

The Economic Impact of Texas State University-San Marcos

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September, 2007

¹This study benefitted from invaluable assistance provided by Joe Myer, Director Office of Institutional Research, Texas State University-San Marcos, as well as editorial comments on earlier versions of the study by Robert D. Gratz Special Assistant to the President, Texas State University-San Marcos, and Robert Olney, Associate Dean, McCoy College of Business Administration, Texas State University-San Marcos. The author also wishes to express gratitude to Texas State University-San Marcos for funding the IMPLAN input-output model used in the study.

Executive Summary

The impact of Texas State on the local, regional and state economies is greater than the direct spending by the University since money spent by the University is spent by employees, businesses, and their workers. As these expenditures give rise to additional business spending, this sets in motion a chain reaction of additional *indirect and induced spending*.

These economic ripple effects impact the local, regional and state economies, and economists use an economic technique known as *Input-Output Analysis* to analyze the multiple impacts that arise. The IMPLAN input-output model was used to carry out this economic impact study.

Table 1: Economic and Employment Impacts of Texas State University-San Marcos

	Direct Spending (in million \$)	Economic Impact (in million \$)	Employment Impact (in FTE jobs)
Hays County			
Annual Spending			
University and employees	178.6	250.2	4,611
Texas State Students	206.9	294.7	4,703
Total	385.5	544.9	9,314
Region			
Annual Spending			
University and employees	253.6	381.5	5,669
Texas State Students	237	367.1	5,861
Total	490.6	748.6	11,530
State of Texas			
Annual Spending			
University and employees	253.6	443.7	6,351
Texas State Students	294.1	516.5	7,496
Total	547.7	960.2	13,847

Table 1 shows the economic and (full-time equivalent) employment impacts from Texas State spending (based on the fiscal year ending August 31, 2006) organized into three different geographic regions, Hays County, the Region (Hays plus surrounding counties) and the State of Texas. In this report economic and employment impacts are reported as cumulative, so the economic impact of \$748.6 million for the Region (Hays County plus the nearby counties of Bastrop, Bexar, Blanco, Burnet, Caldwell, Comal, Guadalupe, Travis and Williamson) includes the economic impact of \$544.9 million for Hays County shown in

the table. Similarly, the impact of \$960.2 million for the State of Texas includes the \$544.9 impact in Hays County plus the \$748.6 million for the Region, with the addition of all other counties in the state.

The annual economic impact on Hays County arising from direct spending by Texas State, its employees and students is \$545 million. The employment impact on Hays County is over 9,300 full-time-equivalent jobs. Since Hays County total employment is just over 55,000, university, employee and student spending accounts for one of every 6 jobs in the county. In the Region, which includes Hays plus surrounding contiguous counties, the presence of Texas State gives rise to over \$748 million in economic activity and around 11,530 full-time-equivalent jobs. The economic impact of Texas State on the State of Texas is \$960 million and the employment impact is nearly 14,000 jobs.

Roughly half (\$443 million) of the nearly \$1 billion dollar total impact on the economy of the State of Texas arises from *direct, indirect and induced spending* spending by the University and its employees. The remainder (\$516.5 million) arises as a result of University students and visitors.

1 Introduction

The impact of Texas State University-San Marcos on the local, regional and state economies is greater than the *direct spending* by the University for payroll, goods and services, and construction. This is because money spent by the University is spent by employees, businesses, and their workers. As employees purchase goods and services from businesses, these businesses make their own purchases and hire employees, who also spend their salaries and wages. Similarly, university expenditures with businesses give rise to additional business spending, and this sets in motion a chain reaction of spending that is labeled *indirect and induced spending* by economists.

The impact of subsequent rounds of additional spending is gradually diminished when savings, taxes, and expenditures are made outside the state. This economic ripple effect impacts the local, regional and state economies, and economists use an economic technique known as *Input-Output Analysis* that relies on a series of *multipliers* to provide estimates of the number of times each dollar of *input*, or direct spending, cycles through the economy producing *indirect and induced output*. *Indirect* impacts are the changes in inter-industry purchases as they respond to new demands of directly affected industries. *Induced* impacts measure changes in spending by households as they respond to income increases arising from changes in production.

The economy of the San Marcos Region represents an extremely interdependent set of relationships between various types of economic actors, workers, university faculty and staff, businesses and students. The IMPLAN input-output model (version 2.0) was used to construct dollar value estimates of the economic impact and full-time-equivalent (FTE) employment impacts arising from Texas State spending on 1) *Hays County*, 2) the *Region* defined here as Hays County plus the nearby counties of Bastrop, Bexar, Blanco, Burnett, Caldwell, Comal, Guadalupe, Travis, and Williamson and 3) the *State of Texas*.

We present IMPLAN multipliers when discussing the methodology used for the Texas State impact study and these follow certain conventions. Economic impact multipliers for spending on items such as construction of institutional buildings in the State of Texas are reported as numerical values. The value of 0.87 for spending on construction of institutional buildings indicates that \$1 of direct spending on construction generates another 87 cents worth of spending in the Texas economy, for a total economic impact of \$1.87. Employment multipliers are reported on the basis of \$1 million dollars of direct spending, so an employment multiplier of 7.5 for construction spending indicates that 7.5 (Full-Time-Equivalent) jobs would be created in Texas by indirect and induced effects for every \$1 million spent.

Of course, the direct expenditure of \$1 million dollars on the construction project also generates 11.5 jobs, so the total employment impact of \$1 million dollars of construction spending on institutional buildings is 19 FTE jobs.

1.1 The Role of Geography

Geography becomes important when measuring the economic impact of spending. The economic ripple effect diminishes because of *leakages* associated with profits, savings, taxes, and expenditures that land outside of the geographic region of analysis. The magnitude of these leakages is much greater for smaller areas such as Hays County, than for a larger area such as the State of Texas. Throughout this report, impacts will be reported as cumulative, so that impacts for the Region reflect Hays County plus the nearby counties (Bastrop, Bexar, Blanco, Burnett, Caldwell, Comal, Guadalupe, Travis and Williamson) aggregated. Similarly, impacts for the State of Texas will include Hays plus the Region, (as well as all other counties in the state).

