



SDSU Economic Impact Analysis

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I. Introduction

San Diego is one of the most dynamic and innovative regions in the nation, in part due to its world-class institutions of higher education and cutting-edge research initiatives. San Diego State University (SDSU) has been part of the San Diego community for over 120 years and plays a vital role in the region's higher education system. With roughly 34,688 students enrolled during the 2016-17 academic year, the social and economic impact of SDSU on the San Diego region (San Diego and Imperial counties) is significant.

Traditionally, the impact of a university is thought of as the incalculable value of knowledge and learning that its students receive. While education is indeed valuable in its own right, the economic impact of a university can be accounted for, in monetary terms, through its spending, student activity and the incremental lifetime income of its alumni. This report analyzes those quantifiable impacts of university and student spending and the higher earning power of SDSU graduates.

ICF used the IMPLAN input-output model to measure the inter-industry effects of university and student spending and alumni earnings on the regional economy. IMPLAN calculates the flow of expenditures from various industry sectors – e.g., university operations or construction expenditures – using a model specific to the regional economy of San Diego and Imperial counties. By tracking SDSU-related spending throughout the economy, the model calculates the indirect and induced impacts due to the expenditures by and on the current students and alumni.

This analysis builds upon a previous study conducted by ICF in 2007 that used a similar methodology to analyze the impact of SDSU on the region's economy. According to the study, in 2006-07 SDSU contributed a total of \$2.4 billion in direct, indirect, and induced industry activity into the San Diego regional economy from university, student spending and alumni activity. In 2017 dollars, this contribution is equivalent to \$2.9 billion. In 2017, the total economic impact of SDSU operations, students and alumni was more than \$5.67 billion¹.

Furthermore, SDSU is a major tax generator in the region and continues to grow, producing approximately \$87 million more in tax impacts than it did 10 years ago. In 2006-07 SDSU generated just over \$97 million² in state and local tax impacts from operations and current students alone, while in 2017 SDSU generated almost \$184 million in tax impacts. Including alumni, SDSU generates \$457 million in tax impacts, compared to a tax impact of \$360 million³ in 2006-07.

While there are more current students enrolled at SDSU than there were in 2007, industry activity per current student is also higher now than it was in 2006-07. Ten years ago, approximately \$46,000⁴ in regional industry activity was generated annually per student. Today, each SDSU student generates \$57,000 in regional industry activity a year. In all, SDSU continues to grow as

¹ It should be noted that the approaches to capturing student spending and alumni impacts have been modified since the 2007 assessment so a true comparison of overall impact is not possible. See Appendix for more information.

² Reported in 2017 dollars to account for inflation.

³ Reported in 2017 dollars to account for inflation.

⁴ Reported in 2017 dollars to account for inflation.

a presence in the regional economy, generating state and local tax dollars and preparing generations of students to enter the workforce.

II. Results

The following discussion details the economic ripple effect that SDSU has on San Diego and Imperial counties (“the region”) in terms of employment, labor income, and industry activity generated as a result of university expenditures, student spending, and alumni impact. ICF also analyzed the top industries that benefit directly and indirectly from SDSU’s expenditures and student spending as well as the significant impact that alumni add to the region through their increased earning power as SDSU degree-holders.

SDSU’s operations, current student spending and alumni:

- Generate \$5.67 billion in total annual spending impact in the region
- Support almost 42,000 jobs in the region
- Create \$457 million in state and local taxes annually

To gain a better understanding of the drivers of impact, the results include a separate discussion of impact for university expenditures (which include capital, operational, and auxiliary expenditures), student spending (which includes on- and off-campus student spending), and alumni activity. The combined impacts of university expenditures and student spending are referred to as the core SDSU impacts.

1. Summary Findings

Table 1 represents the total economic impact that SDSU’s operational, student and alumni spending has on the region. In total, SDSU supported almost 42,000 jobs in the region and generated \$2.01 billion in labor income. This activity drove a substantial amount of industry activity – more than \$5.67 billion in the region. SDSU also produces state and local taxes as a result of the direct spending associated with both university expenditures and student spending. Altogether, SDSU produces more than \$457 million annually in state and local taxes. Focusing only on the current operations and student spending, SDSU supports over \$184 million annually in state and local taxes or \$5,314 tax dollars per current student.

