

# The Economic Impact of California State University, Fresno on the San Joaquin Valley's Economy

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### **The Researcher**

Antonio Avalos is Assistant Professor of Economics at California State University, Fresno since 2003. He earned his Ph.D. in Economics from Oklahoma State University with specialization in Economic Development and International Economics. His areas of expertise also include Regional Economics and Latin American Economic Development.

Professor Avalos has spent several years conducting research on workforce issues. In 1998, he was appointed Herman Kahn Fellow at the Hudson Institute in Indianapolis, Indiana working for the Center for Workforce Development. Professor Avalos assisted the Center in several applied research studies integrating economic development and workforce development at the local level. In 2002, Professor Avalos was selected by a panel of international economists as a visiting scholar at the Andean Corporation of Development in Caracas, Venezuela, where he conducted applied research in international trade, economic development and labor markets in Latin American economies.

Currently, Professor Avalos is investigating the dynamics of the regional economy identifying the forces shaping the Central Valley's economy. His work includes analyzing the changes in work, the workplace, compensation and occupations in recent decades and developing a scenario for the Central Valley regional economy's future.

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## **EXECUTIVE SUMMARY**

California State University, Fresno is a significant driver in the San Joaquin Valley's economy. The presence of the university in the region creates a dynamism that fosters economic growth and substantially contributes to the stability of state and local government finances. Among the contributions to the regional economy, the university provides jobs, spends dollars with local vendors, and attracts students and families who contribute as consumers in the local retail market. This spending generates additional sales and income for local firms and residents, which subsequently lead to further spending and income in an economic ripple effect. Thus, the university supports many businesses and families not directly connected to it.

Key findings of the study for the 2004-2005 academic year include:

- The \$331.45 million in total expenditures by university-related activities produced a total impact of \$507.05 million in terms of output (sales) in the San Joaquin Valley's economy. For every dollar in initial university-related spending, an average of 52 additional cents was spent within the region.
- University-related activities added \$236.59 million in terms of labor income in the San Joaquin Valley's economy. Labor income includes salary, wage and proprietor income, which directly impact people's spending capacity.
- The presence of California State University, Fresno in the San Joaquin Valley supported a total of 6,630 full time jobs.

- University operation and equipment expenditures, including expenditures by university auxiliaries, produced a total effect of \$168.94 million in terms of output (sales) and supported 2,522 full time jobs in the San Joaquin Valley.
- Expenditures by university employees produced a total effect of \$100.11 million in terms of output (sales) and supported 766 full time jobs in the San Joaquin Valley.
- Expenditures by university students produced a total effect of \$237.97 million in terms of output (sales) and supported 3,342 full time jobs in the San Joaquin Valley.
- The impact of university-related total spending on output (sales) is seen primarily in the retail trade, health and social services, finance and insurance services, and real estate and rental sectors. These four industrial sectors account for more than 50% of the total output impact in the regional economy.
- In terms of regional jobs supported by university-related activities, the retail trade, health and social services, and accommodation and food services sectors account for more than 50% of the total employment impact in the regional economy (more than 3,500 full time jobs).
- The total estimated tax revenue generated by university-related activities for the State of California and the county governments of Fresno, Madera, Kings and Tulare Counties is greater than \$43.81 million.

## **I. Introduction**

### **1. California State University, Fresno**

California State University, Fresno was founded as Fresno State Normal School in 1911, became a teacher's college in 1921, and has offered advanced degrees since 1949. California State University, Fresno is one of the 23 campuses of the California State University, one of the largest systems of higher education in the nation. The University's main campus and its farm are located at the northeast edge of Fresno, California, at the foot of the Sierra Nevada mountain range. The San Joaquin Valley is a rich agricultural region with Fresno as its major urban area, the sixth largest city in California. Considered a regional public institution, California State University, Fresno provides educational opportunities to students from all over the state of California and the world. During the academic year 2004-2005 the university enrolled more than 20,000 students and awarded approximately 3,500 degrees. More than 96% of the tenured faculty holds doctoral or other terminal degrees in their areas of study. The university currently employs 1,200 faculty and 950 staff members and administrators.

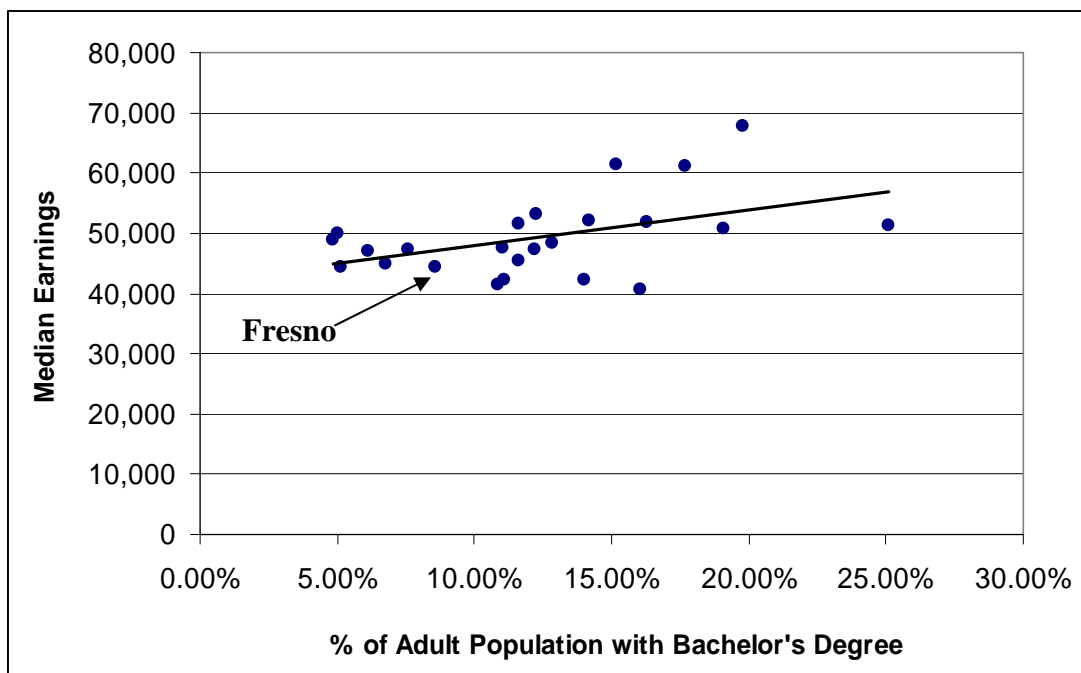
### **2. The Economic Impact of the University**

