County Report

County-by-County Analysis of

South Plains College

State of Texas

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TABLE OF CONTENTS

TABLE OF CONTENTS **2**
INTRODUCTION **3**
Overview 3
Chapter 1: RESULTS **5**
Introduction 5
Regional Impact Analysis 5
College Operations Effect *5*
Past Student Productivity Effect *7*
Student Spending Effect *7*
Total Effect *8*
Benefit/Cost Comparison 9
Fiscal Impact Analysis 10
Conclusion 11
Chapter 2: DATA, THEORY AND METHODS **12**
Introduction 12
Regional Impact Analysis 12
College Operations Effect *12*
Past Student Productivity Effect *14*
Student Spending Effect *17*
Total Effect *18*
Benefit/Cost Comparison 19
Interpreting Benefit/Cost Results at the County Level *20*
Breaking out Benefits and Costs *22*
Individual Taxpayer Impacts 26
Tax Impact on Families *27*
Tax Impact on Businesses *28*
Tax Impact on Farms *29*
Conclusion *30*
RESOURCES AND REFERENCES **31**

INTRODUCTION

South Plains College (SPC) serves a large region that spans fifteen counties in West Texas, with its primary focus located in Hockley and Lubbock Counties. While SPC's main campus is located in Levelland, the college also has two branch campuses in Lubbock County, a center in Plainview (Hale County), and several distance learning initiatives that reach a number of off-campus communities.

In this report we show how SPC increases economic growth in its primary service area counties, Hockley and Lubbock. In addition, the report weighs the benefits generated by the college and its students in Hockley and Lubbock Counties against the cost of supporting the college. Finally, the report analyzes the fiscal impacts of the college in its two service area counties from the perspective of the typical homeowner, the average business, and the average farm.

Overview

Prior to completion of this study another larger report was prepared for SPC entitled "The Economic Contribution of South Plains College." The purpose of that study was twofold: first, to examine the economic impacts of SPC on its service region (not disaggregated by county, as is the case here), and, second, to present the return on investment to students and to state and local taxpayers (again, not disaggregated by county).

The present study, while similar in nature, focuses solely on SPC's two service area counties: Hockley and Lubbock. Although intended as a stand-alone document, much of this study depends on the findings of the larger report. Because of this, the reader is encouraged to review the larger study to gain the full context of this county-by-county analysis.

This report has two chapters. **Chapter 1** provides a concise presentation of the main results – detail on methods and data sources are held to a minimum. **Chapter 2** conveys the same general outline, but provides greater detail on data sources, underlying theory and methodology. Both chapters convey the following three analyses:

1. **Regional Impact Analysis** – Presents the portion of total county income explained by the presence of SPC;

2. **Benefit/Cost Comparison –** Expresses the benefits and costs generated by SPC in each county;
3. **Fiscal Impact Analysis –** Assesses the impact of SPC on taxes paid by the typical family, by the average business, and by the average farm in each county.

The two chapters of this report provide increasing levels of detail and explanation that may not be of interest to every reader. A reader concerned primarily with the results needs to focus on **Chapter 1** alone. Readers interested in the assumptions and methodology should read the whole report.

Chapter 1: RESULTS

Introduction

In this chapter we present the main findings of the study for the following three analyses: the regional impact analysis, the benefit/cost comparison, and the fiscal impact analysis. The regional impact analysis examines the contribution of SPC and its students to the economic growth of the two counties in the college service region. The benefit/cost comparison highlights the total benefits that accrue to county taxpayers in contrast to their college support. And, finally, the fiscal impact analysis determines how taxes in the counties are affected through the educational activities of SPC.

Regional Impact Analysis

The regional impact analysis focuses primarily on the economies of SPC's two service area counties and what portion of them is explained by the presence of the college. In other words, if SPC did not exist, how much smaller would regional income in the counties be? The answer to this question lets us know just how much residents of the counties can attribute to SPC in terms of regional economic growth.

SPC affects its service area counties in three distinct ways: first, the "college operations effect" concentrating on the contribution of faculty and staff wages and salaries and the college's purchases for supplies and services; second, the "productivity effect" detailing the increased productivity of past students who settle and work in the counties; and, third, the "student spending effect" analyzing the impact of student expenditures for books and supplies, room and board, transportation, and other personal expenses. Results are presented in terms of added regional income explained by the educational activities of SPC.

College Operations Effect

The impact of college operations spending is calculated using standard procedure: first by summing total college salaries and wages to determine the direct effect, and then by applying multiplier impacts to derive the indirect effect. A reduction factor is then employed to account for local monies withdrawn from the economy to support the college. Such monies would have been spent in the region anyway and are thus not credited to SPC.

Table 1.1 summarizes the effect of college operations spending in the regional economies of the two counties. Results for each county are divided into four sections: 1) total county income, 2) the direct effect, 3) the indirect effect, and 4) the adjustment for alternative use of funds.

Total county income provides the backdrop against which to measure the relative impact of college operations.[1] The *direct* effect is simply faculty and staff wages and salaries. At the county level, the direct effect is disaggregated according to the estimated percent of employees that work within the counties. The *indirect* effect captures multiplier impacts as SPC and faculty and staff spend money on locally produced goods and services. Adding the direct and indirect effects together gives us the gross (i.e., unadjusted) effect of the college operations spending.

Table 1.1. College Operations Effect by County ($ Thousands)

	Total Income ($ Thousands)	% of Total
Total Income in Hockley County	$923,242	100%
Direct Effect of Faculty and Staff	$23,367	2.5%
Indirect Effect	$883	<.1%
Gross Total	$24,250	2.6%
Adjustment for alternative use of funds	($1,471)	<.1%
TOTAL for Hockley County	**$22,779**	**2.5%**
Total Income in Lubbock County	$9,480,277	100%
Direct Effect of Faculty and Staff	$7,465	<.1%
Indirect Effect	$3,694	<.1%
Gross Total	$11,158	0.1%
Adjustment for alternative use of funds	($3,436)	<.1%
TOTAL for Lubbock County	**$7,723**	**<.1%**

Source: See Table 2.2.

The reduction factor, appropriately termed "adjustment for alternative use of funds," is applied in recognition of the fact that each local dollar that goes to support SPC is thereby rendered unavailable for other uses. As such, it cannot be counted as new monies brought to the region as a result of SPC.

[1] County income is measured in the broad "value-added" or "gross domestic product" sense. Accordingly, it includes the sum of wages, salaries, and proprietors' incomes, plus the net incomes of businesses (profits, rents, royalties, interest, and other).

Once we adjust the gross total to account for the alternative use of funds, we derive the net effect of college operations spending in the service area counties. The least impact of college operations (in dollar terms) occurs in Lubbock County, amounting to some $7.7 million each year. The greatest impact, $22.8 million, occurs in Hockley County, where the college's main campus is located.

Past Student Productivity Effect

We next turn to the impact of SPC's past students who are still active in the regional workforce. This "productivity effect" is often called the "human capital effect," since each student who enters the workforce adds to its collective stock of human capital. This in turn causes existing industry to grow more productive and attract new industry to the region. The overall effect on the individual counties in SPC's service area is dependent on the number of students who settle in those counties upon exiting the college.

