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</table>
SDSU by the Numbers

$936.3 Million
Generated in Economic Impact

4,848 Jobs
Supported and Sustained

$29.3 Million
in State and Local Taxes Generated

$100.8 Billion
Direct Impact Generated by SDSU Alumni throughout the Course of their Careers

11,518 Students

2,596 Graduates Annually

88.9% classes taught by faculty

56.3% undergraduate students from South Dakota

18.7% first-generation college students

118 Undergraduate Programs
94 Graduate Programs
35 Certificate Programs
97 Minors
“Our nearly 100,000 alumni are engineers, nurses, pharmacists, farmers, and teachers. We are the ‘do-ers’ of South Dakota.”

Barry Dunn
SDSU President

Founded in 1881 as South Dakota’s land-grant university¹, South Dakota State University (SDSU) supports the backbone of the state’s ranching and farming economy. SDSU’s people-focused mission has propelled its growth into a powerhouse of research and training for the next generation of South Dakotans on the forefront of knowledge-based sectors. SDSU educates the “do-ers” of the state — the pharmacists, the nurses, and the construction managers that provide core services, man the fuel industries, and strengthen communities. With more than 11,000 students and 2,600 graduates annually, SDSU is making its mark throughout the state.

SDSU takes its mission and vision as a land-grant university to heart. The university’s Lohr College of Engineering seeks to create safer infrastructure throughout the state, and the Animal Disease Research and Diagnostic Laboratory supports South Dakota’s ranching industry and is at the forefront of developing vaccines and testing livestock for disease. The lab keeps herds healthy and ranchers in business. Precision Agriculture at SDSU is propelling farmers into the future, fueling the economy — and preserving the traditional South Dakota way of life. Through the Wokini Initiative, the university develops opportunities for research and collaboration with tribal colleges and provides educational support and increasing opportunities for financial aid for American Indian students.

As the largest employer in Brookings, SDSU is an integral part of the community. SDSU serves as a cultural hub for Brookings, boasting a new theater that hosts national music tours and is used by local elementary students for their recitals.

¹A land-grant university is an institution of higher education in the United States designated by a state to receive the benefits of the Morrill Acts of 1862 and 1890. Signed by Abraham Lincoln, the 1862 Morrill Act started to fund educational institutions by granting federally controlled land to the states for them to sell, raise funds, establish, and endow “land-grant” colleges. The organizational mission of these institutions of higher education is to focus on the teaching of practical agriculture, science, military science, and engineering "without excluding other scientific and classical studies.”
South Dakota State University Mission

South Dakota State University offers a rich academic experience in an environment of inclusion and access through inspired, student-centered education, creative activities and research, innovation and engagement that improve the quality of life in South Dakota, the region, the nation and the world.
SDSU's first-in-the-nation Precision Agriculture major is setting the pace for how a major university can strengthen the farming industry — a key driver of the South Dakota economy — with practical knowledge, application, and strong industry partnerships.

Farming is changing fast with the emergence of new technology. Precision agriculture provides the practical know-how needed to integrate computer technology with farm equipment, farm sensors, GPS navigation, satellite imagery, and drone imagery to increase yield and profitability. And SDSU is producing the college graduates, applied research, and extension expertise to help farmers use precision agriculture to thrive in the 21st century and beyond.

SDSU's approach to precision agriculture stands out because it is designed to evolve as industry needs change. To make this vision a reality, Raven Industries, a successful and highly diversified technology company, partnered with SDSU to build the Raven Precision Agriculture Center, which opened with a ribbon-cutting ceremony in September 2021.

The center creates an innovation ecosystem and economic engine that connects the agricultural industry with SDSU students and faculty. Dan Rykhus, President and CEO of Raven Industries, knows first-hand the power that can be unleashed when a major university bridges the gap between academia and industry. “The partnership between Raven and SDSU is a beautiful melding of interest and capacity. Raven supports the expansion of precision agriculture at SDSU because it leverages economic development in South Dakota and can solve our design talent and field support constraints.” This strong partnership between Raven and SDSU is a prime example of how the university stays focused and aligned with the real-world needs of a state’s economy.

“There’s no better place to advance precision agriculture than in South Dakota — the heart of the agricultural industry. SDSU wants to be cutting edge and so do we.”

Dan Rykhus
President and CEO, Raven Industries
About the Study

In July 2021, the South Dakota Board of Regents (SDBOR) engaged Parker Philips, Inc. to measure the economic contribution of public higher education overall and of each of South Dakota’s six universities. The goal of this analysis is to tell SDSU’s story from a numbers and narrative perspective. To develop this report Parker Philips, Inc. gathered student, financial, and employment data about SDSU, visited and toured the campus conducted interviews, and researched secondary data and information to inform the writing and key messages.