To illustrate this point, the economic output multipliers for construction of institutional buildings are: 0.865 for Texas, 0.771 for the Region, and 0.477 for Hays County. So, \$1 million dollars of construction spending in Hays County would generate \$1.865 million in total spending for the state, \$1.771 million for the Region and \$1.477 million for Hays County. Since these are cumulative, we have a maximum impact of \$1.865 million at the state level, which includes partial impacts of \$1.477 million in Hays County and \$1.771 million in the Region. Intuitively, we would expect the greatest impact to be near Hays County where the direct construction spending took place. This is indeed the case as 89% of the impact would be in the Region (including Hays County) since: $(0.771/0.865 = 0.89)$. That is to say that \$0.771 million of indirect and induced impacts from each \$1 million construction spending will land in the Region. (Note that the IMPLAN model takes into account leakages that arise from the fact that dollars spent may go to construction firms located outside of Hays County.)

Another geographical aspect of spending is that payroll dollars to employees that reside in neighboring counties will have different impacts. For example, the geographic distribution of Texas State payroll indicated that of the \$151 million in wages and salaries paid during the fiscal year ended August 31, 2006, only 50 percent went to residents of Hays County, with the remainder going to residents of nearby counties in the Region.

To illustrate the difference this makes, the spending multiplier for residents of Comal County with incomes of \$75,000-100,000 was 0.413, and the employment multiplier was 10.4

(FTE jobs per million dollars). This means that \$1 of spending by Comal residents would generate \$1.41 of total economic impact in the region. In contrast, the spending multiplier for residents of Hays County with these same income levels was 0.306, and the employment multiplier was 8.5 jobs. Therefore, the IMPLAN model indicates that all else being equal, spending by Comal County residents has a larger economic impact on the region than that of Hays County residents. This illustrates the importance of taking into account the location where spending takes place.

There are also differences in the nature of spending patterns depending on household income levels, which this study takes into account. The IMPLAN model relies on the U.S. Department of Labor, Bureau of Labor Statistics Survey of Consumer Expenditures with adjustments to reflect regional differences in taxes, prices, and goods available to determine how spending impacts the local, regional and state economies.

While this study focuses on the economic impact of Texas State, it should be clear that the university also contributes a great deal to the arts, culture, sports, and social life in the city of San Marcos, and surrounding communities.

2 Enumerating direct spending associated with the University

To assess the economic impact of Texas State we require an enumeration of spending in various categories. We will rely on four different categories of spending: 1) payroll spending for employees, 2) spending by students and visitors, 3) construction spending, and 4) spending for auxiliary enterprises, materials and supplies, repairs, printing, communications, services, etc.

After enumerating spending by category, appropriate spending and employment multipliers are applied to determine the economic impact of Texas State on the three geographical areas used in this study.

We set forth general information regarding these various types of spending as well as aggregate magnitudes in this section. Details regarding how these magnitudes were determined are provided in separate sections devoted to each of the four types of spending. Information regarding the specific spending and employment multipliers applied to the various types of spending are also set forth in each section, since this constitutes the methodology of the study.

Total Texas State wages and salaries paid for the Fiscal Year that ended August 31,

2006 were \$151.1 million, with 50 percent going to residents of Hays County. Information on the geographic distribution of Texas State payroll indicated that nearly \$31.3 million in *direct* payroll spending went to Travis County residents, \$12 million to Comal County, and between \$1.5 and 4.6 million went to residents of the counties: Bexar, Caldwell, Guadalupe, Harris and Williamson. Amounts less than \$1.5 million went to residents of other counties such as Blanco and Burnett.

Texas State FTE faculty and staff employment was around 2,600 and actual headcount employment was just over 2,800 excluding student workers. In addition, there are also around 600 student and graduate assistant employees. Information from the 2006 Integrated Postsecondary Education Data System (IPEDS) indicated that Texas State (FTE) employment was 2,562 persons, including 985 classified as instructional, research, and public service staff, 94 executive administrators, 450 other professionals, and 1,033 non-professionals.

In addition to payroll, Texas State made over \$165 million in *direct* spending on construction projects over the period from 1990 to 2005, and has over \$150 million in construction projects in progress or scheduled for the 2005-2009 period.

¹ The current and scheduled construction amounts to over \$30 million per year of *direct* spending, and the cumulative projects over the period from 1990 to 2009 will total \$343 million.

Texas State had over 27,000 students, which we estimate account for over \$166 million of Hays County spending annually, around \$197 million spending in the Region, and over \$250 million of spending in the State of Texas.² Visitors to the students and university accounted for an addition \$40 million of local spending in Hays County.

Finally, other spending on auxiliary enterprises, materials and supplies, repairs, printing, communications, services, and so on, totaled over \$73.6 million in Hays County for the year 2006.

In total, direct Hays County spending on payroll, construction, auxiliary enterprises, materials and supplies, repairs, printing, communications, services, was around \$180 million, while that of students and visitors totaled just over \$205 million for a total spending impact

¹Construction information used in the study is from the Texas State Board of Regents Fact Sheet, May 2006. Updated figures from the May 2007 BOR Fact Sheet indicate that Texas State made over \$170 million in direct spending on construction projects over the period from 1997 to 2005 and has over \$200 million in construction projects in progress or scheduled for the 2005-2011 period. Using these updated figures, the current and scheduled construction amounts to over \$33 million per year of direct spending, and the cumulative projects over the period from 1997 to 2011 will total nearly \$475 million. These were not used in the study to maintain consistency with other budget and spending magnitudes that reflect the fiscal year ending August 31, 2006.

²Recall that the \$250 million for the state includes the \$197 million for the Region, and the Regional magnitude of \$197 million includes the \$166 million from Hays County.

by Texas State of \$385 million. Direct spending in the Region was nearly \$500 million, which was considerably higher than in Hays County alone. The increased magnitude includes additional spending by Texas State faculty, staff and students who reside in counties that neighbor Hays. Broadening the geographic focus to the State of Texas results in around \$550 million of direct spending by Texas State faculty, staff and students.