Higher education institutions have increasingly been an integral part of the economic landscape in a community, not just for the economic impact associated with university-related activities, but also for preparing a skilled workforce for the demands of a changing economy. California State University, Fresno strengthens the San Joaquin Valley regional economy by producing multiple short and long run benefits. In the short run, university activity generates a multiplier effect that significantly contributes to the vitality of the San Joaquin Valley regional economy. Dollars injected into the regional economy by the university and its students generate sales and income for local firms and residents, which subsequently lead to further spending and income in an economic ripple effect. This way, the university supports many businesses and families not directly connected to it.

In the long run, the university represents an investment to develop the human capital of the region. The return to this investment materializes as technological advances

and knowledge creation, productivity and earning gains of an educated workforce, and an improvement in the general quality of life. As an example of the valuable impact of education, Figure 1 below shows a positive correlation between median earnings of California counties and their percentages of adult population with bachelor's degrees. Data indicate that an increase of 5 percentage points in the bachelor's degree attainment produces an increase of about \$3,000 in median earnings across the state.

**Figure 1**  
**2004 California Median Earnings by Bachelor's Degree Attainment Rate:**  
**Selected Counties\***



**Source:** Census Bureau, 2004 American Community Survey

\* Information available for the following 24 counties: Alameda, Contra Costa, Fresno, Kern, Los Angeles, Monterey, Orange, Placer, Riverside, Sacramento, San Bernardino, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano, Sonoma, Stanislaus, Tulare and Ventura.

The primary goal of this study is to estimate the university's short run impact on the regional economy of the San Joaquin Valley. No attempt is made to measure the long run effects attributed to the presence of the university such as technological advances resulting from scientific experimentation, regional workforce productivity increases, or

increases in probability to attract business and resources into the regional economy.

Intangible benefits provided by the university are not easy to gauge. However, producing quantitative evidence of the short run benefits brought by the university is less difficult and may prove useful to understand the role of the institution as an engine of growth and development for the regional economy. This study measures the impact of the university during the academic year 2004-2005 and is an attempt to update and improve upon the previous economic impact studies conducted in 1997 and 2002 by faculty members of the Department of Economics at CSU-Fresno. Also, this study aims to expand the 2004 comprehensive impact study of the California State System commissioned by the university administration to ICF Consulting.<sup>1</sup> The expansion and development of CSU-Fresno in the last few years made it imperative to update and re-examine the impact of the university on the regional economy.

### **3. Literature Overview**

Most researchers consider the work of Caffrey and Issacs (1971) the classic of economic impact study models.<sup>2</sup> This paper set two important considerations when designed an economic impact study model. First, models should emphasize the importance of a well defined impact area to avoid complications in data gathering and interpretation. Second, models should quantify the short-term impact on three groups within the local economy: businesses, government and individuals. The paper suggested the use of multipliers, which are numbers that quantify the ripple effects of a dollar spent in the impact area as it is spent and re-spent until it leaks out of the defined impact area. Most studies that focus on the short-run impact of a university or college in a regional economy follow the Caffrey and Issacs' modeling approach. Examples of studies that measure the impact of the university at either the local or regional level include the work of Beck (1993) for Southern Illinois University, Field and Weber (1997) for the University of Massachusetts and Jafri et al. (2004) for Tarleton State University.

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<sup>1</sup> These three studies are explained and discussed in the literature overview section.

<sup>2</sup> The literature about estimating the impact of colleges and universities on local and regional economies has been significantly increasing over the last few years. This section however, does not pretend to be an exhaustive review of such literature. Instead, it briefly reviews few of the most relevant studies.

In the past ten years, three different studies have been implemented to measure the economic impact of CSU-Fresno on the regional economy. Their differences in scope, methodology and conclusions are briefly discussed below in chronological order. Cypher, Houser and Smith (1998) found that for the 1996-1997 academic year, total expenditures by university-related activities produced a total impact of \$303.44 million in terms of output for the San Joaquin Valley's economy and supported 8,102 jobs. The impact area for this study is defined to include Fresno, Madera, Kings, Tulare, Merced, Stanislaus and Kern counties and employs the multipliers produced by the Bureau of Economic Analysis' Regional Industrial Multiplier System (also called RIMS-II). This study measures the impact of operational expenses, employees, students and visitors expenditures. A similar methodology was used by Houser and Davis (2002) who found that for the 2000-2001 academic year, total expenditures by university-related activities produced a total impact of \$402.97 million in terms of output for the San Joaquin Valley's economy and support 6,030 jobs. The impact area for this study is defined to include Fresno, Madera, Kings, Tulare and Merced counties which differs from the previous study. Another important difference is that this study does not take into account visitors expenditures. None of these studies addresses the impact by industry sector or the fiscal impact on the region.

