



# Economic Impact Analysis

## 2015-2016



STEPHEN F. AUSTIN  
STATE UNIVERSITY

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NACOGDOCHES, TEXAS

**EXECUTIVE SUMMARY**

We estimate the total annual economic impact of SFA on Nacogdoches County to be approximately \$335 million. Although the university employs approximately 1700 faculty and staff, we estimate the overall impact on employment to Nacogdoches at more than 4000 total employees. These additional employees result from the indirect/induced spending from SFA students, employees, and visitors.

We also estimate the additional impact of 1,000 more residential undergraduate students to be between \$16.6 and \$19.9 million. This impact depends upon how the additional revenue is spent, as well as programs in which students enroll.

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## ECONOMIC IMPACT STUDY

An economic impact is one way to explain the contribution of an institution to its local economy. The total economic impact includes direct, indirect, and induced effects. Direct spending includes operational and construction expenditures by the university, wages paid to faculty and staff, and spending by students and visitors to the area. These expenditures cause further activity in two ways. Indirect activity is created when direct expenditures trigger firms to purchase additional goods/services from other businesses. For example, SFA might purchase supplies and building materials from local firms. When a visitor purchases a meal, the restaurant purchases food and other items from its suppliers. Induced activity is the result of the additional income created from direct activities. An SFA professor might purchase a restaurant meal with her wages, for example. These expenditures lead to further rounds of spending, as the restaurant owners and workers spend a portion of their additional incomes on goods and services.

In order to estimate the inter-industry relationships between firms (indirect effects) and the impact of household spending (induced effects), we utilize IMPLAN data specific to Nacogdoches County. We combine these data with the various local estimates of institutional expenditures, and student and visitor spending to create an overall estimate of the total economic impact of SFA.

In the following sections, we summarize our approach to collecting data and estimating each portion of the University's activities and their economic impact. Specifically, within each numbered section, subsection (a) provides the needed background and describes the details of data collection, while subsequent subsections present the impact calculations.

### I. Student Spending

#### a. Data Description and Student Profile

SFA students are a substantial source of spending in Nacogdoches County, as students from outside the county bring new economic activity into the Nacogdoches area.<sup>1</sup> To estimate the impact of student spending, we combine institutional data with information from several recent economic impact studies of similar universities in Texas.

We segment students into four separate groups: (1) students living on campus, (2) students living with relatives off campus, (3) students living off campus on their own, and (4) fully online students. We then create a monthly spending profile for each of the groups, using Fall 2015 enrollment figures and the sources listed in Table 1.

To avoid double counting, we exclude payments to SFA for tuition and fees as they support spending already accounted for in the university budget, which we address separately. Similarly, we *do* include average expenditures on meal plans (\$3,563 for nine months) as these are not included in operating expenses of SFA; however, we *do not* include board, as these operations are included in regular operating expenses of the university.

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<sup>1</sup> We also count student spending from students originally from Nacogdoches County as spending attributable to the university. If SFA did not exist, these students would likely attend another university outside of the county, taking their spending with them, thereby reducing local economic activity.

We consulted and referenced a number of other recent universities' economic impact studies. In particular, we employ estimates from a report by Sam Houston State University (SHSU) of student discretionary spending and spending on food and beverages.<sup>2</sup>

Additionally, we estimate the number of students attending SFA in the summer months. Summer classes offered are increasingly shifting to online format, which tends to reduce the number of students who are physically in Nacogdoches while enrolled. So, for example, while total enrollment in summer sessions in 2016 was over 8,000 students, we use only those whom SFA reported as living in on-campus housing (i.e., they are the only group whom we can verify as Nacogdoches residents for those months), 597 students. (See Table 2 for details). We use the same monthly spending profile and apply it to the 537 students, since each of the summer sessions is almost exactly one month long.<sup>3</sup>