Table 1.2 shows the result of SPC's human capital (i.e., productivity) effect in the two counties. As with the college operations effect in **Table 1.1,** we break down the human capital effect into two main components, the direct and indirect effect. The *direct* effect comprises the higher earnings of the students and the increased property incomes of the businesses where they work. The *indirect* effect focuses on the multiplier impacts. Together these figures represent the added regional income in the counties as a result of SPC's past students, ranging from $32.5 million in Hockley County to $171.5 million in Lubbock County.

Table 1.2. Past Student Productivity Effect by County ($ Thousands)

	Total Income ($ Thousands)	% of Total
Total Income in Hockley County	$923,242	100%
Direct Effect	$29,681	3.2%
Indirect Effect	$2,789	0.3%
TOTAL for Hockley County	**$32,471**	**3.5%**
Total Income in Lubbock County	$9,480,277	100%
Direct Effect	$137,478	1.5%
Indirect Effect	$34,032	0.4%
TOTAL for Lubbock County	**$171,509**	**1.8%**

Source: See Table 2.4.

Student Spending Effect

Finally, we examine the impact of student spending on each of SPC's service area counties. The analysis is based strictly on the number of students who commute

or relocate to the service area counties from outside the region. It is assumed that students who already live in the area would spend money for living and other personal expenses anyway, so their expenditures are not reflected in the analysis.

As indicated in **Table 1.3**, the student spending effect is greatest in Lubbock County, equal to $3.9 million in added regional income, and least in Hockley County, equal to $2.7 million. Note that these figures represent the added income in the economy stemming from student spending, not actual student expenditures.

Table 1.3. Student Spending Effect by County ($ Thousands)

	Total Income ($ Thousands)	% of Total
Total Income in Hockley County	$923,242	100%
Direct Effect	$2,559	0.3%
Indirect Effect	$152	<.1%
TOTAL for Hockley County	**$2,711**	**0.3%**
Total Income in Lubbock County	$9,480,277	100%
Direct Effect	$3,355	0.4%
Indirect Effect	$506	<.1%
TOTAL for Lubbock County	**$3,861**	**0.4%**

Source: See Table 2.5.

Total Effect

Table 1.4 displays the grand total of SPC's impact on its two service area counties. Again, these results are dependent on, first, the number of SPC employees who work in the counties, second, the number of past SPC students who settle and work in the counties upon exiting the college, and third, the number of students who commute or relocate to the counties.

As shown in the table, the effect of SPC operations spending, past student productivity, and student spending is least in Hockley County, amounting to $58.0 million, or 6.3% of the total county economy. SPC's impact is greatest in Lubbock County, accounting for $183.1 million, or 1.9% of the total county economy each year. Without SPC, regional income in Lubbock County would be that much lower.

All in all, this regional analysis demonstrates several important points: First, SPC promotes the economic growth of the two counties through its operations spending, through the students whom it attracts from outside, and through the increase in human capital as past students remain active in the regional

workforce. Second, the human capital effect is by far the largest and most important impact of SPC, stemming from the added income of past students and increased output of local businesses. And third, regional income in the counties would be substantially lower without the educational activities of SPC.

Table 1.4. Total Effect by County ($ Thousands)

	Total Income ($ Thousands)	% of Total
Total Income in Hockley County	$923,242	100%
College Operations Effect	$22,779	2.5%
Past Student Productivity Effect	$32,471	3.5%
Student Spending Effect	$2,711	0.3%
TOTAL for Hockley County	**$57,960**	**6.3%**
Total Income in Lubbock County	$9,480,277	100%
College Operations Effect	$7,723	<.1%
Past Student Productivity Effect	$171,509	1.8%
Student Spending Effect	$3,861	<.1%
TOTAL for Lubbock County	**$183,093**	**1.9%**

Source: See Tables 2.2, 2.4, and 2.5.

Benefit/Cost Comparison

The previous section examined SPC's role in the regional economy of the college's service area counties. Next we turn to a comparison of benefits and costs, focusing primarily on the costs of supporting SPC relative to the benefits that accrue to the taxpaying public. Results are presented in the form of benefit/cost ratios, i.e., a simple division of total benefits by total costs.

Benefits comprise the increased tax revenues and lower social costs that occur throughout the course of the students' working careers. Costs comprise the taxpayer dollars used to support SPC operations in the *current year*. See **Chapter 2** for additional detail on the calculation of benefits and costs.

Table 1.5 displays the results of the benefit/cost comparison by county. As indicated, the benefit/cost ratio for Hockley County is much lower than for Lubbock County. This is because Hockley County is the only county within the college's local taxing district, while Lubbock County supports the college solely through tax payments paid to the State (approximately $195,200, as shown). Furthermore, a significant portion of the student population at SPC come from Lubbock County and eventually settle there, so the benefits generated by SPC are

largely concentrated in Lubbock County. As such, the benefit/cost ratio for Lubbock County is an impressive 59.9, demonstrating that the benefits generated by SPC in the county substantially exceed the costs.

Table 1.5. Benefit/Cost Ratios by County ($)

County	Benefits	Costs	Benefit/ Cost Ratio
Hockley	$2,343,169	$7,404,072	0.3
Lubbock	$11,683,407	$195,192	59.9

Source: See Tables 2.7 through 2.13.

Fiscal Impact Analysis

We turn next to the fiscal impact analysis. As with the benefit/cost comparison above, SPC's impact is greater on Lubbock County than on Hockley County because less local funding comes from Lubbock County and because a relatively high number of students settle there. As such, the activities of SPC actually yield savings to taxpayers in Lubbock County; in other words, taxes would actually have to be *raised* should SPC cease to exist in order to maintain services at their current levels overall.

How can a tax-supported institution such as SPC lower taxes? Consider for a moment the benefit/cost comparisons shown in the previous section. Students who attend SPC enter the regional workforce with more training and greater skills than they had before. Along with this comes an increase in personal income for the students, as well as an increase in output for the industries that employ them. These effects ripple throughout the economy, raising consumer spending and attracting new industry to the region. The students' incomes continue to grow with time (as do the business incomes), and the economy expands. Among the cumulative effects of this expanded economic activity is an increase in the local tax base, and this generally translates into lower taxes.

But there is more. Statistics show that higher education has a positive correlation with improved lifestyles. A student with an Associate Degree, for example, is less likely to smoke, abuse alcohol, commit crimes or go on welfare than a student with a high school diploma.[2] Students that *don't* incur medical, judicial or unemployment costs mean lower operating costs for the state and local government and, consequently, lower costs to the taxpayer.

[2] See M. Henry Robison and Kjell A. Christophersen, "The Economic Contribution of South Plains College" (Moscow: ID, by the authors, 2008).

In **Table 1.6** below, we see local taxpayers categorized into three main groups: the typical family (or homeowner),[3] average business and average farm. The dollar amounts shown in the table represent the net annual increase or decrease to these taxpayer groups after offsetting for the higher tax receipts and lower social costs due to SPC. In Lubbock County, taxes paid by the typical family are $69 *lower* per year than they would have been absent SPC. The average Lubbock County business also receives tax savings amounting to $123 per year, while the average farm receives $103 in tax savings per year.