The primary tool used in the performance of this study is the input-output model and data set developed by IMPLAN Group LLC. Financial data used in this study was obtained from South Dakota and included the following data points: operational expenditures, capital expenditures, and payroll and benefits for employees for FY 19. Secondary data was used to estimate spending by visitors (day and overnight) and students (undergraduate and graduate) exclusive of tuition and fees. Additional information on the methodology and assumptions used to complete this study can be found in Appendix B.

The impact presented in this analysis is broken down into three categories: direct impact, indirect impact, and induced impact. The indirect and induced impacts are commonly referred to as the “multiplier effect.” The graphic below provides an overview of the types of impact detailed in this report.
SDSU contributes to the local and statewide economies through its expenditures on operations, capital projects, wages, the spending of students off campus, and the spending of visitors to campus. The direct, day-to-day expenditures of SDSU, combined with the student and visitor spending, cause a ripple effect throughout the statewide economy.

The total economic impact of SDSU in FY 19 totaled $936.3 million. This contribution to the local and statewide economies is a point-in-time snapshot depicting how the expenditures of SDSU and its faculty, staff, students, and visitors make an impact.

### Operations and Spending Contribution

SDSU operations and capital spending in FY 19 contributed a total of $836.4 million. SDSU’s operations generated $513.7 million in direct economic impact, $149.1 million in indirect economic impact, and $173.6 million in induced economic impact.

### Student Spending Contribution

SDSU students contributed a total of $78.5 million to the state’s economy in FY 19 as a result of their spending. They generated $50.8 million in direct economic impact, $13.5 million in indirect economic impact, and $14.1 million in induced economic impact.

### Visitor Spending Contribution

Visitor spending at SDSU in FY 19 contributed a total of $21.5 million. Visitors to SDSU generated $13.0 million in direct economic impact, $4.5 million in indirect economic impact, and $3.9 million in induced economic impact.
SDSU’s Combined Economic Impact (FY 19)

- **Total Combined Economic Impact:** $936,291,701
  - **Direct Spending:** $577,502,522
  - **Indirect Spending:** $167,206,533
  - **Induced Spending:** $191,582,646

- **Total Operations Spending:** $836,366,086
  - **Direct Spending:** $513,664,634
  - **Indirect Spending:** $149,141,640
  - **Induced Spending:** $173,559,812

- **Total Student Spending:** $78,457,252
  - **Direct Spending:** $50,837,986
  - **Indirect Spending:** $13,539,876
  - **Induced Spending:** $14,079,390

- **Total Visitor Spending:** $21,468,363
  - **Direct Spending:** $12,999,902
  - **Indirect Spending:** $4,525,017
  - **Induced Spending:** $3,943,444

Source: Parker Philips using IMPLAN with data from SDBOR and SDSU
Creating & Sustaining Jobs Throughout South Dakota

SDSU supports a total of **4,848 full- and part-time jobs** throughout the state. Beyond the direct jobs at the university, indirect and induced jobs include construction for campus projects, retail, restaurants, daycare, real estate, and banking — to name a few.

### Jobs Generated by University Operations
SDSU operations supported and sustained a total of 3,913 jobs: 1,890 direct jobs, 876 indirect jobs, and 1,147 induced jobs.

### Jobs Generated by Student Spending
Students from SDSU supported and sustained a total of 733 jobs as a result of their spending: 564 direct jobs, 76 indirect jobs, and 93 induced jobs.

### Jobs Generated by Visitor Spending
Visitors to SDSU supported and sustained a total of 202 jobs as a result of their spending: 147 direct jobs, 29 indirect jobs, and 26 induced jobs.

Based on analysis by industry sectors, other jobs supported by the university’s economy outside of the higher-education and healthcare sectors include jobs in real estate, retail, and services (e.g., restaurants, child-care centers, and entertainment).