Table 1: Summary of SDSU’s Economic Impact on the Region

Impact Type	Employment	Labor Income	Industry Activity
University Expenditures	12,800	\$524 million	\$1.35 billion
Student Spending	5,910	\$226 million	\$617 million
Alumni	23,200	\$1.26 billion	\$3.70 billion
Total	42,000	\$2.01 billion	\$5.67 billion
Multiplier	1.4	1.5	1.6

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. All output values are in 2017 dollars.

The indirect and induced effects of spending can be summarized through each multiplier, which describe the impact university and student spending have on the economy. For example, \$1 million of direct industry activity produces a total effect that is 1.6 times greater than the initial spending. Thus, for every dollar of direct industry activity, \$1.60 is returned to the region's economy. Similarly, each dollar of direct labor income creates a total of \$1.50 as a result of indirect and induced effects. For each direct job created by university expenditures and current student spending, an additional 1.4 jobs are added to the regional economy.

2. Results by Spending Type

2.1 University Expenditures

Direct SDSU-related expenditures for wages and salaries, capital equipment and supplies, and an array of other items related to SDSU's educational mission totaled roughly \$826 million in 2017 dollars. This total includes:

- \$700 million⁵ in university expenditures on wages and salaries, services, supplies, and related ongoing needs and in expenditures by campus auxiliary organizations such as bookstores, campus restaurants, research institutes, etc. This category captures the bulk of student expenditures for books, on-campus food purchases, and related purchases. Therefore, the student spending analysis (discussed in more detail below) does not include students' expenditures on these items, to avoid double counting.
- \$127 million in annual construction and capital expenditures for the 2016 fiscal year⁶.

University expenditures support a total of 12,800 jobs per year in San Diego and Imperial counties, as well as over \$524 million in labor income and over \$1.35 billion in industry activity. Over \$540 million of industry activity is attributable to indirect and induced effects alone. The table below describes the impacts of university expenditures in terms of employment, labor income, and industry activity. University expenditures produce \$132 million in state and local taxes, which equals \$3,814 generated per current student.

Table 2: University Spending Impact

Impact Type	Employment	Labor Income	Industry Activity
Total Effect	12,800	\$524 Million	\$1.35 Billion
Multiplier	1.4	1.5	1.7

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. All output values are in 2017 dollars.

Direct university activity in 2017, which was approximately \$810 million, produced a total effect that is 1.7 times greater than the initial spending. Thus, for every dollar of direct industry activity, \$1.70 is returned to the region's economy. Similarly, each dollar of direct labor income created a

⁵ ICF relied on financial statements provided by SDSU for operational and capital expenditures for the 2016 fiscal year. Operational expenditures were estimated at \$699.6 million.

⁶ SDSU provided an estimate of capital expenditures for 2016, which totaled \$126.7 million.

total of \$1.50 as a result of indirect and induced effects, as well as a total of 1.4 jobs per direct job supported.

2.2 Student Spending

SDSU student spending on textbooks, meals, and off-campus housing for the 2016-17 academic year totaled \$407 million. This spending created a total impact of over \$226 million in labor income and drove nearly \$618 million in industry activity across the region. Total student spending supported nearly 6,000 jobs in the region through direct, indirect, and induced effects.

Table 3: Student Spending Impact

Impact Type	Employment	Labor Income	Industry Activity
Total Effect	5,900	\$226 million	\$618 million
Multiplier	1.4	1.5	1.6

Source: IMPLAN analysis. Note, numbers may not sum due to rounding. All output values are in 2017 dollars.

The direct industry activity associated with student spending in 2017 created a total effect that is 1.6 times greater than the initial spending. Thus, for every dollar of direct industry activity, \$1.60 is returned to the region’s economy. Each dollar of direct labor income created a total of \$1.50 as a result of indirect and induced effects. Additionally, \$52 million of tax impacts are produced by student spending, which is equivalent to \$1,500 of tax impact generated per student.

2.3 Alumni Impacts

Expenditures alone tell us nothing about the impact of SDSU in terms of providing an affordable, quality university education to students who might not otherwise attend a university and obtain a bachelor’s, master’s, or Ph.D. degree. One of the ways that the value of an SDSU education can be estimated is by focusing on the higher earnings power of college and professional degree graduates. The U.S. Census Bureau estimates that a bachelor’s degree holder earns, on average, nearly \$1 million more than a high-school graduate⁷ over the course of their working life.