Table 1.6. Annual Tax Savings Attributable to SPC per Typical Family, Average Business, and Average Farm, by County ($)

County	Typical Family	Average Business	Average Farm	Net Tax Savings
Hockley	($93)	($923)	($222)	-5.5%
Lubbock	$69	$123	$103	1.5%

Source: See Tables 2.14 through 2.16.

The last column of **Table 1.6** displays the results in percentage terms. As indicated, Hockley County, which comprises the college's taxing district, sees an increase in local taxes due to its financial support of SPC, although this is mitigated by the higher earnings and reduced social costs of the students who settle there. In contrast, Lubbock County, which does not financially support the college, receives net savings of 1.5% due to the activities of SPC and its students.

Conclusion

This chapter presents the positive role that SPC plays in its two service area counties. In the regional impact analysis, we see that the combined effects of SPC operations spending, past student productivity, and student spending make an important contribution to the economic growth of the county economies. The benefit/cost comparison indicates that college-related taxpayer costs are mitigated, if not completely recovered, by the benefits generated by SPC. Similarly, while the activities of SPC increase taxes in Hockley County, these costs are moderated by the higher earnings and reduced social costs generated by students who settle in the county. In Lubbock County, which does not financially the support the college and where a high number of students settle, the presence of SPC actually results in savings to taxpayers.

[3] As described more fully in **Chapter 2**, the "typical family" is defined by the resident of the county's median-priced home.

Chapter 2: DATA, THEORY AND METHODS

Introduction

The previous chapter summarizes the main results. In this chapter we present the theory behind those results, covering much of the same ground but in greater detail. In general, we follow the same outline as in **Chapter 1,** with three main sections for the regional impact analysis, the benefit/cost comparison and the fiscal impact analysis.

Regional Impact Analysis

In **Chapter 1** we discuss three distinct ways of evaluating SPC's impact on the county economy: first, the college operations effect, second, the past student productivity effect, and third, the student spending effect. Together these represent the "flow" and "stock" effects of SPC, where "flow" refers to the constant influx of earnings and skills that occurs through the daily actions of SPC, while "stock" refers to the accumulation of skills that has occurred over time. Both of these effects add to regional economic growth through the increase in labor income (e.g., wages, salaries and proprietors' income) and non-labor income (dividends, interests and rents).

College Operations Effect

Each year SPC pays salaries and wages to its employees and makes purchases for services and supplies in the local economy. The breakdown of SPC spending by county appears in **Table 2.1**. These expenditures create a ripple effect that generates additional income and business revenue throughout the regional economy. Estimating the impact of the college's direct spending plus the associated indirect (or multiplier) effect requires the use of an economic model constructed for each county within the college service area.[4]

[4] We employ so-called EI (for "economic impact") Models that apply common "data-reduction" regional IO modeling techniques and produce multipliers of similar magnitude as those generated by other popular regional IO modeling products, such as the IMPLAN model (Minnesota IMPLAN Group, Stillwater, MN) and RIO Model (Rutgers University, Center for Urban Policy Research, New Brunswick, NJ).

Table 2.1. College Spending Disaggregated by County ($)

	Salaries and Wages	Other Expenditures	Total
Total $$ Amount	$32,454,762	$20,560,019	$53,014,781
Hockley	41%	6%	27%
Lubbock	45%	27%	38%
Other	14%	67%	35%
TOTAL	**100%**	**100%**	**100%**

Source: Data for total college expenditures supplied by SPC. Breakdown of college spending by county calculated internally in the analytical model based on data supplied by the college and outputs from the EMSI IO model.

Here a qualification must be made. While the college contributes revenue to the county economy through its spending, it also withdraws tuition revenue from the students and, especially in the case of Hockley County, tax revenue from the county. These are monies that are thereby rendered unavailable for other uses, e.g., tax-supported projects on the part of the local government and consumer spending on the part of the students. Because of this, a certain portion of SPC's spending effect cannot be considered as new monies brought to the region, since much of this spending was funded by local sources anyway.

However, the college does bring in a substantial amount of funding from sources outside of its two-county service area, e.g., Federal and state government support, plus the auxiliary spending of visitors and revenue received from contracts with out-of-region businesses. These are monies that would never have entered the county economies if SPC did not exist, and, as such, contribute to the positive net effect of college operations.

Table 2.2 displays with labor and non-labor income detail the total impact of SPC spending in the economies of its two service area counties. Also shown is the adjustment for the alternative use of funds, explained in greater detail above and in **Chapter 1**. As is clear from the table, the net effect of college operations is still positive, ranging from $7.7 million in Lubbock County to $22.8 million in Hockley County.

Table 2.2. College Operations Effect of SPC, Disaggregated by County ($ Thousands)

	Labor Income ($ Thousands)	% of Total	Non-Labor Income ($ Thousands)	% of Total	TOTAL INCOME ($ Thousands)	% of Total
Total Income in Hockley County	$443,590	100%	$479,652	100%	$923,242	100%
Direct Effect of Faculty and Staff	$23,367	5.3%	$0	<.1%	$23,367	2.5%
Indirect Effect	$599	0.1%	$284	<.1%	$883	<.1%
Gross Total	$23,966	5.4%	$284	<.1%	$24,250	2.6%
Adjustment for alternative use of funds	($992)	<.1%	($479)	<.1%	($1,471)	<.1%
TOTAL for Hockley County	**$22,974**	**5.2%**	**($195)**	**<.1%**	**$22,779**	**2.5%**
Total Income in Lubbock County	$5,993,795	100%	$3,486,482	100%	$9,480,277	100%
Direct Effect of Faculty and Staff	$7,465	0.1%	$0	<.1%	$7,465	<.1%
Indirect Effect	$2,433	<.1%	$1,261	<.1%	$3,694	<.1%
Gross Total	$9,897	0.2%	$1,261	<.1%	$11,158	0.1%
Adjustment for alternative use of funds	($2,219)	<.1%	($1,217)	<.1%	($3,436)	<.1%
TOTAL for Lubbock County	**$7,679**	**0.1%**	**$44**	**<.1%**	**$7,723**	**<.1%**

Source: Total income for the county assembled from the U.S. Department of Commerce, Regional Economic Information System, CA and SA series; the U.S. Department of Commerce, County Business Patterns; and the U.S. Department of Labor, Bureau of Labor Statistics ES-202 series. Income attributable to college operations and the associated multiplier effects calculated in the model based on data supplied by SPC in conjunction with outputs from the EMSI Regional IO Model for the county (Moscow, ID: Economic Modeling Specialists, Inc., 2008). Adjustment for the alternative use of funds determined using data supplied by SPC, together with data on the ratio of total county earnings to total state earnings (also available from the U.S. Department of Commerce).

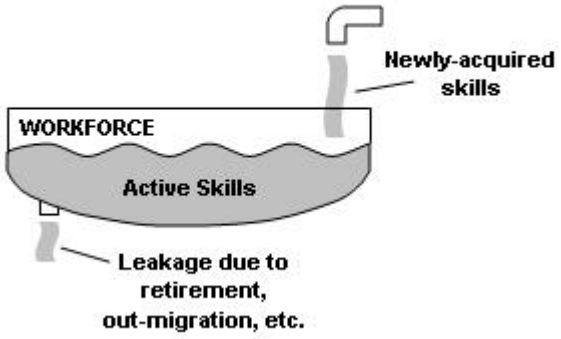
Past Student Productivity Effect

SPC's main contribution to the county economies is the productivity effects of its past students. Since SPC was established, students have studied at the college and entered the local workforce, bringing with them skills they acquired while in attendance at SPC. Over time these skills have built up and accumulated, steadily increasing the training level and experience of the regional workforce.

