
- Additional Local Government Utilization of Capital Goods and Property Given TTMC Presence	\$ 4.4 million

In addition to the effects above, TTMC provides \$ 27 million annually in uncompensated charity care to the region. This figure translates to approximately \$ 550 of free medical care annually to each household in El Paso County that falls below the poverty line.

The 2003 IPED report also assessed the impact of an increase in the number of students attending TTMC. Specifically, the effects of an additional 400 students was quantified. Under this scenario:

- Local Business Volume increases to \$ 73.3 million annually; an increase of 29.5 percent.
- Local Jobs attributable to TTMC rise to 1,332; a 29.6 percent increase.
- Annual Household Income increases to \$ 75.5 million; a 33.9 percent increase.

The study did **not** consider other probable expansion components, especially if TTMC moves to a four-year program. Under such a scenario, increases in the number of TTMC faculty and staff, annual operating budget, externally funded grant research, and additional capital project expenditures would be likely along with an increase in the number of students. Further, the 2003 report did **not** address the timing of any expansion. The present study incorporates these factors into the analysis.

Methodology

The TTMC expansion scenario analyzed in this report is presented below:

- An increase in the student population of 460 over time. Specifically, an increase in medical students (320), Ph.D. students (65), Postdoc Fellows (25), and Medical Residents/Fellows (50). The increases occur in equal steps in the 2006-2007, 2008-2009, and 2010-2011 periods.
- An increase in Faculty of 100 and Staff of 100, occurring in equal increments over the three periods noted above.
- An increase in externally funded grant research to \$ 30 million annually. Research funding occurs in \$ 10 million increments over the three periods.
- An increase in the Annual Operating Budget from a current level of \$ 71 million to \$ 200 million per year. The \$ 129 million increase occurs in equal steps beginning in 2006 through 2011.
- A total of \$ 160 million in new building costs, occurring in equal amounts over the 2006 through 2011 time frame.

The IPED Regional Impact Model (IPED-RIM) was utilized to determine the economic impacts of this expansion scenario. This comprehensive tool, formerly termed the Caffrey-Isaacs 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). The equations are employed to determine the economic effects on regional business, household, and local government sectors.

The first step in quantifying the incremental impact of an expansion of the TTMC in El Paso was to update the 2003 analysis to the current year. The original study was based upon data for the year 2002. Survey data collected at that time revealed income/expenditure/savings levels of TTMC faculty, staff and students. Additional information was obtained from TTMC financial documents and a variety of local, state and federal agencies. To update this information in a conservative fashion, the 2002 income/expenditure/savings levels of TTMC personnel and students and the 2002 TTMC operating budget figures were assumed to remain constant to 2004. Local, state and federal agency data was obtained for 2003 and assumed to be in place at the same levels/rates in the current year.

Results

The 2004 economic impact of TTMC, under its current size, is provided in the first column of the attached table, Incremental Economic Impact: Expansion of TTMC Versus Current TTMC Presence. The seven economic impact categories, Local Business Volume, Local Business Property, and so on, reveal highly similar values to the 2003 analysis summarized earlier. The eighth impact factor, Value of Charity Care provided to the region, is assumed to remain constant at \$ 27 million per year.

The remainder of the table reveals the **incremental** effects in the seven categories of a TTMC expansion over the ten year period, 2004-2013. Given the assumption concerning the timing of the TTMC expansion, there are no additional economic effects in 2004 and 2005. That is, the annual economic impact of TTMC on Local Business Volume is estimated to be \$ 55.9 million in 2004 and in 2005. In similar fashion, the current TTMC presence adds an estimated 964 jobs to the El Paso economy in 2004 and those positions remain in place in 2005.

The TTMC expansion and consequent incremental economic effects begin in 2006 and on. Specifically:

- A larger TTMC presence in 2006 generates an additional \$ 94.3 million in Local Business revenues. This amount is **over-and-above** the original \$ 55.9 million. Stated differently, the total TTMC impact on Local Business revenues is calculated to be the original amount (\$ 55.9 million) plus the additional effect of TTMC expansion in place by 2006 (\$ 94.3 million) for a total impact on sales volume of \$ 150.2 million. Similarly, the additional business revenues attributable to the TTMC expansion in place by 2007 amount to \$ 136.8 million. Again, this is the figure for Local Business Volume over-and-above the original \$ 55.9 million. Interpretation of values for the years 2008 through 2013 proceed in the same fashion.

As noted in the 2003 IPED report, the Local Business Volume figures include the direct purchases from local businesses made by TTMC, its faculty, staff, and students/residents. In addition, the figures reflect an estimate of the so-called

“second round” or multiplier effects on local firms.