This economic impact study applies appropriate spending and employment multipliers to various categories of spending by the university, faculty, staff and students. The multipliers used will vary by category of spending and geographic area in which the spending takes place. Impact study methodology consists of careful enumeration of these aspects of spending followed by application of appropriate multipliers. The remainder of this report devotes separate sections to the following categories of spending arising from the presence of Texas State: construction spending, student and visitor spending, payroll spending, and spending on auxiliary enterprises, utilities and supplies by the university.

3 Construction Spending

Texas State made over \$165 million in *direct spending* on construction projects over the period from 1990 to 2005, and has over \$150 million in construction projects scheduled (or already in progress) for the 2005-2009 period. The current and scheduled construction amounts to over \$30 million per year of *direct spending*, and the cumulative projects over the period from 1990 to 2009 will total \$343 million.

If we apply the output multipliers of 0.865 for Texas, 0.771 for the Region, and 0.477 for Hays County to the \$30 million per year construction spending, this would result in an annual total impact of 44.3 million for Hays County, 53.1 million for the Region and 56 million at the state level. If we applied these same multipliers to total construction expenditures of \$343 million over the period from 1990 to 2009, we find impacts of: \$506 million for Hays, \$607 million for the Region and \$640 million for the state.

We add the employment multipliers for institutional building construction that measure the *indirect* and *induced* impacts to those for *direct* spending employment impacts for Hays County, the Region and Texas. This produces an estimate of the total number of FTE construction jobs resulting from the \$30 million annual construction spending. The employment impacts are: 17.38, 18.16 and 18.91 jobs per \$1 million dollars spending for Hays County, the Region and Texas, respectively. This suggests that the \$30 million spending each year would create FTE employment of 521, 544 and 567 in Hays, the San Marcos Region and state.

Table 2: Economic Impacts from Construction Spending

	Direct Spending (in million \$)	Economic Impact (in million \$)	Employment Impact (in FTE jobs)
Hays County			
Annual Spending 1990-2005 period	11.0	16.2	191
2005-2009 period	30.0	44.3	521
Cumulative Spending 1990-2009 period	343	506.6	5,961
Region			
Annual Spending 1990-2005 period	11.0	19.5	200
2005-2009 period	30.0	53.1	544
Cumulative Spending 1990-2009 period	343	607.5	6,230
State of Texas			
Annual Spending 1990-2005 period	11.0	20.5	387
2005-2009 period	30.0	56.0	567
Cumulative Spending 1990-2009 period	343	639.7	6,486

Table 2 provides a summary of this analysis for the three regions based on current annual average construction spending magnitudes for the 2005-2009 time period, past magnitudes over the 1990-2005 period, as well as cumulative construction spending over the 1990-2009 period. The direct spending magnitudes are presented, which do not vary over the three geographic regions since this spending took place in Hays County.³ (Note that the IMPLAN model takes into account leakages that arise from the fact that dollars spent may go to construction firms located outside of Hays county.) Table 2 shows both the economic impact measured in dollars as well as FTE employment impacts for the three levels of regional aggregation used in the study.⁴

³This study does not consider the Round Rock activities of Texas State separately from all other spending activities. A number of special considerations would be needed to assess a separate economic impact from Round Rock spending. For example, spending on items such as supplies, maintenance, professional services, etc., would need to be separately apportioned to the main campus versus Rock Round.

⁴An important point to note about economic impact methodology is that although we will report numerical magnitudes that include decimal digits in all tables, we do not mean to imply a high degree of decimal

4 Student and Visitor Spending

The largest economic impact from Texas State arises from student spending. To accurately assess these impacts it is necessary to determine the geographic proximity to the university as well as living circumstances of students.

A profile of the proximity to campus of all Texas State students can be gleaned from a 2005-06 survey taken of students that focused on students' living circumstances and spending patterns. Of all students (including students in residence halls), 45 percent live within 5 miles of campus, 53 percent within 10 miles, 58 percent within 15 miles, 62 within 20 miles, 77 within 30 miles and 86 within 40 miles.

Using this recent survey of student spending, we find that spending varies according to students' living circumstances. Of the over 27,000 Texas State students, only 5,600 live on campus in residence halls, and the long-range plan indicates this number will stay relatively fixed in the future. This means that over 21,000 students are living off-campus, either with parents, with other students or non-students, with spouses, or alone. Around 4,500 of the 21,000 off-campus students are graduate students, leaving 16,500 undergraduate students off-campus.

The student spending survey was used to provide Texas State *2006-2007 Cost of Attendance* (COA) information. This information indicated that spending by off-campus full-time students living with parents was \$8,860 excluding Tuition and Fees.⁵ In contrast, full-time students living off-campus alone, with a spouse, other students or other non-students spent \$11,050, with the difference accounted for by room and board as well as travel expenses. Full-time undergraduate students living on-campus spent \$4,250, with the big difference being spending on residence hall Room and Board which was excluded.⁶

Student spending and proximity to campus also varied between undergraduate and graduate students. Graduate students proximity to campus gleaned from the survey indicated that: 63 percent commute from outside San Marcos, while 37 percent live in San Marcos. Only 28 percent live within 5 miles of campus, 37 percent within 10 miles and 47 percent within 20 miles. Spending differences can be illustrated by the fact that rent for off-campus undergraduate students averaged around \$400 per month versus \$633 per month

accuracy associated with our estimates. Since impact studies apply multipliers to spending magnitudes in a variety of categories and then aggregate, rounding of decimal digits at the disaggregate level could influence the final aggregated impacts, so we report decimal digits used to produce the disaggregated impact magnitudes throughout the study.

⁵Tuition and Fee spending is already accounted for in Texas State spending, so this exclusion avoids double counting.

⁶Room and Board spending for residence hall students is already accounted for in Texas State auxiliary enterprises spending, so this exclusion avoids double counting.

for graduate students.