A conceptual look at this process is well illustrated by the example of a filling bathtub (see **Figure 1** below). As shown in the figure, newly-acquired skills enter the regional workforce as students complete their education and find employment at local businesses. Concurrently, the stock of college-trained workers sees occasional reductions due to such factors as retirement, out-migration or even death. In general, the ongoing influx of skills generated by SPC's educational activities surpasses any leakage that may occur, keeping the workforce, or "bathtub" as in the illustration here, well stocked in human capital.

As the skills embodied by SPC's past students stockpile, a chain reaction occurs in which higher student earnings generate additional rounds of consumer spending. New skills and training also mean increased business output and higher property income, causing still more consumer purchases and regional multiplier spending. The sum of all of these direct and indirect effects comprises the total impact of past student productivity on labor and non-labor income in the economies of the two counties.[5]

Figure 1



Assigning a dollar value to the skills earned by SPC's past students is largely dependent on the estimated number of credit hours (or CHEs) they achieve while attending college. By "CHE" we mean a credit hour equivalent, defined as a composite of credit and non-credit coursework equal to about 10 to 15 contact hours of instruction. Each CHE earned by the students means added skills brought to the region once the student enters the local workforce. We estimate that there are about 682,700 CHEs of instruction currently embodied by SPC's past students in the combined workforces of the two service area counties.[6]

Breaking the 682,700 CHEs down to the county level requires an estimate of the percentage of students who settle within the two counties upon exiting the college. This information is displayed in **Table 2.3** below. As shown here, the

[5] The income of a region depends on the relative size of four interrelated factors of production: (1) the stock of physical capital (factories, office space and rolling stock), (2) the extent and character of public infrastructure (roads, bridges and utility systems), (3) the size of the workforce, and (4) the skills embodied in the workforce (formal education and training, work experience). In general, skilled labor and physical capital are widely recognized as production complements. Production complementarity implies a low elasticity of substitution, and thus an increase in the income of one (skilled labor) means an increase in the income of the other (property or non-labor income).

[6] The source of this number is **Table 4.3** of Volume 1: Main Report, "The Economic Contribution of South Plains College." See Robison and Christophersen, 2008.

greatest percentage of SPC's students (52%) remain in Lubbock County, while only 10% remain in Hockley County. The rest settle outside the designated college region.

Table 2.3. Where Students Settle

County	%
Hockley	10%
Lubbock	52%
Elsewhere in State	34%
Leaving State	3%
TOTAL	**100%**

Source: Data supplied by SPC. Numbers may not add due to rounding.

Table 2.4 presents the total impact of past student productivity with labor and non-labor income detail on the economies of SPC's two service area counties. Two elements are shown: first, the direct effect, reflecting the higher earnings of the students and the increased business revenues at the places that employ them; and, second, the indirect effect, reflecting the added local incomes that occur as higher student and associated business incomes are spent within the local region. As shown in the table, past student productivity effects range from a minimum of $32.5 million annually in Hockley County to a maximum of $171.5 million annually in Lubbock County.

Table 2.4. Past Student Productivity Effect of SPC, Disaggregated by County ($ Thousands)

	Labor Income ($ Thousands)	% of Total	Non-Labor Income ($ Thousands)	% of Total	TOTAL INCOME ($ Thousands)	% of Total
Total Income in Hockley County	$443,590	100%	$479,652	100%	$923,242	100%
Direct Effect	$17,146	3.9%	$12,536	2.6%	$29,681	3.2%
Indirect Effect	$1,830	0.4%	$959	0.2%	$2,789	0.3%
TOTAL for Hockley County	**$18,976**	**4.3%**	**$13,495**	**2.8%**	**$32,471**	**3.5%**
Total Income in Lubbock County	$5,993,795	100%	$3,486,482	100%	$9,480,277	100%
Direct Effect	$85,440	1.4%	$52,038	1.5%	$137,478	1.5%
Indirect Effect	$21,688	0.4%	$12,344	0.4%	$34,032	0.4%
TOTAL for Lubbock County	**$107,128**	**1.8%**	**$64,381**	**1.8%**	**$171,509**	**1.8%**

Source: See Table 2.2 for source of earnings and income data. Income attributable to past student productivity effects and the associated multiplier effects calculated in the model based on data supplied by SPC in conjunction with outputs from the EMSI Regional IO Model for the county (Moscow, ID: Economic Modeling Specialists, Inc., 2008.)

Student Spending Effect

The student spending effect is calculated based on the number of students who either commute or relocate to the Levelland campus in Hockley County or to the campuses and centers in Lubbock County. These students spend money while in the area, whether for textbooks, food, rent, transportation, and so on. Their annual expenditures create jobs and incomes for local businesses, thereby contributing to economic growth in the region.

The analysis begins with the estimated dollar amount in sales generated by out-of-region students. A study commissioned by the Illinois Board of Higher Education estimates that full-time students spend, on average, $5,701 each year while attending college. Of course, this only applies to students who actually relocate to the area. Those who commute to Hockley or Lubbock Counties do not incur living expenses in the region while attending, so their costs for rent, food, and other personal expenses do not impact the economy. As such, it is assumed that the impacts of in-commuters are restricted to their purchase of books and supplies, while the rest of their expenditures are excluded.[7]

It is important to note that, due to cross-hauling effects, only a small percent of students at the Levelland campus in Hockley County actually come from Levelland; rather, the majority of them come from Lubbock County. In fact, SPC serves more students from Lubbock County than Texas State University, a powerful indicator of the role that the college plays in providing educational services to Lubbock County residents. In Levelland, the number of students who commute or relocate to the city from outside the county means revenue for local businesses, particularly along College Avenue, where the presence of grocery stores and large chain stores depend on the patronage of college staff and students.[8]

To determine the effect of student expenditures, the model begins with total sales generated in Hockley and Lubbock Counties stemming from student purchases for books and supplies (particularly in the case of in-commuters) and purchases for food, gasoline, and other living expenses (in the case of students who relocate to the area). These sales are converted to direct added income through the action of earnings-to-sales and value added-to-sales ratios. Indirect effects are derived by bridging the increase in regional sales to the industrial sectors of the IO

[7] For more information on the average annual expenditure of full-time students and associated discount factors, please see **Table 2.7** and surrounding text in Volume 1: Main Report, "The Economic Contribution of South Plains College" (Robison and Christophersen, 2008).
[8] The impact of college employees who spend money in the region appears in the college operations effect.

model, running them through an indirect multiplier matrix and then discounting results by all but 33% to avoid overstatement of multiplier impacts.[9]

Direct and indirect income effects of student spending appear in **Table 2.5**. As shown, the impact is greatest in Lubbock County, with $3.9 million in added regional income, due in large part to the high number of students who relocate to the county. In Hockley County, which attracts more in-commuters than students who relocate, the student spending effect is $2.7 million.