The last study employs a more sophisticated methodology and it is wider in scope. Egan et al. (2005) measure the economic impact of the whole California State University system by looking at the impact of each of the 23 individual campuses on the different regional economies they serve. Also, instead of looking at a single academic year, they calculate a four-year average of university-related activities. Using the IMPLAN Data and Software (2005) they found that total expenditures produced a total impact of \$797.97 million in terms of output for the San Joaquin Valley's economy and supported 15,300 jobs. The impact area for this study is the San Joaquin Valley Region as defined by California State University, which includes 13 counties.

A summary of findings of these studies is shown in Table 1. The studies conducted cannot be directly compared since they greatly vary in the period studied, region definition and methodology. However, they provide a clear picture of the significant impact that CSU-Fresno has had on the regional economy over the years.

**Table 1: CSU-Fresno Economic Impact Studies**

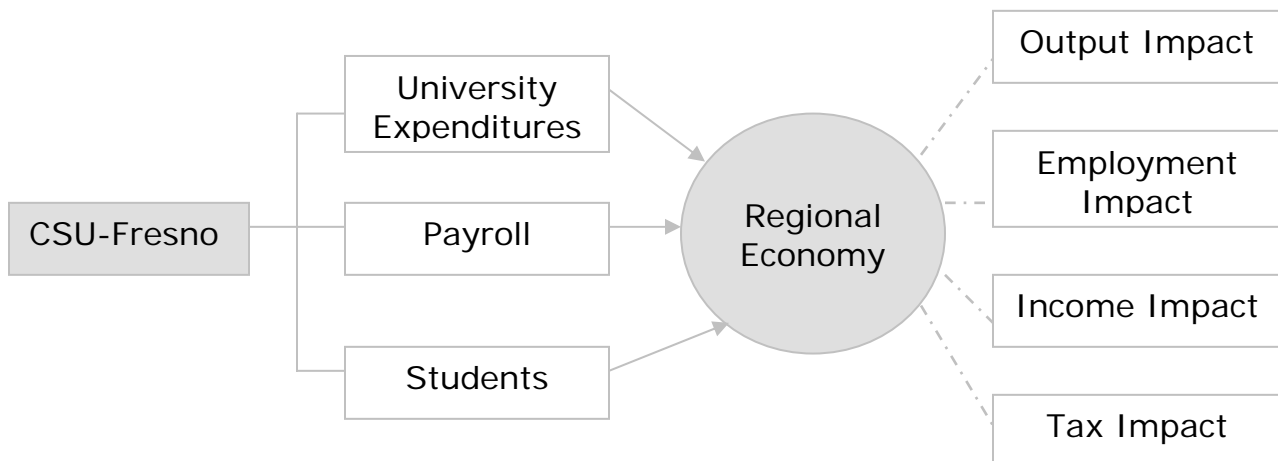
	Study		
	Cypher, Houser and Smith (1998)	Houser and Davis (2002)	Egan et al. (2005)
<b>Output Impact</b>	\$303.44 million	\$402.97 million	\$797.97 million
<b>Employment Impact</b>	8,102 jobs	6,030 jobs	15,300 jobs
<b>Period</b>	1996-1997	2000-2001	4-year average
<b>Region</b>	Fresno, Madera, Kings, Tulare, Merced, Stanislaus and Kern	Fresno, Madera, Kings, Tulare and Merced	San Joaquin Valley CSU-defined region of 13 counties

**II. Methodology**

**1. Scope and Objectives**

This study examines the impact of university expenditures, university payroll and expenditures by university students. The impact attributable to the university in the impact region is measured in four different areas: 1) additional labor income 2) additional output (sales) 3) the number of jobs that the university supports directly and indirectly and 4) the additional local and state tax revenue that the university generates. Figure 1 illustrates the conceptual framework just described. For the purposes of this study the San Joaquin Valley is defined to include Fresno, Madera, Kings and Tulare Counties.

**Figure 1: Conceptual Framework**



## **2. The Multiplier Effect**

The total impact of CSU-Fresno on the regional economy, also known as the multiplier effect, is equal to the sum of three components: the direct effect, the indirect effect and the induced effect. The direct effect is the immediate upshot caused by university expenditures, university payroll and expenditures by students. Due to the interactions between firms, industries, and social institutions that naturally occur within the regional economy, the direct effect initiates a series of iterative rounds of income creation, spending and re-spending that result in indirect and induced effects. The indirect effects are changes in production, employment and income that result from the inter-industry purchases triggered by the direct effect. Finally, induced effects arise due to changes in household income and spending patterns caused by direct and indirect effects. Since the total impact of the university expenditures is a multiple of the initial expenditures, the total effect is expressed as a multiplier effect, that is, the sum of the direct, indirect and induced effects. Therefore, the total impact of the university on the regional economy is larger than the initial expenditures. For example, an output multiplier of 1.5 indicates that for every million dollars spent (direct expenditure) an additional 0.5 million dollars is generated within the regional economy. Similarly, an employment multiplier of 1.6 indicates that for each job created by direct expenditure, an additional 0.6 full time jobs created or supported.