Table 1: Student Spending Profile

Student Residence Category	Number of Students	Rent and Utilities	Books	Discretionary	Food - retail	Food - grocery	Meal Plan	Per-student monthly	Per-student 9-month
On-campus	4645	N.A.	\$132	\$520	\$50	N.A.	\$396	\$1,098	<b>\$9,885</b>
Off-campus with relatives	377	N.A.	\$132	\$520	\$50	\$100	N.A.	\$802	<b>\$7,222</b>
Off-campus	6389	\$550	\$132	\$520	\$250	\$250	N.A.	\$1,702	<b>\$15,322</b>
Fully online students	1195	N.A.	\$132	N.A.	N.A.	N.A.	N.A.	\$132	<b>\$1,192</b>
Source	(a)	(b)	(a)	(c)	(c)	(c)	(a)		
(a) Internal SFA source (b) Internal SFA survey (c) Sam Houston study. Discretionary includes: Health and Personal Care, Clothing and Accessories, Gasoline, Dry Cleaning and Laundry, General Merchandise, and Miscellaneous Store Retail.									

Table 2: SFA Summer 2016 Enrollment and On-Campus Residence

	Enrollment	On-Campus Residence
Maymester 2016	705	60
Summer I 2016	3,796	203
Summer II 2016	3,554	334
<b>TOTAL SUMMER 2016</b>	<b>8,055</b>	<b>597</b>

<sup>2</sup> That study was itself based on a survey of student expenditures undertaken at Texas State University. We use SHSU's spending estimates rather than Texas State's because of the similarity in the socioeconomic profile between SFA and Sam Houston students. For example, the estimate of median family income for students at Sam Houston is \$76,500; for SFA students it is \$74,000. Source: "Mobility Report Cards: The Role of Colleges in Intergenerational Mobility", The Equality of Opportunity Project

<sup>3</sup> We ignore the 60 on-campus residents in Maymester, which is a short 12-day term already included in the nine-month student spending calculation.

## b. Impact of Student Spending

Tables below display the calculated impacts of SFA student spending for the academic year (Table 3) and the summer (Table 4). The total employment effect of the combined student spending is about 1,548 jobs supported and \$132.5 million of new economic activity.

Table 3: Impact of Student Spending, September-May

	<b>Employment</b>	<b>Output</b>
Direct Effect	1,233.50	\$97,948,093
Indirect Effect	178.2	\$18,877,724
Induced Effect	127.6	\$15,103,833
<b>Total Effect</b>	<b>1,539.40</b>	<b>\$131,929,650</b>

Table 4: Impact of Student Spending, June-August

	<b>Employment</b>	<b>Output</b>
Direct Effect	7.0	\$458,180
Indirect Effect	0.6	\$68,115
Induced Effect	0.8	\$89,220
<b>Total Effect</b>	<b>8.3</b>	<b>\$615,515</b>

## II. Employee Spending

### a. Data on Salaries, Wages and Benefits

The university's operating expenses represent the largest component of its economic impact on the local community. These expenses account for direct spending by the university in the community for goods and services and indirect spending done as the result of the university paying wages to its faculty, staff, and student workers who then spend it locally. With this in mind, we separate the operating expenses into three categories: salaries and wages (including benefits) paid to employees, operation and maintenance (O&M), and large scale construction projects. Each of these three categories is part of the university's operating expenses but they impact the local economy in different ways and therefore need to be accounted for separately.

Salaries and wages include all money paid to employees at the university along with the associated fringe benefits. Since Nacogdoches County is relatively isolated within East Texas, nearly all employees (78.5 percent) live within the study area. In the most current academic year, SFA employed 548 full-time faculty and 139 part-time faculty members. In the same year SFA employed 954 full-time staff members and 71 who were part-time.