Table 2.5. Student Spending Effect of SPC, Disaggregated by County ($ Thousands)

	Labor Income ($ Thousands)	% of Total	Non-Labor Income ($ Thousands)	% of Total	TOTAL INCOME ($ Thousands)	% of Total
Total Income in Hockley County	$443,590	100%	$479,652	100%	$923,242	100%
Direct Effect	$1,246	0.3%	$1,314	0.3%	$2,559	0.3%
Indirect Effect	$108	<.1%	$43	<.1%	$152	<.1%
TOTAL for Hockley County	**$1,354**	**0.3%**	**$1,357**	**0.3%**	**$2,711**	**0.3%**
Total Income in Lubbock County	$5,993,795	100%	$3,486,482	100%	$9,480,277	100%
Direct Effect	$1,645	0.4%	$1,709	0.4%	$3,355	0.4%
Indirect Effect	$327	<.1%	$179	<.1%	$506	<.1%
TOTAL for Lubbock County	**$1,972**	**0.4%**	**$1,889**	**0.4%**	**$3,861**	**0.4%**

Source: See Table 2.2 for source of earnings and income data. Income attributable to student spending effects and the associated multiplier effects calculated in the model based on data on the number of students who relocate or commute to the counties, as supplied by SPC, in conjunction with outputs from the EMSI Regional IO Model for the county (Moscow, ID: Economic Modeling Specialists, Inc., 2008.)

Total Effect

As mentioned earlier in this chapter, the total impact of SPC is a measure of "flow" and "stock" effects, summing together the flow impact of a single year of SPC operations plus the accumulated stock impact of some 30 years of past SPC activity. The flow effect is integral to the build-up of stock, since, without the constant replenishment of active skills in the regional workforce, the portion of the economy that is dependent on these inflows would eventually become zero.

In a similar manner, the activities of SPC and its past students contribute substantially to the stock of earnings and skills currently active in the regional workforce. Without these inflows, two things would occur: first, the county economies would immediately lose the revenue generated by the local spending of the college and its students, and, second, the student skills that have taken

[9] See **Chapter 4** of Volume 1: Main Report (2008) for more information on this adjustment.

years to accumulate would ultimately dissipate. In each case the overall net effect would be to decrease county income and impede the region's economic development.

The total impact of SPC operations and past student productivity appears in **Table 2.5** below. In Hockley County, for example, the educational activities of SPC account for $58.0 million, or 6.3% of the regional economy. In Lubbock County, the impact is even greater, explaining $183.1 million, or 1.9% of the regional economy. Clearly SPC plays a significant role in promoting the income growth of the county economies.

Table 2.6. Total Effect of SPC, Disaggregated by County ($ Thousands)

	Labor Income ($ Thousands)	% of Total	Non-Labor Income ($ Thousands)	% of Total	TOTAL INCOME ($ Thousands)	% of Total
Total Income in Hockley County	$443,590	100%	$479,652	100%	$923,242	100%
College Operations Effect	$22,974	5.2%	($195)	<.1%	$22,779	2.5%
Past Student Productivity Effect	$18,976	4.3%	$13,495	2.8%	$32,471	3.5%
Student Spending Effect	$1,354	0.3%	$1,357	0.3%	$2,711	0.3%
TOTAL for Hockley County	**$43,304**	**9.8%**	**$14,656**	**3.1%**	**$57,960**	**6.3%**
Total Income in Lubbock County	$5,993,795	100%	$3,486,482	100%	$9,480,277	100%
College Operations Effect	$7,679	0.1%	$44	<.1%	$7,723	<.1%
Past Student Productivity Effect	$107,128	1.8%	$64,381	1.8%	$171,509	1.8%
Student Spending Effect	$1,972	<.1%	$1,889	<.1%	$3,861	<.1%
TOTAL for Lubbock County	**$116,779**	**1.9%**	**$66,314**	**1.9%**	**$183,093**	**1.9%**

Source: Tables 2.2, 2.4, and 2.5.

Benefit/Cost Comparison

In the previous section we analyze SPC's role in forming income by creating and maintaining the region's current stock of human and physical capital. The subject of the present section is entirely different. Here we examine SPC in investment analysis terms, focusing on the support taxpayers provide SPC relative to the stream of benefits they receive. The benefits comprise the cumulative impact of students as they live and work in the region thirty years or so into the *future* (not in the past, as was the case in the previous section), measured against the costs of funding a single year of college operations.

What do we mean by taxpayer benefits? Previously we stated that SPC students make more money now and through the course of their careers as a result of

their education. Likewise, businesses that employ the students benefit from enhanced productivity, while the local government enjoys higher tax revenue as personal incomes and business outputs increase.[10] In addition, society benefits indirectly from the lifestyle changes that typically accompany higher education, such as fewer medical costs, lower crime rates and reduced welfare and unemployment. None of these taxpayer benefits are limited to a single year, but rather endure and accumulate as time progresses.[11]

Costs, on the other hand, occur during the first year alone, and so we measure these simply as the local government support provided the college during the single analysis year. In order to compare the stream of future taxpayer benefits to the present-day taxpayer costs, we follow standard practice and compute the present value.[12] Where the present value of benefits exceeds costs, government receives more from the college than it pays.

Interpreting Benefit/Cost Results at the County Level

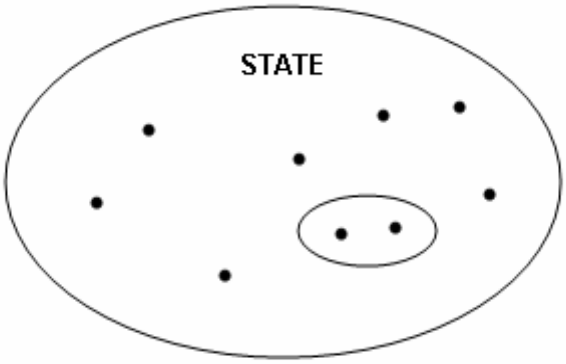
It should be noted that comparing benefits to costs at the county level is not an investment analysis in the strictest sense of the word. Standard investment analyses typically require a direct link between benefits and costs, i.e., it must be clear that, absent the costs, the reported benefits would disappear. At the state level this linkage is easily established, but once results are disaggregated down to the individual county level, the link between benefits and costs becomes less certain. The reason for this is explored more fully in **Figures 2** and **3** below.

[10] A person with higher income can be expected to have higher personal consumption expenditures, thereby generating more in sales taxes. They can also be expected, albeit over time, to acquire more in the way of fixed personal property, e.g., a more expensive home, a more expensive automobile, etc. And, based on their higher valued personal property, they pay proportionally more in personal property taxes. Moreover, the higher incomes of individuals generally parallel higher property incomes in the businesses that employ them, and higher property incomes are accompanied by higher business property taxes and other business taxes of all kinds.

[11] Research by labor economists measures the gap between educated and non-educated workers, indicating that the gap actually widens through time.

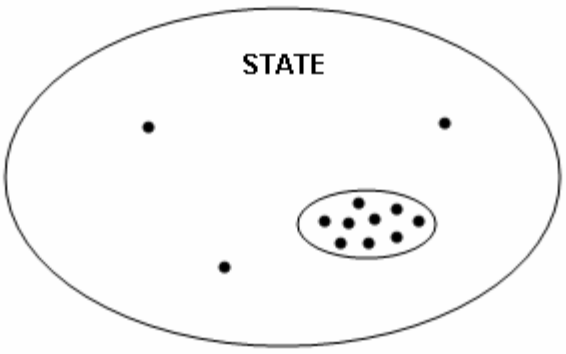
[12] A present value is equal to the price one would have to pay for an asset (e.g., an annuity) that would yield an equal stream of benefits over time.