## **3. Leakages and the Regional Purchase Coefficient**

The increases in economic activity resulting from the multiplier process become smaller with each round due to leakages from the spending stream. To be exact, spending on goods and services that are not produced within the regional economy do not generate additional local spending. Therefore, the multiplier process traces the flows of spending and re-spending until the initial expenditures have completely leaked out to other regions. To properly estimate the effects at the regional level, an adjustment known as the regional purchase coefficient is implemented. The regional purchase coefficient represents the proportion of the total supply of a good or service used to fulfill the demands of a region that is supplied by the region to itself. For example, a regional

purchase coefficient of 0.7 for peaches, indicates that 70% of the demand by peach processors, peach wholesalers and retailers, foreign exports, and all other demands for peaches are met by local producers. Thus, 30% of the demand leaves the region to buy “imports”.

#### **4. The IMPLAN System**

The economic impact analysis in this study is performed using the nationally recognized IMPLAN input-output model. The IMPLAN computer software package consists of procedures for estimating local input-output models using associated databases, which are techniques for quantifying interactions between firms, industries, and social institutions within a local economy. IMPLAN allows users to build economic models to estimate the impacts of economic changes in their states, counties, or communities. The economic data for IMPLAN come from the system of national accounts for the United States based on data collected by the U. S. Department of Commerce, the U.S. Bureau of Labor Statistics, and other federal and state government agencies. Data are collected for 509 distinct producing industry sectors of the national economy corresponding to the North American Industry Classification System (NAICS). Corresponding data sets are also produced for each county in the United States, allowing analyses at the county level and for geographic aggregations such as clusters of contiguous counties, individual states, or groups of states. National and county level data are the basis for IMPLAN calculations of input-output tables and multipliers for local areas.<sup>3</sup>

#### **5. Margins and the Deflator**

Two additional adjustments are necessary. First, since some expenses in the regional economy involve purchaser prices (not producer prices), data need to be subdivided to work with the input-output model because all values are in producer prices. Specifically, all purchases by end users or consumers must be split into the portion going to the retailer, the wholesaler, transportation and the manufacturer. This is done by the IMPLAN system using ‘margins’. Margins are simply a mark-up the retailer applies to a

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<sup>3</sup> The appendix explains the technical details in using the IMPLAN industry sectors for this study.

product over and above the wholesale cost of the good the retailer had to pay to be able to sell it at the store. Thus, margins improve the impact assessment since it allows the model to be more specific as to the economic activity triggered by a retail purchase. Second, since inflation changes the value of a dollar over time, deflators must be used to adjust values from one time period to another. Therefore, to obtain an accurate impact analysis, expenditures need to be expressed in the same year's dollars as the model's data. The latest IMPLAN data for the State of California are for the year 2002. For that reason, the numbers are adjusted to 2004 dollars, which is the year under analysis.

## **6. Data**

All data used in this economic impact study are for the 2004-2005 fiscal year and are provided by an assorted list of sources, including the University Budget Office, the Institutional Research Office and the California State University system main statistical office. One valuable goal of the study is to differentiate among the impact due to university operating expenditures, employees expenditures (payroll) and students expenditures. Therefore, the following sections present expenditure information and the impact of each of the categories on the regional economy.

### **III. Impact of CSU-Fresno on the San Joaquin Valley Economy**

#### **1. University Operation and Equipment Expenditures**

According to information provided by the University Budget Office for the 2004-2005 fiscal year, CSU-Fresno operation and equipment expenditures (leaving out expenditures by university auxiliaries which are discussed below) amounted to \$78.22 million. Of this total approximately \$46.88 million was paid to San Joaquin Valley vendors, which implies a regional purchase coefficient of approximately 0.60.

The economic impact of CSU-Fresno also comes from the expenditures made by university auxiliaries which are non-profit, public benefit organizations formed to assist the educational mission of the university. Currently, there are seven auxiliary organizations at CSU-Fresno, each of which is discussed next.

First, the California State University, Fresno Foundation is the auxiliary designed to receive all charitable donations to the university and is responsible for grant and contract development as well as administration of trust accounts to support university operations. In the 2004-2005 academic year this organization spent \$35.68 million. Second, the California State University, Fresno Association Inc., which among other major tasks manages the SaveMart Center, the bookstore, the university courtyard, the university student union and food services. In the 2004-2005 academic year this organization spent \$33.44 million. Third, the Athletic Corporation, which operates and funds activities related to intercollegiate athletic competition. In the 2004-2005 academic year this organization spent \$23.00 million. Fourth, the Agricultural Foundation, which provides support for the financial management of the enterprise units and academic projects at the College of Agricultural Sciences and Technology. In the 2004-2005 year academic this organization spent \$3.42 million. Fifth, the Fresno State Programs for Children, Inc., which operates day care services in the Campus Children's Center and the Early Education Center. In the 2004-2005 academic year this organization spent \$1.57 million. Sixth, the Bulldog Foundation, which promotes education through student-athlete scholarships. In the 2004-2005 academic year this organization spent \$0.56 million. Finally, the Associated Students of California State University, Fresno, which is a student-run organization that operates extra curricular activities like the student newspaper, cultural programs, etc. In the 2004-2005 academic year this organization spent \$0.54 million.

Therefore, total expenditures by university auxiliaries amounted to \$98.23 million. Assuming a regional purchase coefficient of approximately 0.60, the net additional spending of the university auxiliaries in the San Joaquin Valley's economy totaled \$58.93 million.<sup>4</sup> Finally, the direct spending by the university and auxiliaries totaled \$105.82 million in the 2004-2005 academic year.