The enhanced earning power of SDSU degree holders:

- Contribute \$4.35 billion in California industry activity and \$3.70 billion in regional industry activity
- Generate \$1.48 billion in California labor income and \$1.26 billion in regional labor income
- Support 27,300 additional jobs in California
23,200 additional jobs in the region

University education has a powerful economic impact on individual degree earners, and the increased earnings power of graduates needs to be considered for a holistic analysis of SDSU’s economic impact. In total, \$4.74 billion in incremental wages per year can be attributed to SDSU degrees across the State of California. From the enhanced earning power of alumni in California,

⁷ Bachelor’s degree holders who work full time, year-round throughout their career can expect to earn an average of \$2.1 million over their lifetime, compared to \$1.2 million for workers with a high school diploma only. Source: U.S. Census, *The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings*

it is expected that 27,273 additional jobs will be supported in the economy, along with \$1.48 billion in labor income, and \$4.35 billion in industry activity. Additionally, SDSU alumni generate \$232 million annually in state and local taxes as a result of their increased wages.

While an impressive 72 percent of SDSU alumni remain within California, an equally impressive 61 percent reside in immediate region⁸. These regional alumni alone create the majority of alumni-related impacts: \$3.7 billion in industry activity as well as \$1.25 billion in labor income and just over 23,000 jobs.

Based on our analysis, on average, an SDSU degree adds \$1,033,500 in wages over a lifetime⁹.

3. Industry-Level Results

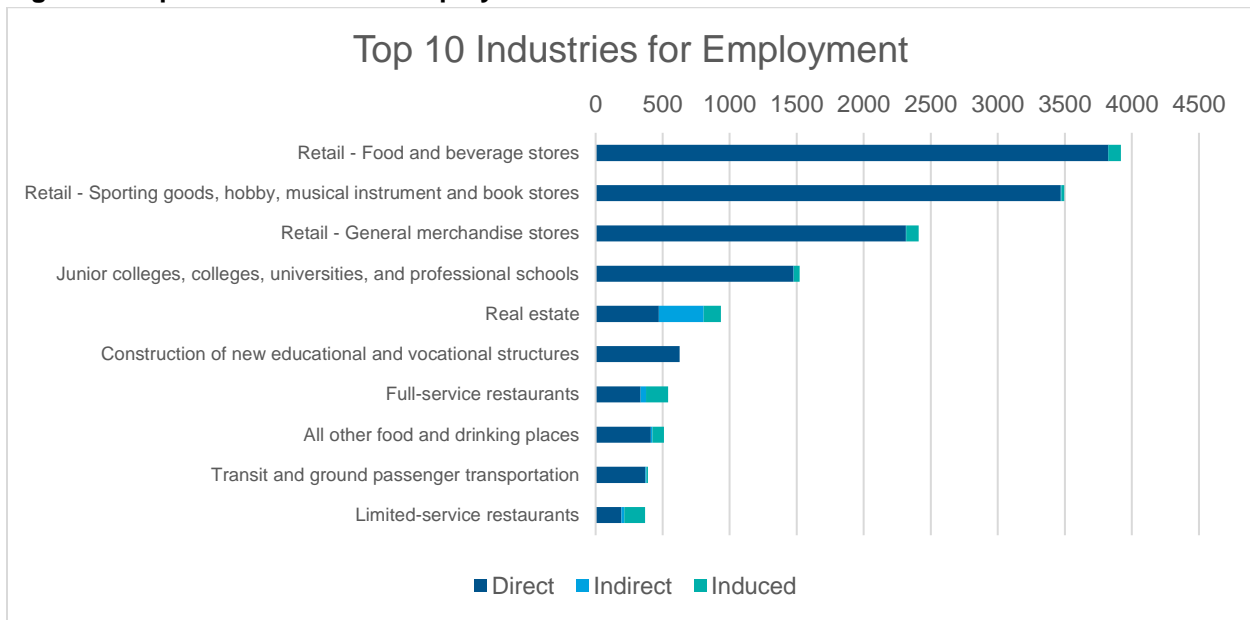
3.1 Top Industries for Employment

The previous discussions detail the impacts generated by SDSU-related activity economy-wide; however, the bulk of the impacts are felt in a concentrated number of industries. University and current student spending alone created a large impact in the retail sector, which includes general merchandise stores, food and beverage stores, sporting goods stores, and bookstores, accounting for around 52 percent of total employment impact (see Figure 1). Although most of this impact is generated through direct spending, nearly 10,000 additional jobs are created as a result of indirect and induced effects in the top 10 affected industries alone. Some of these industries include the real estate sector, restaurants, and transportation. There are also notable induced effects in the health sectors – over 170 jobs are added to the economy in the offices of physicians. Alumni earnings generate significant employment impacts in consumer-facing industries, such as restaurants, but also create considerable employee impacts for hospitals, family services, and real estate.