Figure 2
Dispersion of Costs



As shown in **Figure 2**, the spatial distribution of college costs tends to be spread throughout the state. This is because a relatively large portion of SPC funding comes from state taxpayers who reside outside of the two-county service area. At the same time, however, taxpayers in the two counties stand to benefit from increased local property taxes, higher local earnings, and decreased local government spending on programs. Additionally, a greater percentage of students tend to settle within the area rather than in the rest of the state, thereby increasing the multiplier effect even further (see **Figure 3**).

Figure 3
Dispersion of Benefits



The unequal dispersion of benefits and costs means that, from the standpoint of the local government, a college such as SPC is a very good thing, i.e., one that provides significant benefits. However, in a case such as this one it is generally not clear that the benefits would vanish were local government support of SPC to be withheld. For this reason, the county-level results of benefits and costs shown

in this report should not be considered in the usual investment analysis sense, but rather as a simple comparison of benefits relative to costs.

Breaking out Benefits and Costs

As discussed above, the linkage between benefits and costs is easily defended at the state level, since it is clear that, absent state and local government support, at least some measure of the benefits would disappear.[13] For this reason we begin our analysis with the aggregate figures derived for the entire State of Texas - these figures appear in **Table 2.7** below.

Table 2.7. Aggregate Benefits and Costs - State Level ($)

	Aggregate Benefits State & Local	Aggregate Costs State & Local	State B/C Ratio
Total Benefits and Costs	$48,191,500	$26,814,400	1.8

Source: M. Henry Robison and Kjell Christophersen, "The Economic Contribution of South Plains College," Volume 1: Main Report (Moscow, ID: by the authors, 2008).

The next step in the process is to split the total benefits and costs presented in **Table 2.7** between state and local government. We begin with the costs, since the breakdown between state and local government support can easily be found in the college's financial statements. Results are presented in **Table 2.8.**

Table 2.8. Breakout of State and Local Government Costs ($)

	Costs	% of Total
Local government support	$7,366,200	27%
State government support	$19,448,188	73%
Total	**$26,814,388**	**100%**

Source: Data supplied by SPC.

Next we break out aggregate benefits. To do this, we apply a ratio of local and state revenue to total government revenue in the two-county service region. This information is readily available from the U.S. Census Bureau. As shown in **Table 2.9**, local government taxpayers enjoy roughly $22.7 million (or 47%) of the total benefits generated by SPC in the state, while state government taxpayers receive $25.5 million (or 53%) of the benefits.

[13] Note that the benefits presented in this report are already net of any returns that the college may still be able to generate absent state and local government support. We assume that such benefits cannot be directly linked to the costs of funding the college and, as such, should not play a role in our investment analysis. The procedure for estimating these benefits is found in **Appendix 2** of Volume 1: Main Report (see Robison and Christophersen, 2008).

Table 2.9. Breakout of State and Local Government Benefits ($)

	Benefits	% of Total
Local government benefits	$22,650,218	47%
State government benefits	$25,541,282	53%
Total	**$48,191,500**	**100%**

Source: See Table 2.7. Breakout between state and local government calculated using data supplied by the U.S. Census Bureau, Table 1. State and Local Government Finances by Level of Government and by State: 2005-06 (available from http://www.census.gov/govs/www/estimate06.html; last accessed June 2008).

Table 2.10 presents the results from **Tables 2.8** and **2.9** in one summary table. The totals in the bottom row match what appears for the aggregate benefits and costs in **Table 2.7**.

Table 2.10. Breakout of Benefits and Costs - State and Local Level ($)

	Benefits	%	Costs	%	B/C Ratio
Local Government	$22,650,218	47%	$7,366,200	27%	3.1
State Government	$25,541,282	53%	$19,448,188	73%	1.3
Total	**$48,191,500**	**100%**	**$26,814,388**	**100%**	**1.8**

Source: See Tables 2.7 through 2.9.

Now that we have broken out benefits and costs down to the level of state and local government, our final task is to allocate the benefits and costs to the two counties in the college's service area. Let's begin with the costs, since, as before, these are easier to disaggregate than the benefits. The first step is to obtain data from the college on the breakout of local government costs by county. These appear in the column labeled "Local" in **Table 2.11** below.

Table 2.11. Breakout of Costs by County ($)

County	Local	State	Total	% of Total
Hockley	$7,366,200	$37,872	$7,404,072	97%
Lubbock	$0	$195,192	$195,192	3%
Total	**$7,366,200**	**$233,064**	**$7,599,264**	**100%**

Note: Local costs refer to the breakdown of costs by county, as provided by SPC. State costs refer to the estimated portion of state funding that originate from local taxpayers. This is derived using a ratio of county earnings to total earnings in the state.

Source: Data on the local breakdown supplied by SPC. The breakdown of state costs by county derived from earnings data supplied by the U.S. Department of Commerce.

To this we must add the estimated portion of *state* funding that is supplied by local taxpayers (see column labeled "State").[14] We estimate this using a ratio of county earnings to total earnings in the state, acting under the assumption that state taxes are collected in proportion to the overall share of earnings in the county. In the case of SPC, for example, we assume that roughly $37,900 of the funding that SPC received from the state ($19.4 million in **Table 2.8**) originated from Hockley County taxpayers. Taxpayers in Lubbock accounted from another $195,200 of total state funding.

Summing these costs together, we find that Hockley taxpayers bear the greatest burden of the cost, amounting to $7.4 million (or 97%) of the total. In contrast, Lubbock County taxpayers pay the least amount of college funding, summing to $195,200 (or 3%) of total local costs. Note that these results are net of costs borne by taxpayers outside of SPC's two service area counties.

Next we turn to the benefits. By nature, local benefits are intimately tied to the place where the students reside after leaving college and settle into their lifelong occupations. Our allocation of local government benefits to the counties in SPC's service area thus begins with the data presented in **Table 2.3** ("Where Students Settle"). Of course, a certain portion of these students will leave the area due to factors such as out-migration, retirement, or even death. We thus further adjust the local government benefits figures ($22.7 million in **Table 2.9**) to reflect regional attrition over time.[15] Results of this analysis are shown in **Table 2.12** below in the column labeled "Local."

In reviewing the table, keep in mind that the sum of local government benefits (shown in the "Local" column) will be lower than the aggregate total shown in **Table 2.9**, due to the benefits that leak out of the region over time. The difference comes to about $8.9 million ($22.7 million - $13.7 million), equal to the estimated portion that leaks out of the service area as a result of regional attrition.

[14] Taxpayers in SPC's two-county service area pay state taxes as well as local taxes, so it is reasonable to assume that at least some portion of state funding for the college, however small, originated from taxpayers in SPC's service area.

[15] The source for the regional attrition variable used in this analysis is **Table 2.8** of Volume 1: Main Report (see Robison and Christophersen, 2008).