Table 5: SFA Employees 2015-2016

	Faculty	Staff	Total
Full-time	548	954	<b>1502</b>
Part-time	139	71	<b>210</b>
<b>Total</b>	<b>687</b>	<b>1025</b>	<b>1712</b>

The university also employed a number of paid graduate students across all departments, which included 54 who were employed for instructional purposes and 19 who were focused on assisting in research. According to the university's Annual Financial Report (AFR) submitted to the Texas Higher Education Coordinating Board (THECB), the total wages and salaries paid for the year were \$94,897,310.50. We make several adjustments to this figure. First, we only consider the following categories of compensation: faculty and exempt salaries, classified wages, and longevity and hazard duty pay. Second, we exclude \$4,533,946 in student wages as well as employee benefits of \$28,824,929. Some benefits will have an impact on spending, so we separately account for \$17,583,206.69 in health insurance expenditures in our combined impact model. Third, we only include spending by workers residing in Nacogdoches County; approximately 78.5 percent of SFA employees live in the county, so we estimate that labor income spent locally is \$67,786,753.

b. Impact of SFA Employee Spending

Tables 6 and 7 display the impacts of SFA employees' wages and health benefits. Combined, these two forces have the effect of supporting about 2,044 jobs and add approximately \$142.8 million to local economy's output. This is the largest component of the overall economic impact of the university on the local economy.

Table 6: Impact of SFA Employee Salaries and Wages

	Employment	Output
Direct Effect	1,712	\$102,555,967
Indirect Effect	0	\$0
Induced Effect	321	\$37,962,365
<b>Total Effect</b>	<b>2,033</b>	<b>\$140,518,332</b>

Table 7: Impact of Employee Health Insurance Benefits

	Employment	Output
Direct Effect	3.2	\$1,135,667
Indirect Effect	5.9	\$911,921
Induced Effect	2.1	\$252,514
<b>Total Effect</b>	<b>11.2</b>	<b>\$2,300,102</b>

### III. University Operations

#### a. Data on SFA Operations from University Budget

The second category of university spending is on continuous operation and maintenance. This represents direct spending by the university on goods and services, and we again use the Annual Financial Report to determine specific spending categories and amounts. We exclude the amounts in the report dedicated to travel, depreciation and amortization, scholarships, and claims and judgements because their inclusion either resulted in double counting, represented a cost but not a true expense actually paid, or the money was likely not spent locally. The resulting total amount spent on operation and maintenance by SFA is \$51,036,418.86. Table 8 below shows the amounts for each type of spending.

#### b. Impact of University Operations

Table 9 displays the impact of SFA's spending on its operations. These estimates indicate that university functions support 252 local jobs and result in \$26.8 million in added economic activity.

Table 8: Impact of University Operations

	<b>Employment</b>	<b>Output</b>
Direct Effect	180.5	\$18,210,948
Indirect	34.4	\$4,164,639
Induced	37.7	\$4,468,244
<b>Total Effect</b>	<b>252.7</b>	<b>\$26,843,831</b>

#### c. Construction

Construction spending by the university is measured separately for a number of reasons. First, the way that construction spending affects and is multiplied through the local economy is different from other university operations. Second, simply taking spending on construction projects in any given year is a poor estimate of typical annual construction activity because most major projects span multiple years. To address this, we average the most recent ten years of construction expenses (shown in Table 10 below) to arrive at our yearly estimate of construction spending: \$19,508,936.39.

Table 9: Annual Construction Spending 2007-2016

<b>Year</b>	<b>Total Spending</b>
2007	29,309,580.32
2008	18,994,918.53
2009	34,318,844.66
2010	31,508,561.71
2011	34,687,819.42
2012	11,848,056.38
2013	4,437,930.09
2014	4,561,518.33
2015	10,929,453.78
2016	14,492,680.71
<b>Average</b>	<b>19,508,936.39</b>

## d. Impact of Construction Spending

Using the estimated annual average spending on construction of \$19,508,936.39, we calculate the local economic impact shown in Table 11. Note that most of the impact is direct as construction projects are typically carried out by local contractors using local materials and equipment. On a yearly basis, SFA construction projects support about 147 jobs and generate over \$26 million in additional economic activity.