To accurately estimate student spending, it is necessary to infer the proportion of the 16,500 undergraduate students living off-campus that live with parents versus those living alone, with a spouse, and with other students or non-students. The student spending survey sampled 1,088 students who answered questions regarding their living circumstances. The survey asked three relevant questions: 1) “Where do you live locally?” 2) “With whom do you live locally?”, and 3) “Do you live on-campus, off-campus in San Marcos or off-campus outside of San Marcos?” These answers suggested roughly 20 percent on-campus, 40 percent off-campus in San Marcos and 40 percent off-campus outside of San Marcos.⁷

Answers to the other two question regarding living with parents, alone, with spouses or roommates as a percentage of respondents giving each answer are shown in Table 3.

Table 3: Living Circumstances of Students

Where do you live locally?	
Category	Percent
In a house (owned or with mortgage)	25%
In a house (rented)	13%
In an apartment	58%
In a fraternity/sorority house	0%
Other	4%
With whom do you live locally?	
Category	Percent
Immediate family (parents, siblings)	13%
Extended family (grandparents, aunts, uncles, cousins)	1%
Spouse or significant other	24%
Other student roommate(s)	35%
Non-student roommate(s)	5%
Above combination, list:	4%
Other, please describe:	19%

Details regarding the responses categorized as ‘Other’ to both questions, were provided by the survey. An examination of the 4% responding ‘Other’ to the question regarding their local residence included things like condominium, townhouse, or duplex, so these responses were assigned to the apartment category.

⁷The answers totalled to 108% of the 1,088 survey respondents to the other two questions regarding living circumstances, so an approximation was needed. Total survey respondents were 1,416.

The relatively large 19% percent responding ‘Other’ to the question “With whom do you live locally?” required some investigation. First, 70 percent of these respondents indicated that they lived in an apartment, and many indicated they lived alone, which was not an available survey answer.⁸ Around 25 percent of these respondents were Juniors, 40 percent Seniors and 25 percent Graduate students. The latter number was consistent with the 23 percent who indicated they were over 30 years in age. Around half indicated they lived in San Marcos, while half lived outside San Marcos. Around 20 percent of these respondents indicated they worked on campus and 80 percent off campus, with 29 percent working more than 35 hours per week, and 45 percent working between 20 and 34 hours per week. Given this information, it seemed reasonable to classify the 19% responding ‘Other’ as off-campus students not living with parents, and to classify half of these students as living outside San Marcos.

Based on consideration of the survey responses regarding students’ living circumstances, students were categorized as shown in in Table 4. As indicated, spending by students varies with their living circumstances, so these inferences regarding students living situations as well as a geographical profile regarding proximity to the Texas State campus will be used to allocate student spending magnitudes across the three geographical regions in the study. Details regarding the methodology used are provided in the following sub-sections devoted to each type of student spending.

Table 4: Geographical Distribution of Students

Total Students = 27,000	
On-Campus Students	5,600
Off-Campus Students	21,000
Graduate Students = 4,500	
In San Marcos	1,665
Outside San Marcos	2,835
Undergraduate Students living with parents = 2,310	
In San Marcos	350
Outside San Marcos	1,963
Undergraduate Students not living with parents = 14,190	
In San Marcos	7,946
Outside San Marcos	6,244

⁸This choice should be added to future versions of the survey.

4.1 On-campus students living in residence halls

Table 5 provides a summary of student spending categorized by living circumstances and the three regions used in our analysis. The proximity to campus information provided by the student survey was used to allocate various types of student spending across the three geographic regions.

The simplest living circumstances to analyze are students living in campus residence halls. The *Texas State 2006-07 Cost of Attendance* (COA) estimates indicated that direct spending (excluding Tuition and Fees and Room and Board) by the 5,600 residence hall students amounted to \$2,450 per student for total local spending of \$13.7 million by these students in San Marcos. These numbers are shown in Table 5 as Hays County direct spending magnitudes. It should be noted that COA number of \$2,450 is intended to be a conservative estimate of the cost of attendance. The survey of student spending indicated semester spending of \$400 on books, \$187 on supplies and equipment, and \$560 on computing. Survey respondents also indicated monthly spending on entertainment (\$74), food eaten out (\$96), laundry (\$25), and clothing (\$67), personal hygiene and grooming (\$193), and cell phones (\$78). Applying a factor of 9 months to the monthly spending and using 2 semesters, we have total survey-reported Academic Year spending in residence hall categories around \$6,000, which greatly exceeds the conservative \$2,450 COA estimate.

The table also shows (COA) estimates of direct spending amounts for the Region and State of Texas, the other two geographies used in our impact analysis. These magnitudes remain the same since the larger geographic regions include Hays County direct spending as well as that attributed to students for the larger regions. Residence hall students direct spending remains totally within Hays County, but of course the economic impact of this spending will be subject to the larger multipliers that are associated with the larger geographic regions.

The last column of the table shows the economic impact of the \$13.7 million in COA estimates of direct spending for Hays County, the Region and the State of Texas. To illustrate how the economic impacts shown in Table 5 were calculated, we enumerate the detailed calculations for this simplest case of student spending.

From the spending survey, students indicated semester spending of \$400 on books, \$187 on supplies and equipment, and \$560 on computing. They also indicated monthly spending on entertainment (\$74), food eaten out (\$96), laundry (\$25), and clothing (\$67), personal hygiene and grooming (\$193), and cell phones (\$78).

The Hays County IMPLAN spending multipliers for the categories: *Health and personal*

care stores, Clothing and clothing accessories stores, Sporting goods- hobby- book and music stores, General merchandise stores, Miscellaneous store retailers, Food services and drinking places, Telecommunications and Information services, Dry cleaning and laundry services, ranged from a low of 0.35 to a high of 0.49 with the average (weighted by the above expenditure magnitudes) being 0.42. This would result in a Hays County economic spending impact of 1.42 times the \$13.7 million or \$19.45 million, which is reported in the last column of the table as the economic impact for Hays County.