⁸ SDSU estimates that 61 percent of alumni reside in San Diego and Imperial counties combined. ICF calculated that 72 percent of alumni reside in California, based on data provided by SDSU on national alumni counts by county.

⁹ ICF calculated the annual enhanced earning of SDSU degree-holders by averaging the annual increased wage rates of bachelor's, master's and Ph.D. degree holders across age brackets defined by the U.S. Census. ICF estimated 134,000 bachelor's degree holders and 23,023 post-graduate degree holders (including master's and Ph.D. graduates) to be working in the regional economy, based off SDSU alumni graduate counts from 1976 to present. ICF did not include alumni over the age of 62, who were assumed to be retired. A lifetime is defined as 40 years in the workforce.

Figure 1: Top 10 Industries for Employment

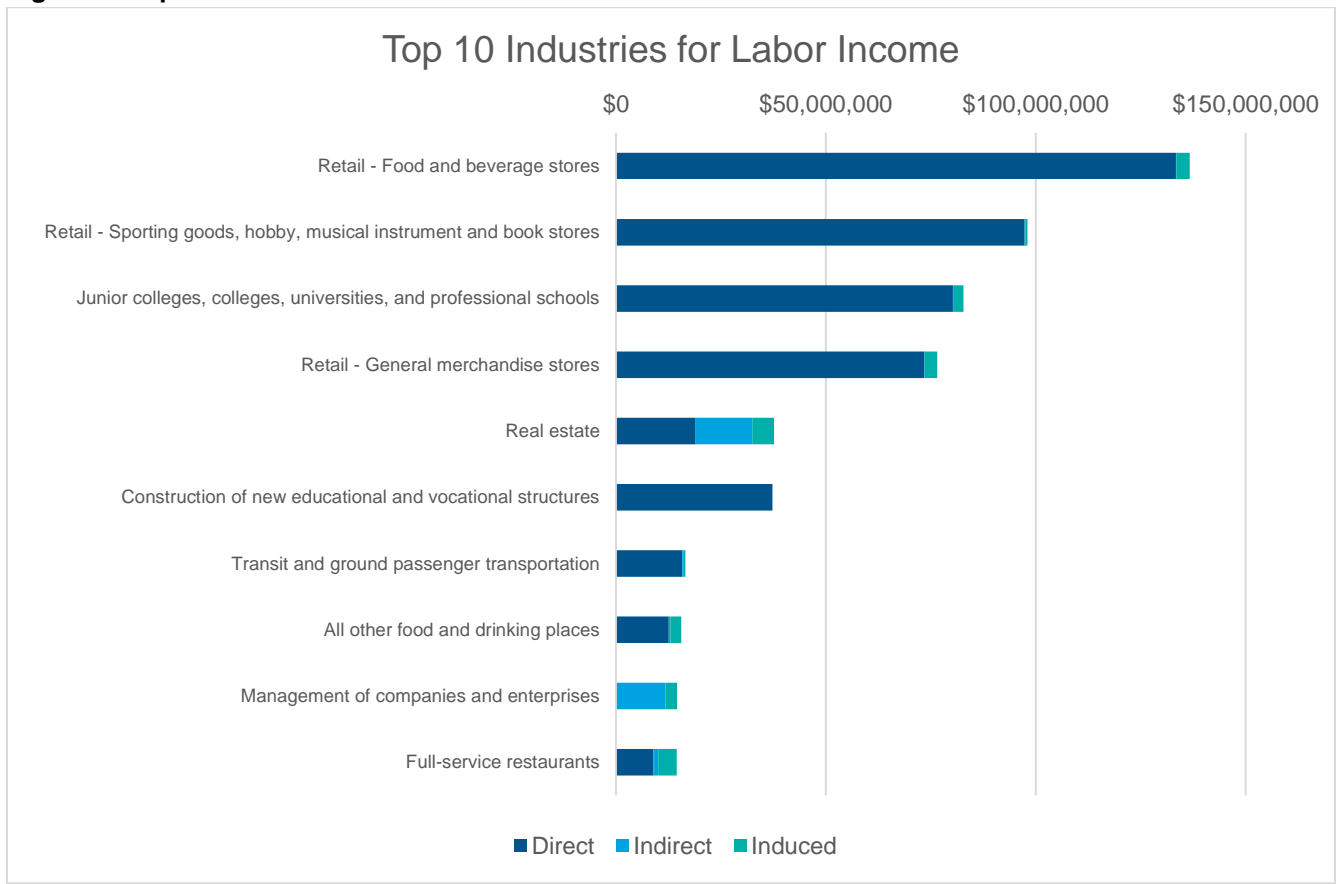


Source: IMPLAN analysis

3.2 Top Industries for Labor Income