Table 10: Impact of Yearly Construction Spending

	<b>Employment</b>	<b>Output</b>
Direct Effect	91.0	\$19,028,253
Indirect	19.3	\$2,772,693
Induced	36.7	\$4,346,623
<b>Total Effect</b>	<b>147.0</b>	<b>\$26,147,569</b>

Table 11: University Budget FY 2015-16

Operating Expenses	Instruction	Research	Public Service	Academic Support	Student Services	Institutional Support	Operation and Management of Plant	Scholarships and Fellowships	Auxiliary Enterprises	Depreciation and Amortization	Total Expenses
Cost of Goods Sold	5,114.45	0.00	21,406.61	113,480.14	58,541.42	3,326.38	0.00	0.00	9,585,878.01	0.00	9,787,747.01
Professional Fees and Services	149,590.03	409,071.52	217,363.74	452,496.11	4,023.76	99,278.25	187,316.42	0.00	269,025.74	0.00	1,788,165.57
Materials and Supplies	2,966,717.68	341,705.73	418,128.30	1,339,200.82	2,613,249.10	2,182,920.23	1,114,768.90	0.00	1,990,318.99	0.00	12,967,009.75
Communications and Utilities	429,503.61	19,496.77	8,539.81	1,300,384.91	211,785.25	26,220.98	2,844,459.23	0.00	3,543,098.21	0.00	8,383,488.77
Repairs and Maintenance	477,715.22	64,779.94	5,620.47	216,492.01	508,039.81	1,884,416.64	2,003,255.25	0.00	1,329,342.17	0.00	6,489,661.51
Rentals and Leases	511,944.60	94,954.05	186,927.04	121,969.94	815,647.09	868,753.30	52,688.30	0.00	417,824.72	0.00	3,070,709.04
Printing and Reproduction	163,606.75	6,253.25	35,463.49	99,219.61	316,154.06	(324,513.15)	1,700.05	0.00	152,464.72	0.00	450,348.78
Federal Pass-Through Expenditure	0.00	8,702.00	532,510.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	541,212.91
Interest Expense	258.46	0.15	28.52	78.70	0.00	2,135.65	39.56	0.00	0.00		2,541.04
Other Operating Expenses	659,401.46	67,643.82	123,983.09	490,551.02	2,178,630.79	2,487,815.91	1,099,428.38	0.00	448,080.01		7,555,534.48
<b>Total Operating Expenses</b>	<b>5,363,852.26</b>	<b>1,012,607.23</b>	<b>1,549,971.98</b>	<b>4,133,873.26</b>	<b>6,706,071.28</b>	<b>7,230,354.19</b>	<b>7,303,656.09</b>	<b>0.00</b>	<b>17,736,032.57</b>	<b>0.00</b>	<b>51,036,418.86</b>

#### IV. Visitor Spending

##### a. Data on Visitors to Nacogdoches

The last component of the university's impact is the draw of visitors to Nacogdoches who would not be here if not for SFA and its activities. Table 12 contains our findings with respect to the number of unique visits and total visitor days to Nacogdoches annually that can be directly attributed to SFA; below we discuss each item and the source of the relevant data.

Table 12: Visitors to Nacogdoches Attributable to SFA

Source	Visitors	Days per visit	Visitor days
Individual Tours	3,295	1.00	3,295
Large Group Tours	7,044	1.00	7,044
Showcase Saturdays	6,928	1.00	6,928
Fine Arts performances	5,006	0.33	1,652
Athletic events	23,697	0.33	7,820
SFA Commencement	19,000	1.00	19,000
High School Graduations	10,500	0.25	2,625
Campus Recreation camps	50	1.00	50
Bass fishing tournament	19	1.00	19
Homecoming 5K	75	1.50	113
Challenge course users	297	0.50	149
Special Olympics	200	0.50	100
HS visitors using Campus Rec	790	0.50	395
Area church activities	70	0.50	35
Prospective Student visitors	10,000	1.00	10,000
Visitors of Enrolled Students	102,699	1.00	102,699
Visitors of Employed Faculty	5,643	1.00	5,643
Visitors of Employed Staff	9,054	1.00	9,054
<b>TOTAL</b>	<b>204,367</b>		<b>176,620</b>

Data on campus tours, both individually scheduled and group tours, as well as attendance at Showcase Saturdays (SFA's Open House event aimed at recruiting current high school juniors and seniors) came from SFA's Office of Admissions. We assumed that a typical visitor spends, on average, one day in Nacogdoches while visiting the campus.