---

### South Dakota State University Employment Contribution (Jobs, FY 19)

<table>
<thead>
<tr>
<th>Contribution (Jobs)</th>
<th>Direct Contribution</th>
<th>Indirect Contribution</th>
<th>Induced Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,913 total operations</td>
<td>1,890</td>
<td>876</td>
<td>1,147</td>
</tr>
<tr>
<td>733 total student</td>
<td>564</td>
<td>76</td>
<td>93</td>
</tr>
<tr>
<td>202 total visitor</td>
<td>147</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>4,848 total combined</td>
<td>2,601</td>
<td>981</td>
<td>1,266</td>
</tr>
</tbody>
</table>

Source: Parker Philips using IMPLAN with data from SDBOR and SDSU
Generating Local and State Tax Revenues

SDSU’s employees, suppliers, and related constituencies contribute to the local and statewide tax bases. In FY 19, the university contributed an estimated **$31.6 million** ($17.4 million direct and $14.2 indirect and induced) through local spending (operational, capital, students, and visitors) as well as direct and indirect support of jobs. At the state and local levels, SDSU contributes to the tax bases through its purchasing. Specific taxes include employee and employer contributions to state and local social-insurance funds, sales and use taxes, personal property taxes, taxes paid on motor-vehicle licenses, and payments of fines and fees.

### South Dakota State University State and Local Tax Impacts (FY 19)

<table>
<thead>
<tr>
<th></th>
<th>SUB COUNTY GENERAL</th>
<th>SUB COUNTY SPECIAL DISTRICTS</th>
<th>COUNTY</th>
<th>STATE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIRECT</strong></td>
<td>$3,344,538</td>
<td>$3,834,694</td>
<td>$1,543,211</td>
<td>$8,700,571</td>
<td>$17,423,014</td>
</tr>
<tr>
<td><strong>INDIRECT</strong></td>
<td>$1,054,073</td>
<td>$1,210,831</td>
<td>$480,416</td>
<td>$2,660,756</td>
<td>$5,406,076</td>
</tr>
<tr>
<td><strong>INDUCED</strong></td>
<td>$1,713,924</td>
<td>$1,968,993</td>
<td>$780,732</td>
<td>$4,292,088</td>
<td>$8,755,737</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$6,112,535</strong></td>
<td><strong>$7,014,518</strong></td>
<td><strong>$2,804,359</strong></td>
<td><strong>$15,653,415</strong></td>
<td><strong>$31,584,827</strong></td>
</tr>
</tbody>
</table>

Source: Parker Philips using IMPLAN with data from SDBOR and SDSU
Research expenditures increased by more than $4 million from $63.5 million in fiscal year 2018 to $67.6 million in fiscal year 2019. This 6.5% increase moves the university closer to its Imagine 2023 goal of increasing research productivity by 40%.

SDSU ranked 182nd for total research and development expenditures in 2019 according to the National Science Foundation.

SDSU received a grant in 2020 from NIH to study using microparticles in treating tuberculosis. In 2021, they received an NIH grant to research rare genetic mutations in an enzyme that will help patients with genetic conditions.

SDSU received an NSF grant in 2021 to study lithium for use in batteries. The research has implications for powering electric cars and other appliances.

In FY 19, research expenditures at SDSU generated $104.5 million in economic impact, supported 603 jobs, and generated $2.2 million in local and state tax revenue.

**SDSU Research Impacts (FY 19)**

<table>
<thead>
<tr>
<th></th>
<th>Employment (Jobs)</th>
<th>Economic Output</th>
<th>State &amp; Local Tax Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECT</td>
<td>320</td>
<td>$59,143,038</td>
<td>$692,742</td>
</tr>
<tr>
<td>INDIRECT</td>
<td>152</td>
<td>$25,425,702</td>
<td>$618,453</td>
</tr>
<tr>
<td>INDUCED</td>
<td>131</td>
<td>$19,891,388</td>
<td>$901,275</td>
</tr>
<tr>
<td>TOTAL</td>
<td>603</td>
<td>$104,460,128</td>
<td>$2,212,470</td>
</tr>
</tbody>
</table>

Source: SDBOR with analysis by Parker Philips, Inc.

Research commercialization activity at SDSU in FY 19 resulted in 23 invention disclosures, 1 patent issue, and 2 signed licensing agreements.

**SDSU Research Commercialization Activity**

<table>
<thead>
<tr>
<th></th>
<th>Patents Filed</th>
<th>Patents Issued</th>
<th>License Agreements Signed</th>
<th>License Agreements Signed with Start-Ups</th>
<th>Invention Disclosures Coming from Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 17</td>
<td>12</td>
<td>5</td>
<td>7</td>
<td>4</td>
<td>51</td>
</tr>
<tr>
<td>FY 18</td>
<td>10</td>
<td>6</td>
<td>10</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td>FY 19</td>
<td>10</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td>FY 20</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>FY 21</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>TOTAL</td>
<td>38</td>
<td>12</td>
<td>25</td>
<td>7</td>
<td>127</td>
</tr>
</tbody>
</table>

Source: SDBOR and SDSU
Like many states, South Dakota is experiencing a shortage of healthcare professionals. In nursing alone, South Dakota experienced a net loss of more than 2,500 RNs over 2019 and 2020 as nurses retired, left the profession altogether, or moved out of the state, according to the South Dakota Board of Nursing. Healthcare shortages are a particular challenge in rural states like South Dakota, where those who live in healthcare “deserts” have little to no access to face-to-face interaction with a nurse or other healthcare professionals.