Table 2.12. Breakout of Benefits by County ($)

County	Local	State	Total	% of Total
Hockley	$2,293,431	$49,738	$2,343,169	17%
Lubbock	$11,427,062	$256,345	$11,683,407	83%
Total	**$13,720,493**	**$306,083**	**$14,026,576**	**100%**

Source: Local benefits derived using data provided by SPC on w here students settle upon completing their education, adjusted to account for regional attrition. Allocation of state benefits to the individual counties calculated using a ratio of county earnings to total state earnings, as provided by the U.S. Department of Commerce.

To the local benefits we must add the estimated portion of *state* benefits that are enjoyed by local taxpayers (see column labeled "State"). As with the costs, we estimate this using a ratio of county earnings to total earnings in the state. For Lubbock County, for example, we assume that roughly $256,300 of the total benefits received by state taxpayers ($25.5 million in **Table 2.9**) accrue to Lubbock County taxpayers. For Hockley, the corresponding figure is $49,700.

Table 2.13 summarizes the results of **Tables 2.11** and **Table 2.12,** along with the corresponding benefit/cost ratios. As shown in the table, $11.7 million in benefits accrue to Lubbock County taxpayers, while Hockley County taxpayers receive a total of $2.3 million in benefits. In terms of costs, Lubbock County taxpayers put up $195,200, while Hockley County taxpayers put up roughly $7.4 million. These results yield a benefit/cost ratio of 0.3 for Hockley County, meaning that, for every dollar of costs, taxpayers receive a cumulative return of $0.32. For Lubbock County, the corresponding benefit/cost ratio is 59.9.

Table 2.13. Breakout of Benefits and Costs - County Level ($)

County	Benefits	%	Costs	%	B/C Ratio
Hockley	$2,343,169	17%	$7,404,072	97%	0.3
Lubbock	$11,683,407	83%	$195,192	3%	59.9
Total	**$14,026,576**	**100%**	**$7,599,264**	**100%**	**1.8**

Source: See Tables 2.7 through 2.12.

Recall from **Chapter 1** and from discussion earlier in this chapter that the results displayed here are discounted figures, meaning that we only show the present value of the benefits relative to the present value of the costs. Without the discounting, the benefit/cost ratios would be greater.

In conclusion, the benefit/cost comparison of SPC illustrates that the disparity in college funding between Hockley and Lubbock Counties, in conjunction with the

unequal dispersion of benefits stemming from the settlement patterns of SPC students, yields a much higher benefit/cost ratio for Lubbock County than for Hockley County. The benefit/cost comparison also illustrates that the costs of supporting SPC are mitigated by the higher student earnings and reduced social costs that occur in the counties as students remain active in the local workforce; and that, in the case of Lubbock County, costs are completely recovered by the benefits generated.

Individual Taxpayer Impacts

The benefit/cost comparison discussed in the previous section plays an integral role in the fiscal impact assessment of SPC in its two-county service area. Here we blend benefit and cost information with county-level data on the typical taxpayer in the two counties (i.e., homeowners, businesses and farms) to compute how much the tax burden would increase or decrease should SPC ever shut its doors.

For the first phase of our analysis we gather data on the local tax burden on the median-priced home, the average business and the average farm in the college's service area counties.[16] This information is readily available from the U.S. Census Bureau,[17] which we inflate to current year dollars using both the BLS' Consumer Price Index and county employment forecasts generated by the EMSI IO model. We then estimate the portion that residential homeowners contribute to county property taxes using Census' 2000 Summary file 3, Table HCT21: Aggregate Real Estate Taxes (also adjusted for inflation and growth). The U.S. Census of Agriculture provides us with data to estimate the portion of county property taxes that is contributed by farms, while the remaining portion is assumed to be contributed by businesses.

In addition to property taxes, we obtain estimates of "other" taxes in the service area counties and include these in the mix of total taxes paid by the typical

[16] Our preference here would be to show data for the "median business" rather than the "average business" – an average is easily skewed by the presence of one or a few very large businesses, such as a large factory. However, while county level data are available on the total number of businesses, total sales, total employees, overall business earnings and such, we have no information on the distribution of businesses by size. Similar data limitations lead us to portray the "average farm" rather than our preference, the "median farm."

[17] See the U.S. Census of Governments on the Census Bureau website (available from http://www.census.gov/govs/www/estimate06.html; Internet; accessed June 2008).

homeowner, average business and average farm.[18] We estimate the share of "other" taxes paid by homeowners, businesses and farms in the counties using a ratio of total county "other" taxes to total county property taxes.

Having disaggregated total county property and other taxes down to the level of the individual taxpayer, we allocate local government taxpayer benefits and costs from **Tables 2.11** and **2.12** to homeowners, businesses and farms in proportion to their shares of overall county assessed property valuations. Note that we focus solely on the benefits and costs that accrue strictly to the local government (see columns labeled "Local" in **Tables 2.11** and **2.12**), since inclusion of the benefits and costs to county residents as state taxpayers would skew the accuracy of the results.[19]

Tax Impact on Families

There are several ways to define the "typical family." For our purposes, we focus on the taxes paid by the family living in the median-priced home. County median home value is available from Census 2000 Summary file 3, Table H85: Median Value for All Owner-Occupied Housing Units. Average home value is calculated taking data from Census Table H86: Aggregate Value for All Owner-Occupied Housing Units and dividing by the sample size. Both of these values are inflated using the BLS consumer price index (CPI).

Given the median home value per county, we estimate the average county real estate taxes by dividing total real estate taxes by the sample size.[20] Finally, we apply the ratio of median home value to average home value to our average tax rate to obtain an estimate of the tax rate on the median value home.[21]

Results of the analysis are displayed in **Table 2.14**. As shown, taxes on the median-priced home in Hockley and Lubbock Counties are broken into two parts, "property" and "other." "Property taxes" are self defined. "Other taxes" include mainly the counties' share of sales tax receipts; these are pro-rated to households based on their proportion of overall property tax payments.

[18] Examples of "other" taxes would be alcoholic beverage sales (U.S. Census Bureau functional category T10), hunting and fishing license (T23) and severance (T53), depending on the local government.
[19] Casual inspection of the state values in **Tables 2.11** and **2.12** indicate that the impacts of SPC on county residents as state taxpayers are minimal.
[20] Real estate taxes are supplied by the U.S. Census Bureau, 2000 Summary File 3, HCT21: Aggregate Real Estate Taxes.
[21] Implicit in this estimate is the assumption that the owner of the average value home pays the average level of taxes.

Table 2.14. Estimated Impact of SPC on Typical Family in Median-Priced Home ($)

	Hockley	Lubbock
Median price of house	$65,306	$87,430
Local property tax per house	$937	$1,335
Other local taxes per house	$749	$3,398
Gross tax burden due to SPC	$135	$0
Gross tax savings due to SPC	$42	$69
Net tax savings due to SPC	-$93	$69
Net tax savings (%)	-5.5%	1.5%

Sources: Computed from data supplied by the Bureau of Labor Statistics, Consumer Price Index (CPI) [database on-line] (June 2008); the U.S. Census Bureau, 2000 Summary File 3, Table H85: Median Value for All Owner-Occupied Housing Units, Table H86: Aggregate Value for All Owner-Occupied Housing Units, Table HCT19: Real Estate Taxes, Table HCT20: Median Real Estate Taxes, Table HCT21: Aggregate Real Estate Taxes [database on-line] (June 2008); outputs supplied by the EMSI IO model; and data from SPC.