Attendance data for music concerts, theater performances, gallery exhibitions and other similar events – grouped as “Fine Arts performances” – were supplied by the SFA College of Fine Arts Box Office. These events range from free general admission to ticketed advance-purchase and reserved seating. There were 25,030 total visitors to Nacogdoches attending such events in 2015-16, and, according to the box office staff's estimates, approximately 20 percent of them come from outside of Nacogdoches county, yielding 5,006 out-of-town visitors. We estimate that a typical arts event visitor

spends one-third of a day in Nacogdoches. Table 13 provides detailed attendance numbers by type of event and revenues generated from ticket sales.<sup>4</sup>

Table 13: Fine Arts Visitor Attendance and Revenues

	<b>Attendance</b>	<b>Revenues</b>
Theater	6,868	\$36,021
Music	9,210	\$24,425
College of Fine Arts	5,102	\$44,744
Other events	3,850	\$23,092
<b>TOTAL</b>	<b>25,030</b>	<b>\$128,281</b>

Similarly, for attendance at athletic events, we received data from SFA Department of Athletics on actual visitor counts, admissions ticket sales, and attendance estimates (for events with free admission.) The total number of visitors to these events over the 2015-2016 academic year was 118,485, and we estimate again that about 20 percent are visitors from outside of the area. We also assume that a typical athletic event visitor spends a third of a day locally. Table 14 details attendance by sport and the corresponding ticket revenues for events with paid admission.

Table 14: Athletics Visitor Attendance and Revenues

	<b>Attendance</b>	<b>Revenues</b>
Baseball	5,416	\$336
Mens Basketball	45,839	\$7,120
Football	35,133	\$7,260
Womens Basketball	20,701	
Womens Soccer	3,240	
Softball	4,263	
Volleyball	3,893	
<b>TOTAL</b>	<b>118,485</b>	<b>\$14,716</b>

There are three SFA commencement ceremonies during the year; the May commencement is attended by about 8,000 guests. The December and August commencement ceremonies draw approximately 7,000 and 4,000 guests each.<sup>5</sup> We assume each commencement visitor spends an average of one day in Nacogdoches. Additionally, two nearby (but located outside of Nacogdoches County) high schools hold their graduation ceremonies in the William R. Johnson Coliseum, totaling about 10,500 visitors, who we assume spend about a quarter of a day in town.

The Department of Campus Recreation holds a number of events on and off campus that bring visitors to Nacogdoches. These include summer camps, 5K and 10K races, a bass fishing tournament and

<sup>4</sup> Note that revenue itself from ticket sales does not directly impact the local economy (besides increasing the university's budget, which is already addressed elsewhere.) These figures are presented here for information only.

<sup>5</sup> Since 2013, SFA holds two separate ceremonies for May graduation; beginning in 2015, December commencement was similarly split, while the August commencement remains a single ceremony. The attendance numbers provided are the combined totals.

others. Additionally, Campus Recreation facilities are often used by out-of-town groups such as professional organizations, church groups, and high school clubs. We estimate a total of 860 visitor days arising out of these events.

Finally, we estimate that about 10,000 potential students visit the campus and Nacogdoches during the year.<sup>6</sup> We also follow the approach of other universities' economic impact studies and estimate that each on-campus student<sup>7</sup>, faculty and staff have an average of one out-of-town visitor per month during the academic year – i.e., nine months – for a total of 117,396 visitors who each spend one day in town.<sup>8</sup>

All together we estimate that 176,620 visitor-days took place in 2015-2016 that can be directly attributed to the University and its functions. This estimate is comparable to other studies' findings.