SDSU leads the way in addressing this healthcare challenge head-on. Its work to address the opioid crisis, which hits rural residents without access to healthcare particularly hard, is changing outcomes. SDSU formed START — Stigma, Treatment, Avoidance, and Recovery Time — an innovative consortium that delivers services to three counties in rural South Dakota: Brookings, Codington, and Hughes. START-SD brings together faculty from SDSU’s public health, pharmacy, and nursing programs; the Center for Family Medicine and other Avera health providers; and a range of addiction and support counseling providers. Rural county residents can access these services via telehealth or in-person visits.

During 2020, START delivered services to more than 1,000 patients in the tri-county area. SDSU’s world-class faculty are lending their talents to directly address the opioid crisis in rural South Dakota and ensuring all South Dakotans — regardless of ZIP code — have the health care access they need to meet their full potential.

“Rural areas are hit hard by substance use disorders, but they have less access to services. If we all work together we can remove that gap and help every person be a more functioning member of society.”

Dr. Aaron Hunt
START-SD Program Coordinator
In 2019, nearly 2,600 students graduated from SDSU. Thanks to partnerships with employers both locally and statewide, SDSU has built an intentional pipeline to the job market and a strong demand for talent and graduates at businesses big and small. Nearly 52% of SDSU graduates plant their roots in South Dakota, contributing to the state and making a positive economic impact after graduation. The direct impact of the total average wage earned by undergraduate and graduate alumni of SDSU on the economy over a 40-year career totals $100.8 billion.

The earnings of the 36,664 alumni from SDSU living and working in South Dakota over the course of their 40-year careers will total $100.8 billion, support and sustain a cumulative total of 670,964 jobs, and generate $4.5 billion in fiscal impacts at the local, state, and federal levels.
Gameday on the gridiron for the Jacks is an event for the community. In 2019, a total of 164,412 people attended Jackrabbits football games. Collegiate sports are a major part of life at SDSU and for the Brookings community.

Homecoming at SDSU is Hobo Week — a tradition that goes back to 1912. Activities all week include “bumming a meal,” when students go into Brookings and the town hosts students for dinner; a bonfire; and a pep rally. Alumni, students, and local residents watch the homecoming football game, with “The Pride of the Dakotas” performing a halftime show.

#GOJACKS

Gameday on the gridiron for the Jacks is an event for the community. In 2019, a total of 164,412 people attended Jackrabbits football games. Collegiate sports are a major part of life at SDSU and for the Brookings community.

Homecoming at SDSU is Hobo Week — a tradition that goes back to 1912. Activities all week include “bumming a meal,” when students go into Brookings and the town hosts students for dinner; a bonfire; and a pep rally. Alumni, students, and local residents watch the homecoming football game, with “The Pride of the Dakotas” performing a halftime show.

SDSU Athletics

19
SPORTS AT THE NCAA DIVISION I LEVEL.

34
REGULAR AND POST-SEASON LEAGUE CHAMPIONSHIPS CLAIMED IN 8 DIFFERENT SPORTS SINCE 2009-10.

16
SDSU TEAMS COMPETE IN THE SUMMIT LEAGUE.

1
FOOTBALL TEAM COMPETES IN THE MISSOURI VALLEY FOOTBALL CONFERENCE OF THE FOOTBALL CHAMPIONSHIP SUBDIVISION.

1
WRESTLING TEAM COMPETES IN THE BIG 12.

1
EQUESTRIAN TEAM COMPETES UNDER THE UMBRELLA OF THE NATIONAL EQUESTRIAN ASSOCIATION.

3.2
OR HIGHER GPA OF STUDENT-ATHLETES ACROSS MORE THAN 70 MAJORS.
SDSU Gives Back

The community around SDSU benefits from SDSU faculty, staff, and students. Based upon assumptions derived from the U.S. Census Bureau and the Points of Light Foundation regarding donation amounts and volunteerism rates by age, income level, and employment status, it is estimated that staff, faculty, and students give $1.4 million annually in charitable donations and volunteer for nearly 187,241 hours, valued at $4.4 million. In FY 19, the combined impact of charitable giving and volunteerism totaled $5.8 million. These benefits were in addition to the $936.3 million annual economic impact. Some examples of how SDSU gives back to the community include:

- Each year, more than 500 students, staff, and faculty participate in State-a-Thon — a dance marathon funding hospital stays for children through Children’s Miracle Network.