Similarly, the bulk of labor income impacts associated with university operations and current student activity are experienced in a few key sectors. The retail sector benefits most significantly, followed by the construction sector, primarily as a result of direct impacts (Figure 2). Although the bulk of impact is a result of direct spending, an additional \$530 million is generated as a result of indirect and induced impacts within the top 10 sectors. These industries include wholesale trade, hospitals, offices of physicians, commercial and industrial machinery rentals, and restaurants. Altogether, the top 10 sectors account for just under 71 percent of total labor income impact. Spending generates the largest impacts in the health sector, followed by wholesale trade and real estate.

Figure 2: Top 10 Industries for Labor Income

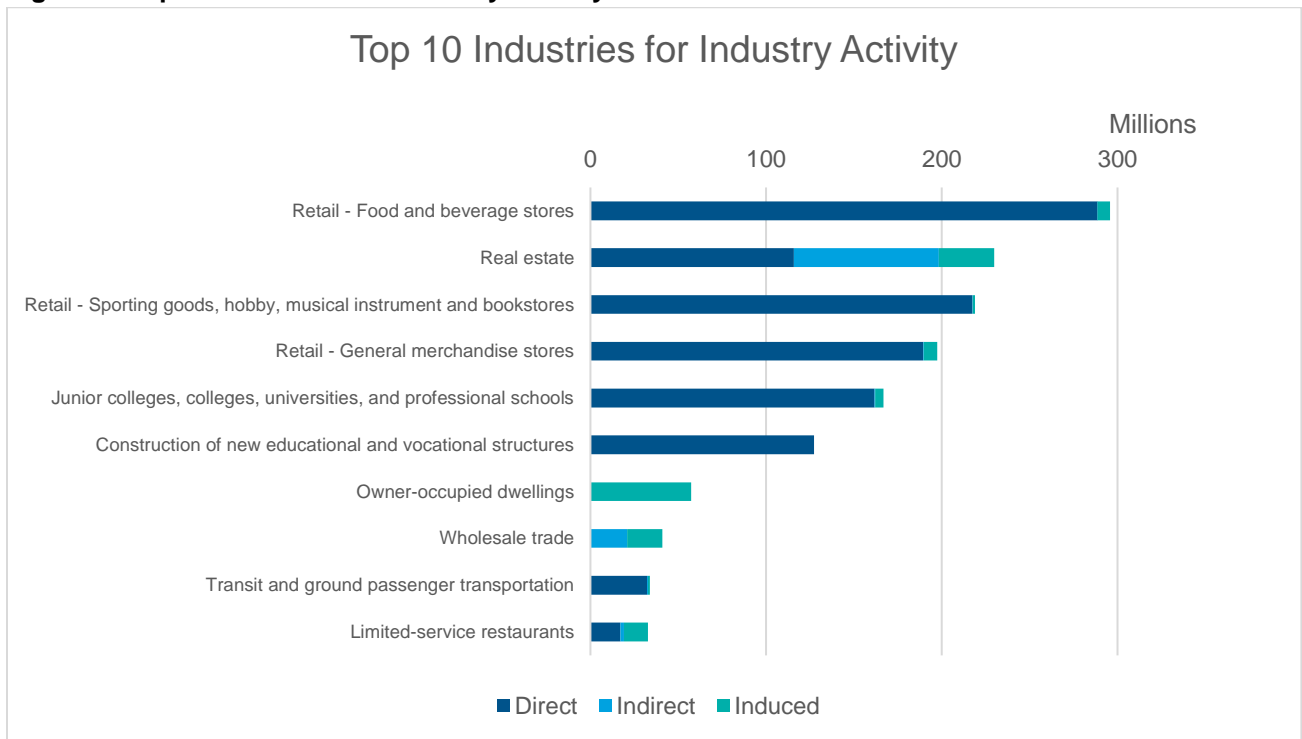


Source: IMPLAN analysis. Note numbers may not sum due to rounding. All output values are in 2017 dollars