Next, we turn our attention to estimating local spending by out-of-town visitors. We referenced several recent studies whose authors conducted visitor spending surveys and found a great degree of consistency in the daily per-person spending amounts. For example, Sam Houston State University's 2012 study estimates that visitors to Huntsville, TX spent about \$32 per person per day, while Tarleton State University authors come up with \$30.88 figure for visits to Stephenville, TX<sup>9</sup>. We feel that our rough estimate of \$30 per day spent as follows is reasonable:

Table 15: Daily Spending by Visitors to Nacogdoches

Hotel/motel	\$10.00
Food services	\$15.00
General Merchandise	\$5.00
<b>TOTAL</b>	<b>\$30.00</b>

Using the per person daily estimate of \$30, we conclude that total spending by university visitors to Nacogdoches during the 2015-2016 period is approximately \$5,298,600.

#### b. Impact of Visitor Spending

Using the above estimate of total visitor spending, we calculate the local impact on Nacogdoches county to be almost 100 new jobs and about \$6.5 million of additional economic activity. While this is the smallest component of the university's local impact, it is certainly not trivial. It is also worth noting that there are lots of ways that the presence of SFA in Nacogdoches enriches the lives of local residents as well as visitors that are not captured by these estimates.

<sup>6</sup> This is in addition to visitors who schedule tours through the Office of Admissions and is consistent with estimates we find in similar studies done by other regional universities in Texas.

<sup>7</sup> There were 11,411 full- and part-time students in the Fall of 2015. We arrived at this number by taking the official Fall 2015 headcount enrollment of 12,606 and subtracting from it the 1,195 students who took exclusively online classes that semester.

<sup>8</sup> We ignore visitors of students, faculty, and staff in the summer which are difficult to estimate but are certainly fewer in number.

<sup>9</sup> Two additional studies we referenced, one for UTEP and another for West Texas A&M University, use estimates of per-visitor spending that range from \$70 to \$94 per day for visits to El Paso and Amarillo, respectively. We did not feel that these are reasonable values to apply to visitor spending in Nacogdoches.

Table 16: Impact of Visitor Spending

	<b>Employment</b>	<b>Output</b>
Direct Effect	83.4	\$4,653,054
Indirect Effect	7.4	\$798,913
Induced Effect	8.5	\$1,011,199
<b>Total Effect</b>	<b>99.3</b>	<b>\$6,463,166</b>

#### V. Total Impact

When combined, all of the categories of spending together have a total employment effect of 4,090 new jobs supported and almost \$335 million in new economic activity generated in Nacogdoches County.

Table 17: Total Impact of SFA Activities

	<b>Employment</b>	<b>Output</b>
Direct Effect	3,310.60	\$243,990,161
Indirect Effect	245.8	\$27,594,006
Induced Effect	534.4	\$63,233,999
<b>Total Effect</b>	<b>4,090.80</b>	<b>\$334,818,166</b>

It is of some interest to take a look at which local sectors are affected the most, in terms of additional output as well as employment. Tables 18 and 19, respectively, display these lists. While there is a great degree of overlap between the two groups – for example, Restaurants, Retail, and Physicians Offices – there are also significant differences. For example, several retail sectors are relatively high on the list of jobs created, but are in the middle or lower on the output list. By contrast, banks, hospitals, and owner-occupied dwellings see a large increase in output attributed to the university but not very many additional jobs.

Table 18: Top 20 Affected Sectors, by Output

Limited-service restaurants	\$49,136,894
Real estate	\$34,152,414
Construction of new educational and vocational structures	\$19,028,253
Owner-occupied dwellings	\$11,174,169
Retail - General merchandise stores	\$7,471,041
Retail - Sporting goods, hobby, musical instrument and book stores	\$6,192,258
Wholesale trade	\$5,323,020
Other local government enterprises	\$4,895,106
Full-service restaurants	\$4,814,584
Maintenance and repair construction of nonresidential structures	\$4,163,459
Monetary authorities and depository credit intermediation	\$3,572,881
Retail - Miscellaneous store retailers	\$3,407,929
Electric power transmission and distribution	\$3,183,184
Hospitals	\$3,114,111
Offices of physicians	\$3,027,119
Religious organizations	\$2,542,079
Retail - Health and personal care stores	\$2,507,258
Employment services	\$2,474,785
Retail - Clothing and clothing accessories stores	\$2,331,292
Dry-cleaning and laundry services	\$2,236,993