The next set of figures shows first the cost of SPC support to the median homeowner, followed by the corresponding benefit, and finally the net homeowner taxes due to SPC. **Table 2.14**'s last entry completes the display by showing the net increase or decrease in taxes attributable to the college in percentage terms. For example, a family occupying a median-priced home in Hockley County pays a net of $93 in support of SPC, while the median homeowner in Lubbock County sees net savings of $69 due to SPC. In percentage terms, taxes are 5.5% higher in Hockley County and 1.5% lower in Lubbock County as a result of the actions of SPC.

Tax Impact on Businesses

Our profile of the "average business" in SPC's service area counties is based on two sets of data: first, the Census Bureau's County Business Patterns (CBP), in which we find the number of businesses by county, and, second, the Bureau of Economic Analysis' REIS data, which report total business employment by county (Table CA25N). We divide total employment by the number of businesses to obtain an estimate of the average business' employment. Similar calculation provides average business payroll. Total local taxes paid by businesses are divided by the total number of businesses to arrive at the average business' tax bill.

Table 2.15. Estimated Impact of SPC on Average Business ($)

	Hockley	Lubbock
Gross annual payroll per business	$105,350	$135,018
Average number of employees	3	4
Local property tax per business	$9,320	$2,401
Other local taxes per business	$7,453	$6,111
Gross tax burden due to SPC	$1,340	$0
Gross tax savings due to SPC	$417	$123
Net tax savings due to SPC	-$923	$123
Net tax savings (%)	-5.5%	1.5%

Sources: Computed from data supplied by the Bureau of Economic Analysis, Regional Economic Accounts, Table CA25N; the U.S. Census Bureau, County Business Patterns; outputs supplied by the EMSI IO model, and data from SPC.

As indicated in **Table 2.15**, Lubbock County businesses do not financially support the operation of SPC through local taxes, yet they do benefit from $123 in lower taxes because of the reduced demand for social services and the expanded tax base generated by higher student earnings. In percentage terms, the average business in Lubbock County sees roughly 1.5% savings in local taxes as a result of the operations of SPC. In contrast, Hockley County sees a net increase in taxes of $923 (or 5.5%) per average business.

Tax Impact on Farms

Our final local tax paying group is farms. Both the total farm property tax and number of farms per county are available through the Census of Agriculture. We estimate average farm property tax as the total farm property tax divided by the number of farms. Data on farm payrolls and farm employment tend to be more ambiguous than for businesses, so we limit our descriptive statistics for the average farm to gross annual sales.

Table 2.16. Estimated Impact of SPC on Average Farm ($)

	Hockley	Lubbock
Gross annual sales per farm	$137,584	$167,836
Local property tax per farm	$2,246	$2,005
Other local taxes per farm	$1,796	$5,105
Gross tax burden due to SPC	$323	$0
Gross tax savings due to SPC	$101	$103
Net tax savings due to SPC	-$222	$103
Net tax savings (%)	-5.5%	1.5%

Sources: Computed from data supplied the U.S. Census Bureau, Census of Agriculture [database on-line] (May 2008), outputs supplied by the EMSI IO model, and data from SPC.

Table 2.16 presents the information on the average farm in the two counties.[22] As indicated in the table, the average farm in Lubbock County has gross annual sales of approximately $167,836, and pays $7,110 (= $2,005 + $5,105) in local taxes. The average farm in Hockley County is smaller, with gross annual sales of some $137,584. That farm pays $4,043 (= $2,246 + $1,796) in local taxes.

As indicated, the average farm in Lubbock County does not financially support SPC, while the average farm in Hockley County pays out approximately $323 per year in support of the college. In return, the average Lubbock County farm saves $103 in taxes; taxes on the average Lubbock County farm are thus some 1.5% lower because of SPC. In contrast, the gross savings figure for the average Hockley County farm is $101, yielding net taxes of $222 per farm.

Conclusion

The fiscal impact analysis of SPC demonstrates that college activities mitigate the taxes paid in support of the college through the avoided costs and added revenues that occur as students remain active in the local workforce. This is especially the case for Lubbock County, where SPC actually keeps taxes lower than would otherwise be the case if the college did not exist. Absent SPC, local government in Lubbock County would immediately see a stream of higher expenses and reduced revenues that would grow and accumulate over time, creating the need for higher taxes in order to keep other subsidized sectors of the economy at their current levels.

[22] As with businesses, our preference would be to show data for the "median farm," rather than the "average farm" but availability of data precludes this.

RESOURCES AND REFERENCES

Borts, G. H. and J. L. Stein. *Economic Growth in a Free Market*. New York, NY: Columbia University Press, 1964.

Bureau of Economic Analysis. Available from http://www.bea.gov; Internet; accessed June 2008.

_____. "Regional Economic Accounts." Table CA05N. Available from http://www.bea.gov/bea/regional/reis; Internet; accessed June 2008.

_____. "Regional Economic Accounts." Table CA25N. Available from http://www.bea.gov/bea/regional/reis; Internet; access June 2008.

Bureau of Labor Statistics. Available from http://www.bls.gov; Internet; accessed June 2008.

Economic Modeling Specialists, Inc. Regional Input-Output Modeling System (data and software). Moscow, ID: 2008. Available from http://www.economicmodeling.com.

Mathur, V. K. "Human Capital-Based Strategy for Regional Economic Development." *Economic Development Quarterly* 13 no. 3 (1999): 203-216.

Robison, M. Henry and Christophersen, Kjell A. "The Economic Contribution of South Plains College." Volume 1: Main Report. EMSI, Consulting Economists. Moscow, ID: by the authors, 2008.

U.S. Census Bureau. "Table 8. Farms, Land in Farms, Value of Land and Buildings, and Land Use: 2002 and 1997" in 2002 Census of Agriculture. Available from http://www.nass.usda.gov/census/census02/volume1/tx/index2.htm; Internet; accessed June 2008.

_____. "Federal, State, and Local Governments: State and Local Government Finances: 2005-06." Available from http://www.census.gov/govs/www/estimate06.html; Internet; accessed June 2008.

_____. "H84. Value for All Owner-Occupied Housing Units" in Census 2000 Summary File 3.

_____. "H85. Median Value for All Owner-Occupied Housing Units" in Census 2000 Summary File 3.

_____. "H86. Aggregate Value for All Owner-Occupied Housing Units" in Census 2000 Summary File 3.

_____. "HCT19. Real Estate Taxes" in Census 2000 Summary File 3.

_____. "HCT20. Median Real Estate Taxes" in Census 2000 Summary File 3.

_____. "HCT21. Aggregate Real Estate Taxes" in Census 2000 Summary File 3.

U.S. Department of Commerce. County Business Patterns. [CD-ROM], annual.

_____. Bureau of Economic Analysis: REIS, County data. [CD-ROM], annual.

U.S. Department of Labor. Bureau of Labor Statistics. ES-202 series (Covered Employment and Wages program).

Weber, Alfred. *Theory of the Location of Industries*. Chicago, IL: University of Chicago Press, 1929.