Over the 10 year period analyzed, an expanded TTMC in El Paso will generate \$ 1.77 billion in additional revenues to the local business sector. When these future dollar flows are reduced to their present value using a social or public good discount rate of 5.0 percent (based upon a blend of current 10 year, tax-exempt financing rates and current short-term financing costs), the value of these future benefits to the region’s business sector remains significant at \$ 1.31 billion!

- The Local Business Property impact category captures the capital goods (for example, machinery and equipment) and property utilized in the region as a result of the business volume generated by the presence of TTMC and any expansion in TTMC. Given the current configuration of TTMC, \$ 17.6 million of local business capital goods and property are being utilized. This level or stock remains the same in 2005; that is, there is no incremental impact as the TTMC expansion process has not started. In 2006, however, the TTMC expansion in place at that time leads to an additional stock of \$ 29.8 million in local business equipment and property being employed. As before, this figure is over-and-above the original \$ 17.6 million. By 2012 when the total TTMC expansion is in place, the stock of capital utilized in the region has risen by \$ 85 million!
- The members of the TTMC community currently augment the credit base of local depository institutions (via their demand/savings/time deposit balances) by \$ 2.2 million. By 2010, this local credit base will rise an additional \$ 1.8 million.
- As noted earlier, the current TTMC presence generates an additional 964 jobs in the local economy. This impact is the same in 2005. As the TTMC expansion process takes place, incremental employment is generated in the region; an additional 1,628 jobs in 2006 rising to 5,458 in 2011. With the TTMC expansion completed, an additional 4,647 jobs will be added in 2012 and onward.
- The presence of the TTMC in El Paso generates \$ 55.0 million in income to households at present. This figure results from the income received by the members of the TTMC community plus the income of local individuals employed as a result of TTMC-related business volume; that is, the indirect or multiplier effect. As with the previous impact areas, this contribution to the region’s income remains the same in 2005. In 2006, a larger TTMC presence creates an additional \$ 33.6 million in income. By 2012 and on, the four-year TTMC program will generate an additional \$ 97.1 million per year in income to El Paso households.

Over the 10 year period, an expanded TTMC will generate \$ 623 million in incremental income. The present value of these future income flows is \$ 462 million in additional income to local individuals!

- The next impact category, Net Operating Revenue of Local Government, calculates the TTMC-related property and sales tax revenues paid to or received by local government units plus federal aid dollars to local government allocable to the presence of TTMC. Then, the annual operating costs of government services provided to TTMC and/or individuals related to TTMC are determined and netted out from the revenue figure. As of 2004, the IPED-RIM estimates the net revenues received to be \$ 634 thousand. As the TTMC process takes place, additional net revenues are provided to local government each year; peaking at \$ 3.0 million in 2011. From 2012 on, the fully-expanded TTMC will generate an incremental \$ 2.4 million per year in net revenues to local government units.
- Over the 2004-2013 period, total incremental net revenues to local government are \$ 16.5 million. On a present value basis, \$ 12.3 million will be generated.
- The final IPED-RIM impact factor, Local Government Utilization of Capital Goods, determines the dollar value of local government owned capital facilities (land, buildings, equipment, etc.) utilized to support services provided to TTMC and to TTMC-related individuals. The 2004 capital stock value is \$ 4.2 million. As the TTMC expansion is implemented, an increase in capital stock is required; an additional \$ 1.4 million from 2010 on.
- The 2003 IPED study assumed that TTMC provided \$ 27.0 million annually in Charity Care to local area residents. The present analysis assumes this yearly amount remains constant over the entire 2004-2013 period; clearly a conservative assumption as we are **not** considering any inflation effects nor the probability that an expanded TTMC would provide more charity care to the region.
- All of the future dollar figures discussed above are believed to be reasonable, if not conservative as adjustments for the compensation and spending levels of members of the TTMC community are **not** adjusted for cost-of-living effects over time.

Summary and Conclusions

The TTMC has served the El Paso community for over 30 years and is a significant economic force in the region. The presence of TTMC impacts, directly and indirectly, local business volume, household income, the lending capacity of local depository institutions, employment levels, and revenue/expenditure levels of local government units.