Table 19: Top 20 Affected Sectors, by Employment

Limited-service restaurants	636.2
Real estate	332.4
Retail - Sporting goods, hobby, musical instrument and book stores	114.1
Full-service restaurants	105.5
Retail - General merchandise stores	100.7
Construction of new educational and vocational structures	91
Retail - Miscellaneous store retailers	87.9
Dry-cleaning and laundry services	43.1
Services to buildings	40.4
Retail - Food and beverage stores	34.2
All other food and drinking places	34
Employment services	33.6
Retail - Clothing and clothing accessories stores	30.6
Retail - Health and personal care stores	29.8
Independent artists, writers, and performers	29.7
Investigation and security services	28.6
Offices of physicians	26.9
Business support services	25.9
Maintenance and repair construction of nonresidential structures	24.1
Wholesale trade	23.4

## VI. Effect of Potential Growth in SFA Enrollment

A major question of interest is: What would be the likely economic impact on the local economy of a given increase in the student enrollment at SFA? While growth in enrollment is a perennial goal of any university, SFA has prioritized increasing enrollment in its strategic plan. This is particularly important in the face of state budget reductions as well as new state initiatives, such as the 60x30TX, which includes the goal that by 2030, at least 60 percent of Texans ages 25-34 will have a postsecondary credential or degree.

To assess how an increase in enrollment at SFA would impact the Nacogdoches economy, we need to first estimate the increase in revenue that the university would receive and then determine the impact of this new spending on various local sectors.

### a. What a thousand additional students would mean to SFA?

We assume an addition of one thousand students, all of whom move to Nacogdoches from outside of the area and take classes on campus. Obviously, this will have the effect of increasing the total local student spending, as these students bring with them income – theirs and their parents’ – that was previously spent elsewhere. Additionally, the revenue SFA receives increases from two separate sources: the tuition and fee payments made by the 1,000 new students and the formula funding that

SFA receives from the state. Finally, additional students are likely to bring additional visitors to campus and Nacogdoches, whose spending will have an impact locally.

In this section, we focus on the new revenue received by SFA as a result of this enrollment growth. On average, SFA undergraduates take 13 semester credit hours (SCH) during fall and spring, so this growth would represent an increase of 26,000 SCH annually. Using the 2015-16 undergraduate tuition and fees schedule, this extra course load translates into \$7,571,200 net revenue for SFA.<sup>10</sup>

The university also receives additional funding from the state for each SCH; this is known as “formula funding” and the amount depends on the field of study as well as the education level (i.e., bachelors, masters, doctorate) of these students. Table 20 presents several examples of the amounts of formula funding that SFA would receive. The first entry of \$1,440,140 corresponds to the amount of funding if the 1,000 new students are similar to the current undergraduate student body in terms of majors, degrees, and courses of study. If instead, the new students are all engineering majors – as would be the case if the new programs in Engineering coupled with the new STEM building currently being constructed are successful in attracting these majors – the formula funding amount is nearly 2.5 times larger.

Table 20: New Formula Funding for 1,000 New Students

<b>New enrolled student field of study</b>	<b>Amount of additional formula funding</b>
Current SFA profile	\$1,440,140.00
Business	\$1,713,660.00
Nursing	\$2,477,020.00
Technology	\$3,254,680.00
Engineering	\$3,427,580.00

In the next section, where we calculate the impact of the new students’ presence in Nacogdoches, we assume that the 1,000 new enrollees share the current students’ academic profile. This means that the total increase in revenue received by SFA associated with these new students is \$9,011,340.

b. Additional Economic Impact of 1000 local students

The impact on the local economy comes from 1) the \$9,011,340 in additional revenue that enters the university budget, as discussed above; 2) the additional out-of-town visitors, where we assume an increase of 12,000 total visitor-days (one monthly visitor per student for 12 months), and 3) the local spending by the new students themselves, which we assume follows the same patterns as current student spending.

Next, we have to make some assumptions about how SFA allocates the new revenue. For this, we describe and estimate three scenarios; in all cases we assume that there is enough space on campus

<sup>10</sup> This is after the required 15 percent contingency set aside.

to house the new residential students (some portion of them will choose or have to live on campus), so no new construction takes place.