The impact analysis shows that the \$105.82 million spent by CSU-Fresno and its auxiliaries produced a total effect of \$168.94 million in terms of output. Output is

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<sup>4</sup> Although the percentage of expenditure by university auxiliaries spent locally might be higher than 60%, based on the available data it cannot be exactly determined. The assumption of a regional purchase coefficient of 0.60 is a conservative one, as an attempt to avoid overestimating the economic impact of these auxiliary organizations.

measured by the total value of purchases by intermediate and final consumers. Therefore output can also be thought as a value of sales, plus or minus inventory. Expenditures by CSU-Fresno and its auxiliaries supported a total of 2,522 jobs in the San Joaquin Valley. The employment multiplier derived by dividing total jobs by the number of direct jobs is 1.35. The total effect in terms of labor income created amounted to \$110.32 million. See Table 2 for a summary of expenditures by CSU-Fresno and its auxiliaries spending impacts.

**Table 2. University and Auxiliaries Expenditures Impact**

University and Auxiliaries Expenditures Impact					
	Direct	Indirect	Induced	Total	Multiplier
Output	\$105,823,549	\$3,555,804	\$59,585,390	\$168,964,743	1.59
Income	\$88,894,379	\$1,151,136	\$20,282,266	\$110,327,781	1.24
Employment	1,856	36	630	2,522	1.35

## 2. Payroll

According to the University Budget Office, the CSU-Fresno campus at the end of the 2004-2005 academic year, had a total of 1335 full-time and 724 part-time employees. In all, there were 1205 faculty members, 733 staff members and 121 administrators. Salary and wages amounted to \$52.95 million for faculty, \$29.37 million for staff and \$9.66 million for administrators for a total of \$91.99 million. These figures do not include the amount received as benefits such as health care, retirement, etc. Also, since consumers purchase goods and services using their disposable income, the wage and salary numbers need to be adjusted by subtracting income and social security taxes. This study assumes an average disposable income ratio of 80%. Therefore, after adjusting for all taxes, the total disposable income earned by CSU-Fresno employees were \$73.59 million.

The impact analysis shows that the \$73.59 million earned by CSU-Fresno employees produced a total effect of \$100.11 million in terms of output. The total effect in terms of labor income created amounted to \$24.60 million. The employment multiplier derived by dividing total jobs by the number of direct jobs is 1.55. Expenditures by CSU-

Fresno employees supported a total of 766 jobs in the San Joaquin Valley. See Table 3 for a summary of CSU-Fresno employees spending impacts.

**Table 3. Payroll Impact**

<b>Payroll Impact</b>					
	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>	<b>Multiplier</b>
Output	\$73,592,602	\$13,156,359	\$13,364,936	\$100,113,897	1.36
Income	\$15,564,926	\$4,484,850	\$4,554,048	\$24,603,824	1.58
Employment	493	132	141	766	1.55

### 3. Student Expenditures

College costs and additional expenditures vary depending on where a student lives during the academic year - at home with parents or relatives, in campus housing (residence halls), or off campus. The costs of attending CSU-Fresno in the 2004-2005 academic year are presented in Table 4.

**Table 4: CSU-Fresno Costs of Attendance**

<b>Students living...</b>	<b>...with parents</b>	<b>...on-campus</b>	<b>...off campus</b>
<b>Fees</b>	\$2,702	\$2,702	\$2,702
<b>Books and Supplies</b>	\$1,260	\$1,260	\$1,260
<b>Food and Housing</b>	\$3,240	\$7,180	\$6,582
<b>Transportation</b>	\$840	\$672	\$944
<b>Miscellaneous</b>	\$1,714	\$1,512	\$1,838
<b>Total Budget</b>	<b>\$9,756</b>	<b>\$13,326</b>	<b>\$13,326</b>

Source: California State University Student Academic Support Office

Allowances for expenses other than tuition and fees, are based largely on state-wide survey data about the average expenses of students in California conducted by the California State University statistical office. With the aid of information on the regional costs, expenses are adjusted to the area served by particular campuses. To avoid double counting, expenditures on fees, books and supplies are excluded since these payments represent sources of revenue and are recycled as university expenses.

Based on numbers produced by the CSU-Fresno Institutional Research Office, 94% of the 19,781 students enrolled in the 2004-2005 academic year lived off campus and commuted, and 6% lived in the dorms. Statistics collected by this office do not distinguish between those students living with their parents or relatives and those living off campus on their own. Thus, assuming all students living off campus spend the average of the two possible classifications -living with their parents or relatives and living off campus on their own-, each student spent an average of \$7,569 while each student living on campus spent an average of \$9,364. Based on these estimates, the total estimated spending of CSU-Fresno students for the 2004-2005 school year was equal to \$152.03 million.

The impact analysis shows that the \$152.03 million spent by CSU-Fresno students produced a total effect of \$237.97 million in terms of output. The total effect in terms of labor income created amounted to \$101.64 million. Student expenditures supported a total of 3,342 jobs in the San Joaquin Valley. The employment multiplier derived by dividing total jobs by the number of direct jobs is 1.37. See Table 5 for a summary of student spending impacts.

**Table 5. Students Expenditures Impact**

<b>Students Expenditures Impact</b>					
	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>	<b>Multiplier</b>
Output	\$152,038,994	\$30,332,196	\$55,603,209	\$237,974,399	1.56
Income	\$71,646,026	\$11,081,889	\$18,936,677	\$101,664,592	1.41
Employment	2,434	321	587	3,342	1.37

#### **4. Impact Summary Tables**

The San Joaquin Valley region as defined in this study -comprising Fresno, Madera, Kings and Tulare Counties- has a population of more than 1.5 million where almost half are employed for a total personal income of almost \$40,000 million.