3.3 Top Industries for Industry Activity

Like labor income, the industries that experience the largest revenue effects from university operations and current student spending are the industries directly associated with university spending in the retail and college sector (Figure 3). These top four sectors account for almost half, or 48 percent, of the total effect of \$1.97 billion; however, industries such as owner-occupied dwellings, wholesale trade, real estate, and management of companies and enterprises experience exclusively indirect and induced effects. Altogether, the top 10 sectors account for just over 71 percent of total industry activity impact. Alumni spending impacts are spread out over a few key sectors – the largest impact occurring in real estate, followed by wholesale trade.

Figure 3: Top 10 Industries for Industry Activity



Source: IMPLAN analysis. Note, numbers may not sum due to rounding.

4. State Return on Investment

The magnitude of SDSU's economic impact on the State of California can be compared to the state's annual investment in the campus. In 2016-17, the state's investment totaled \$180 million. For every dollar the state invests in the university, the impact of SDSU operational and current student expenditures alone creates \$10.96 in total industry activity. When alumni impacts are considered, the university generates \$35.20 in industry activity for every dollar spent by the State of California¹⁰.

5. Conclusion

SDSU is a significant driver of the regional economy, not only due to the opportunities the university presents for its students, but also due to the ripple effect that SDSU spending produces in industries across the economy. SDSU operations and student activity generate more than \$5.67 billion in economic activity per year in the San Diego region and support over 42,000 regional jobs, including those in secondary industries that depend on the spending of SDSU and its current students. SDSU's activities also generate significant tax revenue streams for state and local governments – approximately \$457 million annually. The enhanced earning power of an SDSU degree is a valuable asset not only for alumni, but also for the regional and state economies. Roughly \$3.7 billion of the total industry activity is generated annually in San Diego and Imperial counties alone as a result of the incremental wage increases supported by an SDSU degree. The state experiences an even larger impact – \$4.35 billion in additional industry activity.

SDSU generates a \$35.20 in industry activity for every dollar California spends on the University

¹⁰ Includes state-wide alumni impacts as well as regional alumni impacts.

Appendix: Detailed Methodology

This section provides an overview of the economic impact modeling methodology, including an introduction to the IMPLAN model, overview on the model input data, and a discussion of the output metrics used to describe the impacts.

To estimate the economic impacts of SDSU on the state-wide economy, ICF used the economic impact modeling software IMPLAN (version 3.1), which is created and maintained by the Minnesota IMPLAN Group (MIG) and widely used throughout the United States and internationally. State and local government agencies and authorities use IMPLAN for a variety of applications, including transportation and aviation projects. The IMPLAN model is a static input-output framework used to analyze the effects of an economic stimulus on pre-specified economic regions; in this case San Diego and Imperial counties. The IMPLAN model is based on the input-output data from the U.S. National Income and Product Accounts (NIPA) from the Bureau of Economic Analysis. The model includes 536 sectors based on the North American Industry Classification System (NAICS). The model uses state-specific multipliers to trace and calculate the flow of dollars from the industries that originate the impact to supplier industries. These multipliers are thus coefficients that “describe the response of the economy to a stimulus (a change in demand or production).” IMPLAN’s outputs include three types of impacts:

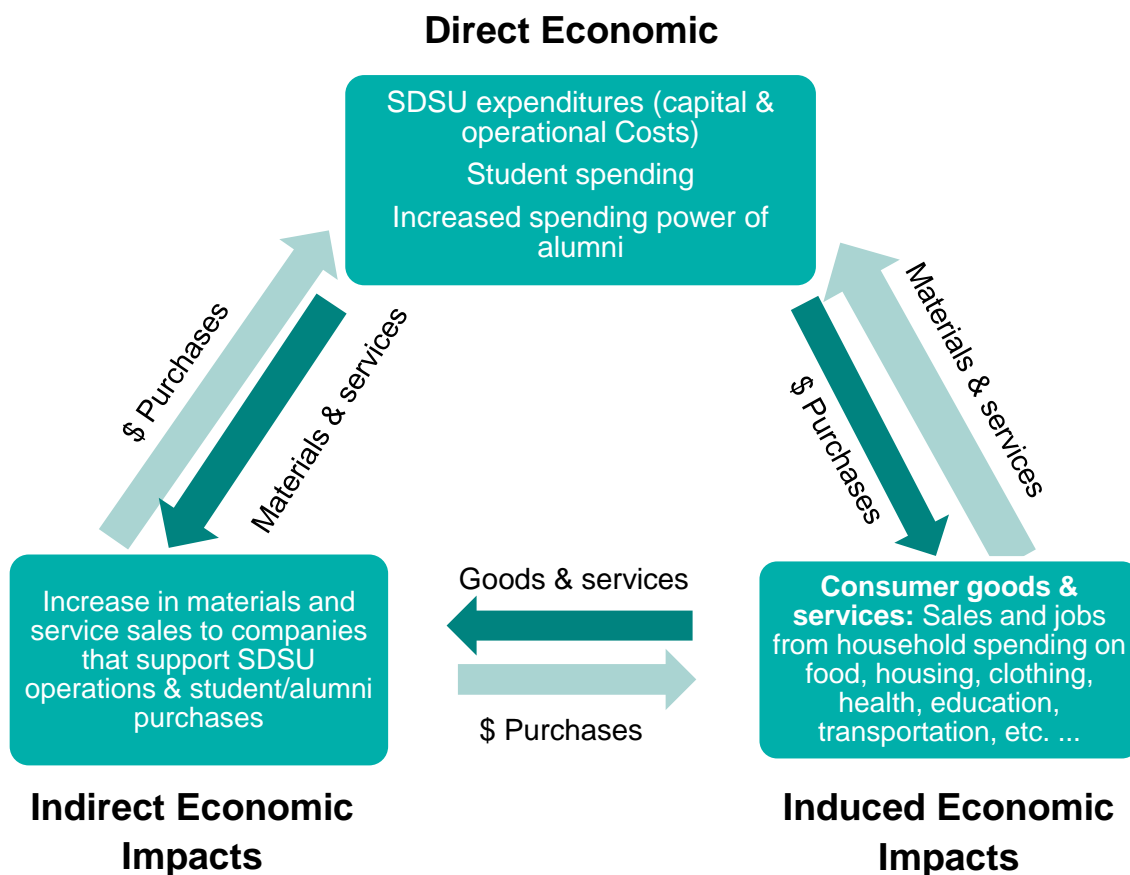
- **Direct impacts**, which are impacts in the primary industries where spending by the university and its students would be focused, such as university operations, construction-related expenses, local student housing, bookstores, and restaurant/food purchases.
- **Indirect impacts**, which are impacts in the industries that supply or interact with the primary industries, for example when university capital projects require the purchase of construction-related building materials.
- **Induced impacts**, which represent increased spending by workers who earn money due to the proposed projects, such as when faculty and staff use their wages at local restaurants.

The IMPLAN model was used to assess the economy-wide and industry-specific impacts of the direct spending associated with operational expenditures, capital expenditures, student spending and the incremental wage increase that alumni gain as a result of their SDSU education. The results of this analysis are reported using four commonly used metrics, consistent with best practices across economic impact analysis. A summary of each metric is provided below:

- **Employment:** Represents the jobs created in each industry, based on the output per worker and output impacts for each industry.
- **Labor Income:** Includes all forms of employment income generated by the direct input, including employee compensation (wages and benefits) and proprietor income.
- **Industry Activity:** Represents the total value of industry activity generated by the direct spending.
- **Tax Impact:** Breakdown of taxes collected by state and local government, including corporate taxes, household income taxes, and other business taxes.

Model-Based Analysis

SDSU creates economic impact via multiple pathways, from operational purchases and capital spending, to student spending activity and increased salaries for alumni. Direct spending by SDSU and its students is the most straightforward economic impact of the university – SDSU purchases goods and services from the surrounding economy, invests in its infrastructure, and serves as an important regional employer. This direct university activity initiates economic impact throughout the economy. However, this direct spending represents only a portion of the university-generated impact. Direct spending in primary industries generates indirect and induced impacts in secondary industries throughout the economy. The direct spending by the university – its operations, capital expenditures, and students – and the multiplier effect of this direct spending is a major part of the university’s overall economic impact on the region. However, the value of SDSU is much more than just the impact of its own direct, indirect, and induced spending because of its alumni, who contribute significantly to the broader regional economy.