First, we assume that the university simply adds \$9,011,340 to its operating expenses – i.e., the new student enrollment is essentially absorbed and accommodated without hiring new faculty or staff. Table 21 contains the calculated impact of this approach. The new student enrollment supports about 185 total new jobs in the county and increases total output by a little over \$16.6 million.

Table 21: Impact of New Revenue Allocated to Operating Budget

	<b>Employment</b>	<b>Output</b>
Direct Effect	145.3	\$12,033,243
Indirect Effect	21.7	\$2,401,306
Induced Effect	18.4	\$2,177,069
<b>Total Effect</b>	<b>185.4</b>	<b>\$16,611,618</b>

Second, we assume that SFA splits the new revenue between operating expenses and faculty and staff salaries. This would imply that new faculty and/or staff are hired to accommodate the increase in the student body. Currently, SFA has \$115,190,274 allocated to faculty and staff compensation and \$51,036,419 to operations. Adding the new revenue of \$9,011,340 to these expense categories and preserving the relative proportions would raise the faculty/staff expenditure to \$121,435,133 and operations to \$53,803,162.<sup>11</sup>

Table 22: Impact of New Revenue Allocated to Salaries and Operating Expenses

	<b>Employment</b>	<b>Output</b>
Direct Effect	186.9	\$14,237,204
Indirect Effect	17.8	\$1,943,609
Induced Effect	31.3	\$3,702,782
<b>Total Effect</b>	<b>236</b>	<b>\$19,883,595</b>

As Table 22 shows, both the direct and the indirect effects are larger under this scenario. This approach leads to an estimated 236 new jobs supported and nearly \$20 million in new economic activity.

Third, we assume that SFA treats the new revenue as all-purpose dollars and simply increases its total budget of \$242,013,985 by the \$9,011,340 newly received. Here, we use the current total budget proportions devoted to local salaries (about 28 percent) and operations (21 percent) to calculate the increase in employee salaries of \$2,524,024 and operations of \$1,900,329. The impact calculation is presented in Table 23; the total effect on employment is 205 new jobs and total output – about \$17.3 million.

<sup>11</sup> Here we again remove the benefits (25 percent of total salaries/benefits) as well as salaries of employees who live outside the county assuming that 78.5% of new employees live in the county. We also include \$1,000,128 in additional spending in the health insurance sector.

All three of our approaches yield estimates that are reasonably close – between 185 and 236 total new jobs and between \$16.6 and \$19.9 million in new economic activity – which provides us with some confidence that the likely true impact is somewhere in this neighborhood.

Table 23: Impact of New Revenue Allocated to Total Budget

	<b>Employment</b>	<b>Output</b>
Direct Effect	163.7	\$12,493,068
Indirect Effect	16.9	\$1,821,038
Induced Effect	25.1	\$2,968,019
<b>Total Effect</b>	<b>205.7</b>	<b>\$17,282,125</b>

## VII. Conclusion

In this report, we present the results of our analysis of the total economic impact of Stephen F. Austin State University on Nacogdoches County. The key takeaways can be summarized as follows:

- SFA is a major contributor to the local economy, contributing to the employment of over 4,000 individuals and supporting nearly \$335 million of economic activity.
- Put into context of the total value of output produced in the county, SFA is responsible for about one of every six dollars of gross county product.
- Student and employee spending are the largest components of the university's economic contribution to the economy of the city and the county.
- There are considerable "leakages" – i.e., spending that does not have a sustained local impact – particularly, with respect to university operations and student and employee spending.
- Many local industries experience substantial additional benefits, in terms of both employment and output, as a result of locating in the proximity of SFA.
- An increase in the student enrollment at SFA would have a pronounced additional economic impact locally, through increasing the university's budget as well as bringing additional spending and visitors to town.
- Lastly, it is important to recognize that the benefits to the local area, the county, the State of Texas and beyond of SFA encompass far more than can be captured by a study such as this one.