In addition, TTMC provides a substantial amount of charity care in the region. This study estimates the 2004 economic impact of TTMC as follows:

- Annual Increase in Local Business Volume	\$ 55.9 million
- Additional Utilization of Local Business Capital Goods and Property	\$ 17.6 million
- Expansion in Local Depository Institutions' Credit Base	\$ 2.2 million
- Number of Jobs Attributable to TTMC Presence	964
- Annual Increase in Personal Income to Local Households	\$ 55.0 million
- Annual Increase in Net Operating Revenue of Local	\$ 634 thousand
- Additional Local Government Utilization of Capital	\$ 4.2 million
- Annual Value of Charity Care	\$ 27.0 million

The economic impact of TTMC to the El Paso region will rise as the medical center expands to a four year program. As TTMC increases its number of students, faculty and staff, annual operating budget, generates additional grant/research funding, and completes construction projects necessary to support expanded programs, additional economic effects will be generated over-and-above those calculated for 2004. Using the IPED-RIM, the incremental economic impacts of an expanded TTMC were determined over the 10 year period, 2004-2013. The analysis reveals the following:

- When the expansion process is completed (2011), annual Local Business Volume or revenues will rise an additional \$ 316.3 million. Over the 10 year period studied, local business revenues will increase \$ 1.31 billion on a present value basis.
- By 2012, the stock of Local Business Property utilized in the region will increase by \$ 85.0 million over-and-above the 2004 level.
- An expanded TTMC will augment the Credit Base of local depository institutions by \$ 1.8 million from 2010 on.
- A four year TTMC will create an additional 4,647 jobs in the El Paso region.
- By 2012 and on, the expanded TTMC will generate an additional \$ 97.1 million per year in Income to El Paso Households. Over the 2004-2013 period, an expanded TTMC will lead to increased income flows totaling \$ 462 million on a present value basis.

- Net Operating Revenue of Local Government units will increase as TTMC expands. From 2012 on, the fully-expanded TTMC will provide an incremental \$ 2.4 million per year in net revenues to local government. Over the 10 year period, total incremental net revenues of \$ 12.3 million will be generated.
- As the TTMC expansion is implemented, an increase in Local Government Utilization of Capital Goods will be required; an additional \$ 1.4 million from 2010 on.

The present study does not consider nor attempt to quantify another very real benefit to the El Paso community from an expanded TTMC: the increase in the quantity and quality of medical care services to the region!

Additional detail concerning this study is available from IPED upon request. Contact Dr. David A. Schauer at dschauer@utep.edu or Dr. Dennis L. Soden at desoden@utep.edu.

Incremental Economic Impact: Expansion of TTMC Versus Current TTMC Presence

	2004 Current Presence	2004 - 2005 With Expansion	2006 With Expansion	2007 With Expansion	2008 With Expansion
Local Business Volume (in \$ millions)	\$55.863	-	\$94.330	\$136.784	\$184.093
Local Business Property (in \$ millions)	\$17.628	-	\$29.767	\$43.163	\$58.092
Credit Base Expansion (in \$ millions)	\$2.237	-	\$0.607	\$0.607	\$1.216
Local Employment	964	-	1,628	2,360	3,177
Household Income (in \$ millions)	\$54.987	-	\$33.573	\$44.840	\$65.925
Net Operating Revenue of Local Government (in \$ millions)	\$0.634	-	\$0.864	\$1.439	\$1.665
Local Government Utilization of Capital Goods (in \$ millions)	\$4.211	-	\$0.475	\$0.475	\$0.950
Value of Charity Care (in \$ millions)	\$27.000	-	\$0	\$0	\$0
	2009 With Expansion	2010 With Expansion	2011 With Expansion	2012 With Expansion	2013 With Expansion
Local Business Volume (in \$ millions)	\$226.547	\$273.851	\$316.305	\$269.279	\$269.279
Local Business Property (in \$ millions)	\$71.489	\$86.416	\$99.813	\$84.973	\$84.973
Credit Base Expansion (in \$ millions)	\$1.216	\$1.823	\$1.823	\$1.823	\$1.823
Local Employment	3,909	4,726	5,458	4,647	4,647
Household Income (in \$ millions)	\$77.191	\$98.284	\$109.551	\$97.071	\$97.071
Net Operating Revenue of Local Government (in \$ millions)	\$2.239	\$2.467	\$3.042	\$2.405	\$2.405
Local Government Utilization of Capital Goods (in \$ millions)	\$0.950	\$1.425	\$1.425	\$1.425	\$1.425
Value of Charity Care (in \$ millions)	\$0	\$0	\$0	\$0	\$0

Appendix

IPED Technical Report # 2003-10

Economic Impact of Texas Tech University School of Medicine on El Paso, Texas



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Economic Impact of Texas Tech University School of Medicine on El Paso, Texas

Introduction

The Texas Tech University Health Sciences Center was created by the Texas legislature in 1969 as a multi-campus institution including a school in El Paso. The Texas Tech Medical Center in El Paso (TTMC) has served the community for 30 years. With 277 students/residents, 663 faculty and staff, along with an operating budget of \$71 million, TTMC is a significant economic force in El Paso. The presence of TTMC 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, TTMC provides a substantial amount of charity care in the region. This report, prepared by The University of Texas at El Paso's Institute for Policy and Economic Development (IPED), examines these components of TTMC's economic impact. In addition, the effects of an additional 400 students attending an expanded TTMC are identified.