Table 6 shows a summary of impacts that the university and its auxiliaries, payroll and students expenditures had on the regional economy. The summary shows that the \$331.45 million in total expenditures by the three categories, produced a total effect of

\$507.05 million in terms of output, with an average output multiplier of 1.50. The total effect in terms of labor income created amounted to \$236.59 million, with an average income multiplier of 1.41. The total effect in terms of employment supported amounted to 6,630 full time jobs, with an average employment multiplier of 1.42.

Similar to most impact studies, the relative magnitude of the induced effects is significant. Household spending in the San Joaquin Valley, which is the result of direct and indirect industry economic activity, is a major contributor to the vitality of the regional economy. More than 25% of total business sales and more than 20% of the total full time jobs supported by the presence of CSU-Fresno in the region are sustained by household spending.

**Table 6. Impact Summary**

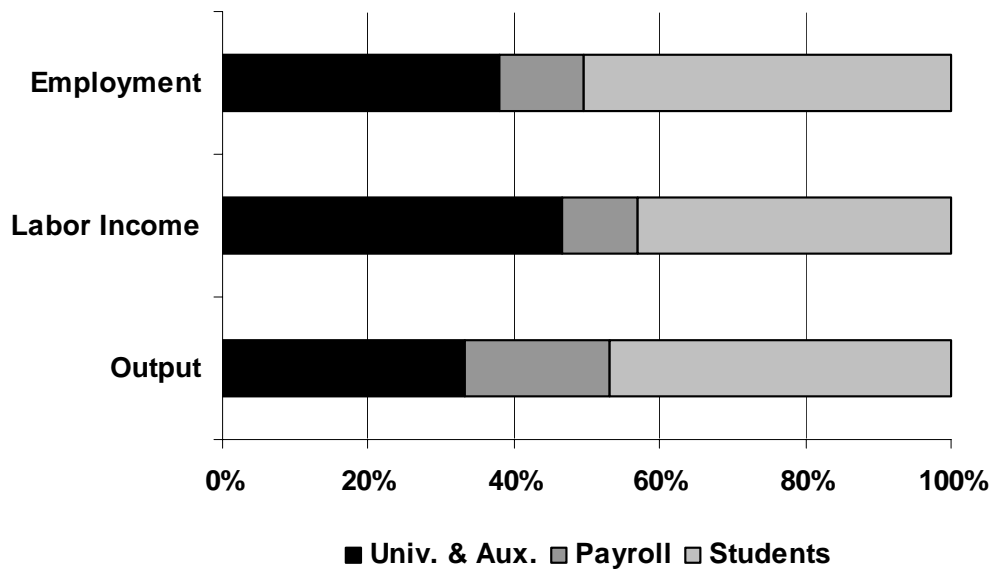
<b>Summary of Output Impacts for All Spending Categories</b>					
	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>	<b>Multiplier</b>
University and Auxiliaries Expenditures	\$105,823,549	\$3,555,804	\$59,585,390	\$168,964,743	1.59
Payroll	\$73,592,602	\$13,156,359	\$13,364,936	\$100,113,897	1.36
Students Expenditures	\$152,038,994	\$30,332,196	\$55,603,209	\$237,974,399	1.56
<b>TOTAL</b>	<b>\$331,455,145</b>	<b>\$47,044,359</b>	<b>\$128,553,535</b>	<b>\$507,053,039</b>	<b>1.50</b>

<b>Summary of Employment Impacts for All Spending Categories</b>					
	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>	<b>Multiplier</b>
University and Auxiliaries Expenditures	1,856	36	630	2,522	1.35
Payroll	493	132	141	766	1.55
Students Expenditures	2,434	321	587	3,342	1.37
<b>TOTAL</b>	<b>4,783</b>	<b>489</b>	<b>1,358</b>	<b>6,630</b>	<b>1.42</b>

<b>Summary of Income Impacts for All Spending Categories</b>					
	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>	<b>Multiplier</b>
University and Auxiliaries Expenditures	\$88,894,379	\$1,151,136	\$20,282,266	\$110,327,781	1.24
Payroll	\$15,564,926	\$4,484,850	\$4,554,048	\$24,603,824	1.58
Students Expenditures	\$71,646,026	\$11,081,889	\$18,936,677	\$101,664,592	1.41
<b>TOTAL</b>	<b>\$176,105,331</b>	<b>\$16,717,875</b>	<b>\$43,772,991</b>	<b>\$236,596,197</b>	<b>1.41</b>

The main contributor to output and employment in the regional economy is expenditures by students. They support more than 50% of the total full time jobs and almost 47% of the total output created. In terms of labor income, expenditures by the university and its auxiliaries are the main source with close to 47% of the total followed by student expenditures with nearly 43%. The expenditure category that brings the smallest contribution to employment, labor income and output is the expenditures by CSU-Fresno employees. As Figure 2 shows, this category's contribution amounted to 19% in terms of output, 10% in terms of labor income and 11% in terms of employment.

**Figure 2. Relative Impact Contribution by Expenditure Category**



An alternative interpretation of the total regional economic impact of California State University, Fresno is to think about what would happen if the university was not located within the San Joaquin Valley. Total business revenue in the area would decrease by about \$507.05 million, labor income would decrease by \$236.59 million, and the numbers of full time jobs would be 6630 smaller.

Finally, it is worth noticing that in general the IMPLAN multipliers are smaller (more conservative) than the RIMS II multipliers. The Cypher, Houser and Smith (1998) study for example employs an output multiplier of 1.97 and an employment multiplier of

3.9. Similarly, the Houser and Davis (2002) study employs an output multiplier of 1.93 and an employment multiplier of 1.46.<sup>5</sup> For comparison, Table 7 below shows the summary results of all economic studies conducted so far for CSU-Fresno. As discussed before, they all vary in scope and methodology, nevertheless they show consistency and robustness in the magnitude of the economic impact in the regional economy.