To produce an economic impact for the Region, the larger IMPLAN spending multipliers for these same categories were applied to the direct residence hall students' spending of \$13.7 million. The individual spending multipliers ranged from a low of 1.48 to a high of 1.60, with a spending weighted average equal to 1.54. Applying this multiplier to the \$13.7 million spending results in a \$21.1 million economic impact reported in the last column of the table.

For the State of Texas region, the individual spending multipliers ranged from 1.66 to 1.82, with a spending weighted mean of 1.75, producing a spending impact of \$24 million reported in the table.

4.2 Off-campus students living with parents or relatives

From the survey information, we conclude that 14 percent of the 16,500 undergraduate off-campus students (2,310) live with parents (or close relatives). Survey information allowed an inference that 85% of these students live outside San Marcos, while 15% live in San Marcos. For undergraduate students who live with parents outside San Marcos, we only count spending on books and supplies, travel to school and work, and one-half of personal and miscellaneous spending as taking place in San Marcos.⁹ This amounts to \$2,810, spent locally by 1,963 off-campus students living with parents outside of San Marcos, or \$5.5 million.¹⁰ For the estimated 350 undergraduate students living with parents in San Marcos, we include spending on room and board, books and supplies, travel to school and work, and all personal and miscellaneous spending as taking place in San Marcos. This results in local spending of \$8,860 per student residing with parents in San Marcos, for a total of \$3.1 million.

⁹Spending on travel to school and work was estimated at \$200 per month, which included fuel based on 30 miles travel between home, school and work, as well as insurance and automotive repairs.

¹⁰Although spending by off-campus full-time students living with parents was \$8,860 excluding Tuition and Fees, \$5,100 was spending on Room and Board, which we assume was not spent in San Marcos, leaving us with books and supplies, travel to school and work, and one-half of personal and miscellaneous spending taking place in San Marcos.

As we expand our impact analysis to the Region, we need to include additional spending by off-campus students living with parents or relatives as it takes place in the larger geographic area. From survey information for students living with parents, 40 percent lived within 20 miles of the campus, allowing us to include additional expenditures of \$6,050 (\$8,860 - \$2,810 already counted as spent in San Marcos), for these 943 off-campus students living with parents outside of San Marcos, but in the Region. This amounts to direct spending of \$8.1 million in the Region, which includes the direct spending of \$5.5 million in Hays County already counted above. Since we are including the smaller geographic region of Hays County in the Region, we would need to also add the \$3.1 million of direct spending by students living off-campus with parents in San Marcos enumerated above, for total spending by students living off-campus with parents of \$11.2 million in the Region.

For the impact analysis at the state level, we can include all of the \$8,860 in spending by the 2,300 off-campus undergraduate students living with their parents or relatives. This gives rise to \$20.5 million of direct spending by this category of Texas State student.

The individual IMPLAN spending multipliers applied to these spending magnitudes are different because off-campus students make expenditures on rent, auto repairs, fuel, automotive and apartment insurance, health, telecommunications, etc. Ironically, for Hays County the spending weighted average was 0.43 compared to 0.42 for residence hall students, producing roughly the same multiplier. Distinguishing between students living with parents versus students living with others, also changes spending categories, but did not change the spending weighted average multiplier from 0.43.

Expanding the analysis to the Region, the spending weighted multiplier of 0.55 was applied to the COA spending estimate magnitudes to produce an economic impact estimate reported in the last column of the table. A similar procedure was used to derive the economic impact estimate for the State of Texas, based on a spending weighted average multiplier of 0.75, producing the estimate shown in the table.

4.3 Off-campus students not living with parents or relatives

The proximity profile for these students is that 56 percent reported they live in San Marcos, and 44 percent commute from outside San Marcos. The survey information revealed that 45 percent live within 5 miles of campus, and around 20 percent reported working on campus. The off-campus students living in San Marcos account for 56 percent of the 14,190 off-campus students who do not live with parents, or 7,946 students with average COA estimates of annual spending equal to \$11,050. This results in \$87.8 million of direct local

spending reported in Table 5.

For the 44 percent of off-campus students (not living with parents or relatives) who commute to San Marcos, we count only expenditures on Books and Supplies, Travel and one-half of Personal and Miscellaneous spending, which annually totals \$4,050. The direct spending by these students amounts to \$25.3 million as reported in the table.

The economic impacts arising from this type of student spending were derived using the same spending weighted multiplier methodology as described in the discussion of on-campus residence hall students, with the spending categories adjusted to reflect differences in spending by off-campus versus on-campus students.

As we broaden our impact analysis to the Region, we include spending for Room and Board for students living within 20 miles of campus, or 70 percent of the 14,190 off-campus students who do not live with parents. For the State of Texas region, we include total COA estimated spending of \$11,050, by all off-campus students.

4.4 Graduate students

Two distinctive features of graduate students were: larger spending magnitudes estimated around \$14,000 from the spending survey information, and their proximity to campus. The survey information indicated that: 63 percent commute from outside San Marcos, while 37 percent live in San Marcos. Only 27.7 percent live within 5 miles of campus, 37 percent within 10 miles and 47.2 percent within 20 miles. Based on this, we include the full annual spending of \$14,000 for the 37 percent living in San Marcos for the Hays County analysis. As we expand our analysis to include the Region, we include full spending for 47.2 percent of these students that reported living within 20 miles of campus. For the State level analysis all students are included at full spending levels.

4.5 Student spending conclusions and validity checks

As already noted the COA estimates are intended to be a conservative estimate of the cost of attendance. Small changes in the spending amounts per student will give rise to large changes in the total student spending amounts. For example, suppose we used the total survey-reported \$6,000 spending by students in place of the \$2,450 COA estimate.¹¹ This would result in Hays County spending by residence hall students equal to \$33.6 million, versus the \$13.7 used in Table 5. Tracing this number through the multiplier system would

¹¹The spending survey recorded semester and monthly magnitudes which were expanded to reflect an Academic Year (9 months) of spending by residence hall students.