Methodology

TTMC students/residents, faculty, and staff were surveyed in the fall of 2002. Members of the TTMC community were asked to respond to a series of questions concerning their status at TTMC, their income/expenditures/savings levels, and about any dependents in their household. A total of 330 usable responses were received, an overall response rate of 35.1 percent of the TTMC population. The response level from students was relatively low. Given this, data on UTEP graduate students generated in a recently completed study by IPED was used to supplement this segment of the response group. Additional information was obtained from TTMC financial documents and a variety of local, state and federal government agencies.

The Caffrey-Isaacs impact model (CIM) was used to measure the effects of the TTMC 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. A complete file containing data, survey questionnaire and responses, references, as well as the CIM equations and

calculations, is available from IPED (contact: Dr. David A. Schauer at dschauer@utep.edu or Dr. Dennis L. Soden at desoden@utep.edu).

Results

Local Business Effects

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

BUS-1:	Total impact of TTMC-Related Expenditures on Local Business Volume	\$56.6million
(A)	Purchases by TTMC Community	\$28.5 million
(B)	El Paso Firms' Purchases from Local Sources in Support of TTMC-Related Business Volume	\$23.4 million
(C)	Business Volume Generated by Expenditures of TTMC-Related Income Received by Households not Part of TTMC Community	\$4.6 million

BUS-1 (A) computes the direct purchases from local businesses made by TTMC, its faculty, staff, and students/residents.

BUS-1 (B) and (C) estimate the so called "second round" or multiplier effects on local firms.

Under the 400 incremental students' scenario, BUS-1 increases to a \$73.3 million level, an increase of 29.5 percent.

BUS-2:	Value of Local Business Property	\$16.6 million
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This impact component captures the capital goods (for example, machinery and equipment) and property utilized in the region as a result of the business volume generated by the presence of TTMC. It is assumed that TTMC's share of total local business volume can be applied to the assessed valuation of total local business property.

An expanded TTMC operation (400 additional students) increases BUS-2 to

\$21.6 million, a 30.1 percent increase.

**BUS-3: Expansion in Local Depository Institutions' \$2.2 million
Credit Base Resulting from the Presence of TTMC**

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

The credit base expansion figure rises to \$3.5 million under the larger TTMC scenario, a 59.1 percent increase.

Local Household Effects

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

**HH-1: Number of Local Jobs Attributable to Presence 1,028
of TTMC**

The CIM assumes that the ratio of TTMC-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 TTMC to total local civilian employment. The incremental job number is on a full-time equivalent basis.

A larger TTMC operation would increase the incremental jobs figure by 29.6 percent to 1,332.

**HH-2: Personal Income to Local Individuals \$56.4 million
Resulting from TTMC-Related Jobs and
Business Activity**

This value is the sum of two factors:

- | | | |
|-----|--|----------------|
| (A) | Income of the TTMC Community | \$40.2 million |
| (B) | Income of Local Individuals Employed as a Result of TTMC-Related Business Volume | \$16.2 million |

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

With 400 additional students, HH-2 rises 33.9 percent to \$75.5 million.

Government Effects

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

GOV-1: Net Operating Cost of Local Government (\$505 thousand)
Provided Municipal Services Allocable to
TTMC Presence

(A) TTMC-Related Revenues Received by Local \$5.3 million
 Government

(B) Operating Cost of Government Provided Municipal \$4.8 million
 Services Allocable to TTMC Presence

GOV-1 (A) sums TTMC-related property and sales tax revenues paid to or received by local government units plus federal aid dollars to local government allocable to the presence of TTMC.

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

The negative value for GOV-1 reflects the fact that revenues received by local governments are slightly larger than the gross operating costs incurred by local government.

Under an expanded TTMC, GOV-1 rises to \$194 thousand, a \$699 thousand increase in net operating costs.

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 TTMC and to TTMC-related individuals. Specifically:

GOV-2: Capital Required by Local Government to \$4.4 million

Provide TTMC-Related Municipal Services

This figure is not an annual expense or cost number. It represents the current value of the stock of local government capital goods allocable to TTMC-related activities.

A larger TTMC presence in El Paso raises this figure to \$5.3 million, a 20.5 percent increase.

Additional Impact

There is one additional, significant economic benefit which accrues to the region given the presence of TTMC: unreimbursed care and uncompensated charity care provided by TTMC. The CIM does not consider/quantify these important activities. Data provided by TTMC sets **the unreimbursed care value at \$40.8 million on an annual basis**. A significant portion of this figure **(\$27 million) represents the level of uncompensated charity care** in the region.

The \$27 million amount translates to approximately **\$550 of free medical care annually to each household in El Paso County that falls below the poverty line**.