**Table 7: CSU-Fresno Economic Impact Studies Comparison**

	Study			
	Cypher, Houser and Smith (1998)	Houser and Davis (2002)	Egan et al. (2005)	Avalos (2005)
<b>Output Impact</b>	\$303.44 million	\$402.97 million	\$797.97 million	\$507.05 million
<b>Employment Impact</b>	8,102 jobs	6,030 jobs	15,300 jobs	6,630 jobs
<b>Period</b>	1996-1997	2000-2001	4-year average	2004-2005
<b>Region</b>	Fresno, Madera, Kings, Tulare, Merced, Stanislaus and Kern	Fresno, Madera, Kings, Tulare and Merced	San Joaquin Valley CSU-defined region of 13 counties	Fresno, Madera, Kings and Tulare

#### IV. Major Industries Impacted by CSU-Fresno

This section presents a decomposition of the overall economic impact of CSU-Fresno on the regional economy by industry. The level of industry aggregation presented follows the NAICS at the 2 digit level. The three expenditures categories -university and its auxiliaries, payroll and students expenditures- were added into a single category to calculate the total economic impact of CSU-Fresno in terms of output, employment and labor income by industry.<sup>6</sup> Table 8 shows the results of this analysis. CSU-Fresno’s activities are contained in the government industry sector. Therefore, since the primary

<sup>5</sup> For an informative discussion about the differences in magnitude of multipliers of different models see Schwer and Rickman (1995).

<sup>6</sup> It is worth mentioning that output is only an approximation of sales for several industry sectors as not all production for a given year is necessarily sold but may go into inventory. Conversely, sales may exceed output if some of those sales come out of inventory.

goal is to measure their impact on other sectors, the government sector is not included in the discussion.

**Table 8. CSU-Fresno Economic Impact by Industry**

<b>Economic Impact by Industry</b>			
<b>INDUSTRY</b>	<b>Output</b>	<b>Income</b>	<b>Employment</b>
Ag, Forestry, Fish & Hunting	\$4,944,545	\$819,975	47
Mining	\$121,531	\$27,649	0
Utilities	\$4,780,431	\$992,829	11
Construction	\$3,188,764	\$1,444,799	32
Manufacturing	\$14,986,381	\$2,721,268	64
Wholesale Trade	\$10,874,044	\$4,037,548	81
Transportation & Warehousing	\$8,898,843	\$3,789,150	93
Retail trade	\$192,179,510	\$83,628,429	2829
Information	\$13,455,718	\$3,419,926	65
Finance & insurance	\$22,111,366	\$6,150,568	124
Real estate & rental	\$17,225,706	\$2,751,828	136
Professional-scientific & tech services	\$9,643,946	\$5,335,947	125
Management of companies	\$6,802,391	\$2,819,526	60
Administrative & waste services	\$8,148,752	\$3,766,465	176
Educational services	\$1,985,187	\$784,147	40
Health & social services	\$32,434,413	\$16,666,024	377
Arts- entertainment & recreation	\$2,389,255	\$859,044	75
Accommodation & food services	\$12,957,971	\$4,390,368	294
Other services	\$12,010,343	\$5,570,263	220
Government	\$127,913,940	\$86,620,495	1783
<b>TOTAL</b>	<b>\$507,053,039</b>	<b>\$236,596,247</b>	<b>6630</b>

University related spending output impacts are seen primarily in the retail trade, health and social services, finance and insurance services, and real estate and rental sectors. This four industrial sectors amount to more than 50% of the total output impact in the regional economy. According to the Bureau of Economic Analysis (BEA) estimates of Gross State Product (GSP) by industry, real estate and rental sector, the government sector and the retail trade sector are among the five largest industries in the GSP. Thus, the contribution of the university is significant in these three industry sectors. In terms of labor income, the impact is mostly felt in the retail trade and health and social services sectors. Together, these two industry sectors account for more than 40% of the total labor income impact in the regional economy. Again, university activity generates a

significant impact in these sectors which, according to BEA estimates, are in fourth and fifth place in terms of employee compensation.

According to labor information estimates from the California Employment Development Department, in September of 2005 employment in the four counties that compose the San Joaquin Valley amounted to 665,000. Therefore, university-related activities contribute to roughly 1% of the total employment in the regional economy. The retail trade, health and social services, and accommodation and food services sectors account for more than 50% of the total employment impact. Other industry sectors that see a significant economic impact due to university-related expenses include manufacturing, professional/scientific and technical services.