- One Day for STATE raises money through the SDSU Foundation. Calling on alumni, staff, and students, the program provides donors the ability to directly support scholarships, student travel, and athletic teams they feel passionate about. In 2020, more than 4,800 donors — including 484 students — raised over $1.6 million.

### Charitable Giving and Volunteer Impact of SDSU

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Staff and Faculty Charitable Giving</strong></td>
<td>$971,385</td>
</tr>
<tr>
<td><strong>Student Charitable Giving</strong></td>
<td>$429,046</td>
</tr>
<tr>
<td><strong>Total Charitable Giving</strong></td>
<td>$1,400,431</td>
</tr>
<tr>
<td><strong>Staff and Faculty Volunteerism Hours</strong></td>
<td>26,219</td>
</tr>
<tr>
<td><strong>Student Volunteerism Hours</strong></td>
<td>161,022</td>
</tr>
<tr>
<td><strong>Total Volunteerism Hours</strong></td>
<td>187,241</td>
</tr>
<tr>
<td><strong>Value of Staff and Faculty Volunteerism Hours</strong></td>
<td>$617,727</td>
</tr>
<tr>
<td><strong>Value of Student Volunteerism Hours</strong></td>
<td>$3,793,670</td>
</tr>
<tr>
<td><strong>Total Value Volunteerism Hours</strong></td>
<td>$4,411,397</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>$5,811,828</td>
</tr>
</tbody>
</table>
South Dakota State University is the foundation of the Brookings community, from Jackrabbits football games to national concert tours in the performing arts center. SDSU generated a $936.3 million impact, making it an economic driver not just of South Dakota but of the greater Plains region. As a land-grant university, SDSU’s commitment to all South Dakotans makes it a community of those pushing South Dakota forward, combining educational opportunities with world-class research. South Dakota State University guides the next generation of South Dakotans into careers that serve the public and better the well-being of the state.
## Appendix A: Terms & Definitions

<table>
<thead>
<tr>
<th><strong>Study Year</strong></th>
<th>FY 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dollar Year</strong></td>
<td>Presented in 2019 dollars</td>
</tr>
<tr>
<td><strong>Total Economic Output/Economic Impact</strong></td>
<td>Includes organizational spending on operations, capital expenditures, labor income expenditures, and value added to the economy as a result of expenditures made by an organization. It is the combined impact of direct, indirect, and induced impacts.</td>
</tr>
<tr>
<td><strong>Direct Economic Impact</strong></td>
<td>All direct expenditures made by an organization due to its operating expenditures. These include operating expenditures, capital expenditures, and pay and benefits expenditures.</td>
</tr>
<tr>
<td><strong>Indirect Economic Impact</strong></td>
<td>The indirect impact includes the impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money is spent outside of the local economy, either through imports or by payments to value added (multiplier effect).</td>
</tr>
<tr>
<td><strong>Induced Economic Impact</strong></td>
<td>The response by an economy to an initial change (direct effect) that occurs through re-spending of income received by a component of value added. IMPLAN’s default multiplier recognizes that labor income (employee compensation and proprietor income components of value added) is not lost to the regional economy. This money is recirculated through household spending patterns causing further local economic activity (multiplier effect).</td>
</tr>
<tr>
<td><strong>Multiplier Effect</strong></td>
<td>The multiplier effect is the additional economic impact created as a result of the organization’s direct economic impact. Local companies that provide goods and services to an organization increase their purchasing by creating a multiplier (indirect/supply-chain impacts). Household spending generated by employees of the organization and the organization’s suppliers create a third wave of multiplier impact (induced/household-spending impacts).</td>
</tr>
<tr>
<td><strong>Government Revenue/State and Local Tax Impact</strong></td>
<td>Government revenue or tax revenue that is collected by governmental units at the state and local levels in addition to those paid directly by an organization. This impact includes taxes paid directly by the organization itself, employees of the organization, and vendors who sell products to the organization and at the household level.</td>
</tr>
<tr>
<td><strong>Direct Employment</strong></td>
<td>Total number of employees, both full-time and part-time, at the organization based on total jobs, not FTEs.</td>
</tr>
<tr>
<td><strong>Indirect Employment</strong></td>
<td>Additional jobs created as a result of an organization’s economic impact. Local companies or vendors that provide goods and services to an organization increase their number of employees as purchasing increases, thus creating an employment multiplier.</td>
</tr>
<tr>
<td><strong>Induced Employment</strong></td>
<td>Additional jobs created as a result of household spending by employees of an organization and the employees of vendors. This is another wave of the employment multiplier.</td>
</tr>
</tbody>
</table>
Appendix B: Data & Methods