Table 5: Economic Impacts from Spending by Students (in millions of dollars)

	Direct Spending COA Estimates	Economic Impact
Hays County		
Undergraduates		
Living in residence halls	13.7	19.5
Living with parents in San Marcos	3.1	4.4
Living with parents outside San Marcos	5.5	7.7
Not living with parents in San Marcos	87.8	125.5
Not living with parents outside San Marcos	25.3	36.2
Graduates		
Living in San Marcos	23.3	33.3
Living outside San Marcos	8.1	11.6
Totals	166.8	238.2
Region		
Undergraduates		
Living in residence halls	13.7	21.1
Living with parents in San Marcos	3.1	4.8
Living with parents outside San Marcos	6.9	10.7
Not living with parents in San Marcos	87.8	136.0
Not living with parents outside San Marcos	43.4	67.3
Graduates		
Living in San Marcos	23.3	36.1
Living outside San Marcos	18.7	29.0
Totals	196.9	305.0
State of Texas		
Undergraduates		
Living in residence halls	13.7	24.0
Living with parents in San Marcos	3.1	5.4
Living with parents outside San Marcos	17.4	30.4
Not living with parents in San Marcos	87.8	153.6
Not living with parents outside San Marcos	69.0	120.7
Graduates		
Living in San Marcos	23.3	40.8
Living outside San Marcos	39.7	69.5
Totals	254.0	444.4

result in an estimate of total statewide impact of \$58.8 million, versus the \$24 million reported in the table, or an increase of \$34.8 million. This change reflects an increase of 8 percent in the total statewide economic impact arising from student spending.

The 1997-98 Texas State Economic Impact Study estimated that the 21,000 students enrolled at that time were spending \$145.7 million locally. If we adjust this number for the larger student enrollment as well as inflationary price increases that have taken place since 1997-98, we arrive at a student spending estimate of \$231.6 million. This exceeds our local student spending estimate of \$166.8 million, but seems consistent with our \$196.9 and \$254 million estimates for the Region and the State of Texas.

As a robustness check, we can begin with an estimate of \$230 million local spending by students and apply naive multipliers that do not take into account the geographic location of student spending as we have done here. This would result in economic impacts of: \$326 million for Hays County, \$356 for the Region, and \$402 for the State of Texas.

Based on these checks, we can conclude that our estimates of student spending and the associated economic and employment impacts are likely to be conservative. There is likely to be a great deal of variation in spending by individual students. This leads to a situation where use of the mean spending magnitudes reported by the survey might be problematical. Recall that mean values are only representative when the distribution of spending across students is symmetric. Most spending surveys show a right-skewed distribution, since spending by higher income individuals can be much greater than the typical or average individual. This leads to a systematic downward bias in the mean spending magnitude, which is less than the median and modal values. Future spending surveys of students could report median as well as mean spending magnitudes, which would allow more extensive use of this information in assessing economic impacts of student spending.

4.6 Employment impacts from student spending

We applied the same methodology described for student spending to produce spending weighted employment multipliers for Hays County, the Region and the State of Texas. This allows us to assess the employment impact of student spending on these three geographic regions.

Recall, these multipliers reflect full-time equivalent (FTE) jobs created per million dollar spending. For Hays County, the individual employment multipliers associated with the various categories of spending ranged from a low of 16.2 to a high of 28. The mean was 22.5 FTE jobs per million dollars spend, for a total Hays County employment impact of

3,753 jobs arising from student spending. Since Hays County total employment was just over 55,000, student spending accounted for around one of every 15 jobs.

For the Region, the employment multipliers ranged from a low of 19 to a high of 34, with a mean equal to 24.6 leading to an employment impact of 4,843 jobs. The State of Texas multipliers for the categories of student spending ranged from 18 to 41, with a mean of 25.6, suggesting an employment impact from student spending equal to 6,502 jobs.

The results are shown in Table 6, with detailed enumerations for each of the categories of students and the various estimates of spending used to produce the employment impact estimates. Since these employment impacts are based on student spending magnitudes, they are also likely to be conservative estimates.

4.7 Visitors spending

Typically economic impact studies rely on surveys of visitors to assess the magnitude and types of spending by guests to a region. No recent survey exists for visitors to the Texas State Campus, so an estimate from the 1997-98 study and a survey done around that time were used. The estimate of \$25 million of spending by visitors to students, the campus and sporting events was adjusted to reflect the increase in the number of students as well as inflationary price increases that have occurred since 1997-98. This resulted in a direct spending impact of \$40.1 million, for Hays County. Using an average multiplier based on hotels and other accommodations, food and drinking establishments and general and miscellaneous retail merchandise stores, we arrive at an economic impact multiplier of 0.41 for Hays County, leading to an economic impact of \$56.5 million dollars. For the Region, the multiplier was 0.55, leading to an impact of \$62.1 million. Finally, at the state level, the multiplier was 0.8, producing an impact of \$72.1 million.

These economic impact results are reported in Table 7, along with employment impacts. The employment multiplier for Hays county averaged over the spending categories was 23.7, that for the Region was 25.4, and for the State of Texas was 24.8 FTE jobs per million dollars of spending. This reflects an unusual result where the smaller Region exhibited a larger employment multiplier than the larger State of Texas region. The Regional employment multiplier was exceptionally large for Miscellaneous store retailers, equal to 41.7, probably arising from the successful Outlet Malls of San Marcos. The State of Texas employment multiplier for these establishments was only 34.7, accounting for this unusual result. An economic interpretation of this might be that in the retail arena San Marcos is actually gaining jobs at the expense of the State. That is, there are substitution effects, or loss of

Table 6: Employment Impacts from Spending by Students (in FTE jobs)