## **V. The Tax Impact of CSU-Fresno**

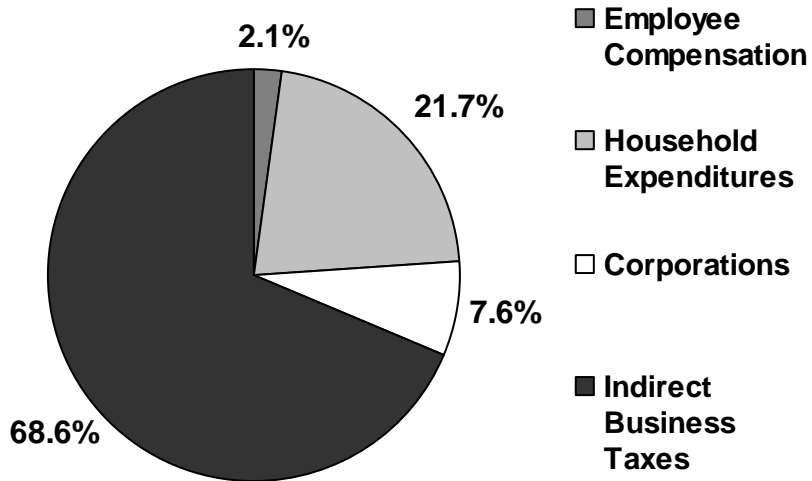
Although CSU-Fresno holds a tax exempt status, university-related expenditures in the regional economy create economic activity in economic sectors that comprise the area tax base. As seen in Table 9, the total estimated tax revenue generated for the State of California and the county governments of Fresno, Madera, Kings and Tulare Counties is greater than \$43.81 million. IMPLAN does not produce separate reports for the state and local government. Thus, this number includes total estimated tax revenue for both levels of government.

The relative impact contribution to tax revenue from the four components of value added -employee compensation, household expenditures, corporations and indirect business taxes- can be seen in Figure 3. Almost 70% of state and local tax revenue comes from indirect business taxes making the greater contributor. Also significant is the contribution of household expenditures, which contributes in almost 22% to state and local tax revenue.

**Table 9. Tax Impact of CSU-Fresno**

		Tax Impact				
		Employee Compensation	Household Expenditures	Corporations	Indirect Business Taxes	TOTAL
S t a t e  a n d  L o c a l  T a x e s	Corporate Profits Tax			\$971,658		\$971,658
	Dividends			\$2,352,513		\$2,352,513
	Indirect Bus Tax: Motor Vehicle License				\$245,406	\$245,406
	Indirect Bus Tax: Other Taxes				\$2,038,585	\$2,038,585
	Indirect Bus Tax: Property Tax				\$11,275,192	\$11,275,192
	Indirect Bus Tax: S/L NonTaxes				\$1,440,965	\$1,440,965
	Indirect Bus Tax: Sales Tax				\$15,068,929	\$15,068,929
	Indirect Bus Tax: Severance Tax				\$5,415	\$5,415
	Personal Tax: Estate and Gift Tax					
	Personal Tax: Income Tax		\$6,743,805			\$6,743,805
	Personal Tax: Motor Vehicle License		\$232,718			\$232,718
	Personal Tax: NonTaxes (Fines- Fees)		\$2,370,362			\$2,370,362
	Personal Tax: Other Tax (Fish/Hunt)		\$39,898			\$39,898
	Personal Tax: Property Taxes		\$109,695			\$109,695
	Social Ins Tax- Employee Contribution	\$247,679				\$247,679
	Social Ins Tax- Employer Contribution	\$673,180				\$673,180
<b>TOTAL</b>		<b>\$920,860</b>	<b>\$9,496,478</b>	<b>\$3,324,171</b>	<b>\$30,074,493</b>	<b>\$43,816,001</b>

**Figure 2. Relative Tax Impact Contribution by Component of Value Added**



A deeper analysis of the indirect business taxes category reveals that the main source of revenue for state and local governments impacted is the sales tax, which

accounts for almost 35% of the additional total tax revenue generated by university-related expenditures. This result is not surprising when considering that sales taxes are levied as a percentage of the total amount spent at retail stores, which is the sector subject to the largest sales impact. Also significant is the property tax which accounts for more than 25% of the additional total tax revenue generated by university-related expenditures. Property taxes are levied as the percentage of the estimated value of land and structures, and are paid by property owners.

## **VI. Concluding Remarks**

This study of the contribution of California State University, Fresno to the San Joaquin Valley's economy has focused on the impact of the university community as an employer and purchaser of goods and services during the 2004-2005 academic year. The analysis uses conservative assumptions to estimate the short-term economic impacts employs only centralized financial and aggregated enrollment reports. Indeed, the analysis presented underestimates the impact of the university as it does not measure the short-run impact of university visitors or university retirees. Also, as mentioned in the introduction no attempt is made to measure long-run effects implied by the presence of the university such as technological advances resulting from scientific experimentation, regional workforce productivity increases, or increases in the probability attracting business and resources into the regional economy.

Data used in this study required adjustment and interpretations for the purposes of economic analysis. However, every reasonable effort was made to eliminate errors, double counting and inaccuracies in the data estimation techniques. Overall, evidence suggests that as one of the largest employers in the San Joaquin Valley, California State University, Fresno is a significant driver in the regional economy, creating dynamism for further economic growth as well as directly and indirectly contributing to the stability of state and local government finances.

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## **Appendix**

All impacts were calculated based on the 2002 California IMPLAN State Data for the counties of Fresno, Madera, Kings and Tulare. The model uses the 2004 deflators to convert impact expenditures from current base year to the base year of the predictive multipliers (2002). Conversely, the deflators are used to inflate the study area and impact reports to the current year. Margins are used when appropriate to convert purchaser prices to producer prices and the only regional purchase coefficient used was 0.6 for the total expenditures by university and university auxiliaries. For the estimation of the impact of expenditures by university and university auxiliaries, the State and Local Government Education Demand was employed, which includes 263 IMPLAN industry sectors. To estimate the impact of university payroll, the demand of households making between 50 and 75 thousand dollars was employed (Households 50-75k) which includes 298 IMPLAN industry sectors. Finally, to estimate the impact of student expenditures, three IMPLAN industry sectors were employed: sector 405 to account for food and housing expenditures, sector 407 to account for transportation expenditures and sector 411 to account for miscellaneous expenditures.