The full economic impact of the campus on the regional economy, including indirect and induced impacts in sectors beyond the initial spending categories, can be assessed through economic impact modeling. Regional economic modeling is founded on the principle that industry sectors are interdependent: one industry purchases inputs from other industries and households (e.g., labor) and then sells outputs to other industries, households, and government

entities. Therefore, economic activity in one sector causes an increased flow of money throughout the economy. The section below explains this model and the data and calculations ICF used to create inputs

Model Inputs

This analysis uses the modeling software IMPLAN to calculate these impacts. IMPLAN is widely used by municipalities and other entities and thus the results of this analysis are comparable to other similar assessments of university impacts. The following discussion details the data and calculations ICF used to create inputs for the IMPLAN model. ICF modeled five separate categories of inputs:

- **Operational Expenditures (Including Auxiliary Expenditures)**
- **Capital Expenditures**
- **Student Spending**
- **Alumni Impacts**

ICF relied on financial statements provided by SDSU for operational and capital expenditures for the 2016 fiscal year. Operational expenditures were estimated at \$699.6 million, while capital expenditures were estimated at \$126.7 million. The categories of operational expenditures included in the 2017 analysis differs slightly from the approach taken in 2007. In accordance with current best practice, spending associated with student grants and scholarship (financial aid) and depreciation and amortization is not included in the modeling.

Annual student spending estimates were obtained from SDSU. ICF calculated a total of \$320 million in off-campus spending and \$87.5 million in on-campus spending for 2016/2017. Spending was modeled using local purchase coefficients, meaning that while spending is occurring locally, not all of the direct economic activity is assumed to be retained in the region or California. A certain percentage of this spending “leaks” to other regions; therefore, for each spending category, the actual spending does not necessarily equal the direct impact calculated by IMPLAN.

It should be noted that the methodology used to estimate off-campus student spending in this study differs from the methodology used by ICF in 2007. For the current study, ICF analyzed the off-campus living expenses of all students, other than those who were living with parents. This approach, while consistent with other similar studies conducted, differs from the 2007 analysis, which more conservatively analyzed only those students who came from outside of the region to attend SDSU.

Once university expenditures and student spending were estimated, ICF allocated this spending to appropriate IMPLAN sectors by searching within the complete IMPLAN sector list. The list of IMPLAN sectors used for this analysis are detailed below in Table 5.

Table 5: NAICS codes and IMPLAN Sectors

IMPLAN Sector	IMPLAN Description
400	Retail: Food & Beverage Stores
404	Retail: Sporting goods, hobby, musical instrument and bookstores
405	Retail: General Merchandise

473	Junior colleges, colleges, universities, and professional schools
55	Construction of new educational and vocational structures
501	Full-service restaurants
502	Limited-service restaurants
503	All other food and drinking places
412	Transit and ground passenger transportation
440	Real estate

Alumni Earnings

Alumni impacts are treated separately from the other spending impacts in this analysis because they are not expenditures by the university or its students on local goods or services. Instead, the alumni impacts represent the additional earning power of SDSU graduates and the economic activity generated by these incremental wage increases, when spent in the local economy.

To estimate alumni impacts, ICF relied on data provided by SDSU to determine the number of undergraduate and graduate alumni since 1970 who reside in San Diego and Imperial counties and are still in the workforce. SDSU estimates that 61 percent of all alumni currently reside in San Diego and Imperial counties combined, while ICF calculated 71 percent of all SDSU graduates live in California. To account only for alumni in the workforce, ICF applied a cutoff based on the average retirement age of 62. Using average salary data from the U.S. Census Bureau, the analysis estimated the increase in alumni salaries due to their SDSU degrees and used IMPLAN to determine the statewide economic impact of this additional income.

ICF's calculation of alumni wages represents a conservative approach, as it relied on national averages for wages by age and degree type (California wages tend to be higher than the national average.) and assumed the national average age of retirement, while many alumni above retirement age are likely to be contributing to the economy.

It should be noted that the methodology used to estimate alumni impact in this study differs from the methodology used by ICF in 2007. The previous assessment used an approach which scaled down average alumni earnings to estimate disposable income and modeled the secondary impacts associated with that portion of the income differential only. In accordance with current best practices, ICF did not scale down alumni earnings in this analysis. Because of this methodological difference, the alumni and total impacts reported in 2007 are not directly comparable to the findings reported in this study.