	Direct Spending COA Estimates	Employment Impact
	Hays County	
Undergraduates		
Living in residence hall	13.7	308
Living with parents in San Marcos	3.1	69
Living with parents outside San Marcos	5.5	123
Not living with parents in San Marcos	87.8	1,975
Not living with parents outside San Marcos	25.3	569
Graduates		
Living in San Marcos	23.3	524
Living outside San Marcos	8.1	182
Totals	166.8	3,753
	Region	
Undergraduates		
Living in residence halls	13.7	337
Living with parents in San Marcos	3.1	76
Living with parents outside San Marcos	6.9	169
Not living with parents in San Marcos	87.8	2,159
Not living with parents outside San Marcos	43.4	1,067
Graduates		
Living in San Marcos	23.3	573
Living outside San Marcos	18.7	460
Totals	196.9	4,843
	State of Texas	
Undergraduates		
Living in residence halls	13.7	350
Living with parents in San Marcos	3.1	79
Living with parents outside San Marcos	17.4	445
Not living with parents in San Marcos	87.8	2,247
Not living with parents outside San Marcos	69.0	1,766
Graduates		
Living in San Marcos	23.3	596
Living outside San Marcos	39.7	1,016
Totals	254.0	6,502

Table 7: Economic Impacts from Visitors Spending

	Direct Spending by Visitors	Economic Impact (in million \$)	Employment Impact (in FTE jobs)
	Hays County		
Annual Spending	40.1	56.5	950
	Region		
Annual Spending	40.1	62.1	1,018
	State of Texas		
Annual Spending	40.1	72.1	994

jobs from retail activity elsewhere in neighboring areas. Another explanation however is that the IMPLAN model is not properly accounting for the very unusual situation regarding the Outlet Malls of San Marcos.

The success of the Outlet Malls of San Marcos may make our extrapolated estimate of visitor spending quite conservative. At the time of the previous impact study and survey of visitor spending the Outlet Malls were not in existence. The presence of the Outlet Malls should lead to increased visitor spending over that found in the previous survey.

5 Payroll Spending

As noted, the economic impact of payroll spending by Texas State employees will depend on household income levels, since household spending patterns differ by level of income. The IMPLAN model relies on the U.S. Department of Labor, Bureau of Labor Statistics Survey of Consumer Expenditures to determine how spending patterns vary by household income levels. The national survey information is adjusted to reflect regional differences in taxes, prices, and goods available to determine how spending impacts the local, regional and state economies.

Texas State payroll was classified into five household income categories shown in Table 8 that are used by the IMPLAN model. It should be noted that these classifications were based on a conservative assumption that household income was entirely determined by Texas State payroll income. This does not take into account spousal income or other sources of household income such as dividend, rents, self-employment, etc.

The geographic distribution of payroll spending also needs to be taken into account. Of the \$151.1 million payroll, around 50 percent went to residents of Hays County, with the remainder going to employees located in neighboring counties in the Region.

The results from classifying payroll spending by income level as well as geographical location are shown in Table 8. Appropriate spending and employment multipliers were applied to payroll spending in the various categories. Table 8 shows that the \$75 million in direct payroll spending by Texas State leads to around \$100 million after taking the Hays County spending multiplier into account. The FTE employment impact from Texas State includes the direct employment by the University as well as employment generated from spending of the \$75 million payroll dollars by employees who reside in Hays county. This was 3,355 FTE jobs, which includes Texas State employment.

When we move to the Region, all employees payroll serves as the basis for direct spending, which results in a doubling of payroll spending. In addition, the spending and employment multipliers increase as we move to a larger geographic region. This results in an economic impact from direct spending of \$150 million equal to \$215 million, and an employment impact equal to 4,292 FTE jobs.

Finally, the state-level impacts are slightly larger due to the larger spending and employment multipliers for this larger geographic area.

Table 9 provides some feel for the various types of spending by Texas State employees in the Region. This information was produced by the Implan Social Accounting Matrix using the \$150 million payroll spending in the Region. Only magnitudes exceeding \$1 million are reported in the table, so this does not represent spending impacts in their entirety. From the table we see that the \$150 million in payroll spending generates over \$50 million in labor income for residents of the Region, and over \$24 million devoted to owner occupied dwellings and another \$6 million to the real estate industry. Texas State employee spending also contributes over \$10 million to state and local taxes. Automotive dealers and repair shops receive over \$6.6 million, and the impact on insurance carriers and agents is around \$6.6 million. Physicians, hospitals and other health related providers benefit from over \$16 million of spending.

6 Spending on auxiliary enterprises and supplies

Direct spending related to auxiliary enterprises, materials and supplies, repairs, printing, communications and services totaled over \$73.6 million for the year 2006. Auxiliary enterprises include such items as housing and food services provided by the university. The

wages and salaries part of spending devoted to providing these services, has already been taken into account in our analysis of payroll spending.

We focus here on non-wage and salary expenditures which include: materials and supplies (including those of auxiliary enterprises) that amount to around \$20 million, communications and utilities spending around \$20 million, professional fees and services at \$12 million, repairs and maintenance \$5.7 million, rentals and leases \$4.5 million, travel expenditures of \$3.7 million, and printing and reproduction services of \$1.6 million. (These expenditures total \$67.5 million with another \$5 million in miscellaneous categories such as interest and Federal plus state and local pass-through expenses.)

Multipliers for the broad category of materials and supplies are somewhat difficult to

Table 8: Payroll Spending by Income Levels

	Direct Spending by Employees	Economic Impact (in million \$)	Employment Impact (in FTE jobs)
Hays County			
< 25,000	20.5	27.75	681
25,000-49,999	23.5	31.72	1551
50,000-74,999	18	23.4	737
75,000-99,999	8	10.4	257
100,000+	5	6.5	127
Totals	75	99.8	3,355
Region			
< 25,000	41	60	932
25,000-49,999	47	68	1,839
50,000-74,999	36	50	967
75,000- 99,999	16	23	359
100,000+	10	14	191
Total Spending	150	215	4,292
State of Texas			
< 25,000	41	73.8	1,324
25,000-49,999	47	84.6	1,518
50,000-74,999	36	61.2	1,162
75,000- 99,999	16	27.9	517
100,000+	10	17.4	328
Total Spending	150	261	4,920

determine, so multiplier values for state and local government education spending and employment were used. This general multiplier was also used for the miscellaneous category

Table 9: TxState Payroll Spending Impacts on Various Categories for the Region

Payroll dollars economic impact	Spending impacts Category
\$50,822,400	labor income
24,293,700	owner occupied dwellings
10,500,900	foreign trade
10,199,100	indirect business taxes
8,442,600	wholesale trade
7,992,600	food services and drinking places
7,764,150	state-local non-education
6,589,500	physicians offices, dentists and other
6,266,850	real estate
5,403,150	insurance carriers
5,093,700	hospitals
4,104,450	monetary authorities and depository credit intermediaries
3,637,650	motor vehicles and parts dealers
3,084,900	automotive repair and maintenance
2,838,150	food and beverage stores
2,681,700	telecommunications
2,516,100	general merchandise
2,445,450	nursing and residential care services
2,425,200	legal services
2,330,550	other ambulatory health care services
1,943,700	pharmaceutical and medicine
1,846,800	other state electric utilities
1,695,750	building material and garden supply
1,554,600	clothing and accessories
1,530,300	other amusement, recreation
1,477,650	securities, investment
1,403,550	other personal services
1,391,400	non-depository credit intermediation
1,363,800	non-store retailers
1,281,750	cable networks and programming
1,256,550	insurance agencies, brokerage
1,193,550	child care
1,106,400	gasoline
1,103,700	funds, trusts and other financial

spending of \$6.1 million. Multipliers for other categories of spending such as *Communications and Utilities, Repairs and Maintenance*, etc. were available. For the category of *Rentals and Leases*, the average of two multipliers were used. One for automotive and equipment rental leasing and another for machinery and equipment rental leasing.

The impact of these expenditures by Texas State on the Hays County economy is over \$106 million and the employment impact is 735 FTE jobs. For the Region we see an impact of \$113 million and 833 jobs. The total impact on the State of Texas arising from these expenditures is \$126 million and 864 FTE jobs.

7 Combining the impacts

To determine the overall impact of Texas State on the three geographic areas in our analysis, we simply add up the *direct spending* in the four categories as well as the *economic impacts* measured in \$ millions and the *employment impacts* measured in FTE employment.

These aggregates are shown in Table 11, which reproduces the summary table from the Executive Summary section of this report. For example, the Hays County *Economic Impact* arising from spending by the University and its employees shown in table reflects the sum of the economic impacts presented earlier: \$44.3 million construction spending, \$106.1 million from spending on auxiliary enterprises and other types of operational expenditures, and \$99.8 million from payroll spending by employees.

Similarly, the Regional *Employment Impact* of 5,861 FTE jobs resulting from Texas State students and visitors spending represents 4,843 jobs arising from students spending and 1,108 jobs resulting from visitors spending.

The impacts increase as we move from Hays County to the broader geographic areas defined as the Region and the State of Texas for two reasons. First, more student and employee spending is included in the *direct spending* when we include Texas State students and employees who live and spend outside of Hays County. A second reason for the increased impacts is that spending and employment multipliers increase when we consider larger geographic areas. Recall that the impact of subsequent rounds of additional spending which make up the economic and employment impacts are gradually diminished when savings, taxes, and expenditures are made outside the relevant regions used in our analysis. These *leakages* are much smaller when we consider larger areas in our analysis, since more spending will remain within the study area.

This study concludes that the annual economic impact of Texas State on Hays County arising from direct spending by Texas State, its employees and students is \$545 million. The

employment impact on Hays County is over 9,300 full-time-equivalent jobs, which represents one of every six jobs in Hays County.

Table 10: Economic Impacts from Auxiliary Enterprises and other Spending

	Direct Spending (in million \$)	Economic Impact (in million \$)	Employment Impact (in FTE jobs)
Hays County			
Annual Spending			
Materials and Supplies	20	28.8	250
Communications and Utilities	20	27	134
Professional Services	12	18.1	104
Repairs and Maintenance	5.7	8.9	57
Rentals and Leases	4.5	6.6	36
Travel expenditures	3.7	5.6	19
Printing expenditures	1.6	2.0	27
Miscellaneous other	6.1	9.1	58
Total	73.6	106.1	735
Region			
Annual Spending			
Materials and Supplies	20	32	280
Communications and Utilities	20	28.2	136
Professional Services	12	19.2	108
Repairs and Maintenance	5.7	9.5	67
Rentals and Leases	4.5	7.2	43
Travel expenditures	3.7	6.1	27
Printing expenditures	1.6	2.1	28
Miscellaneous other	6.1	9.1	75
Total	73.6	113.4	833
State of Texas			
Annual Spending			
Materials and Supplies	20	34.8	326
Communications and Utilities	20	31.8	140
Professional Services	12	21.6	114
Repairs and Maintenance	5.7	7.1	77
Rentals and Leases	4.5	8.3	52
Travel expenditures	3.7	11.3	35
Printing expenditures	1.6	2.7	30
Miscellaneous other	6.1	9.1	90
Total	73.6	126.7	864

In the Region, which includes Hays plus surrounding counties, the presence of Texas State gives rise to over \$748 million in economic activity and around 11,530 full-time-equivalent jobs. The economic impact of Texas State on the State of Texas is \$960 million and the employment impact is nearly 14,000 jobs.

Roughly half (\$443 million) of the nearly \$1 billion dollar total impact on the economy of the State of Texas arises from *direct, indirect and induced spending* spending by the University and its employees, and (\$516.5 million) of the total impact arises as a result of University students and visitors spending.

Table 11: Economic and Employment Impacts of Texas State University - San Marcos

	Direct Spending (in million \$)	Economic Impact (in million \$)	Employment Impact (in FTE jobs)
Hays County			
Annual Spending			
University and employees	178.6	250.2	4,611
Texas State Students	206.9	294.7	4,703
Total	385.5	544.9	9,314
Region			
Annual Spending			
University and employees	253.6	381.5	5,669
Texas State Students	237	367.1	5,861
Total	490.6	748.6	11,530
State of Texas			
Annual Spending			
University and employees	253.6	443.7	6,351
Texas State Students	294.1	516.5	7,496
Total	547.7	960.2	13,847