Data used to complete the contribution analysis was provided by the South Dakota Board of Regents and the university. Data supplied included operating expenditures, capital spending, pay and benefits, and total employees. Primary and secondary data was used to complete the input-output models in IMPLAN. The study approach and economic-impact findings are a conservative estimate of impact and are based on actual financial information. The study is a snapshot of the economic impact of the university.

OVERVIEW AND THE IMPLAN MODEL

The most common and widely accepted methodology for measuring the economic impacts of economic sectors is input-output (I-O) analysis. At its core, an I-O analysis is a table that records the flow of resources to and from companies/organizations and individuals within a region at a given time. For a specified region such as a state of the nation, the input-output table accounts for all dollar flows among different sectors of the economy in a given period. With this information, a model can then follow how a dollar added into one sector is spent and re-spent in other sectors of the economy, generating outgoing ripples of subsequent economic activity. This chain of economic activity generated by one event is called the “economic multiplier” effect.

The primary tool used in the performance of this study is the I-O model and dataset developed and maintained by IMPLAN Group LLC (formerly Minnesota IMPLAN Group Inc.). IMPLAN is a widely accepted and used software model first developed by the U.S. Forest Service in 1972. Data used in the baseline IMPLAN model and data set come largely from federal-government databases. The input-output tables themselves come from the Bureau of Economic Analysis. Much of the annual data on labor, wages, final demand, and other market data comes from the Bureau of Labor Statistics, the U.S. Census Bureau, and other government sources.

Government agencies, companies, and researchers use IMPLAN to estimate the economic activities associated with spending in a particular industry or on a particular project. The IMPLAN model extends conventional I-O modeling to include the economic relationships among government, industry, and household sectors, allowing IMPLAN to model transfer payments such as taxes. Producers of goods and services must secure labor, raw materials, and other services to produce their product.

The resources transferred to the owners of that labor or those raw materials and services are then spent to secure additional goods and services or inputs to the products they sell. For example, an organization in a region may develop a company that produces tractors with a value of $1 million. However, to produce that product, they may be required to spend $500,000 in wages and benefits, $200,000 to suppliers of tractor parts, $100,000 for electricity, $50,000 for transportation of goods and raw materials to and from the plant, and $50,000 in various professional services associated with operating a business (e.g., attorneys and accountants). The suppliers will, in turn, spend those resources on labor and raw materials necessary to produce tractors. Workers and the owners of the company will buy goods and services from other firms in the area (e.g., restaurants and gas stations) and pay taxes. The suppliers, employees, and owners of this second tier will, in turn, spend those resources on other goods and services whether within the study region or elsewhere. The cycle continues until all of the money leaves the region.
IMPLAN METHODOLOGY

The model uses national production functions for over 536 industries to determine how an industry spends its operating receipts to produce its commodities. These production functions are derived from U.S. Census Bureau data. IMPLAN couples the national production functions with a variety of county-level economic data to determine the impacts at a state and congressional-district level. IMPLAN collects data from a variety of economic data sources to generate average output, employment, and productivity for each industry in a given county. IMPLAN combines this data to generate a series of economic multipliers for the study area. The multiplier measures the amount of total economic activity generated by a specific industry's spending an additional dollar in the study area. Based on these multipliers, IMPLAN generates a series of tables to show the economic event’s direct, indirect, and induced impacts to gross receipts, or output, within each of the model’s more than 536 industries.

The model calculates three types of effects: direct, indirect, and induced. The economic impact of SDSU is the sum of these three effects.

CONSIDERATIONS CONCERNING IMPLAN

There are three important points about the use of IMPLAN (or any other input-output model):

It is a fixed-price model. The model assumes that changes in consumption are not limited by capacity and do not affect prices. This assumption does not cause a problem for the analysis presented here because we are taking a snapshot of South Dakota in a specific year.

As in many studies using this type of model, the direct impacts are not calculated by the model; they are a reflection of actual spending levels and patterns created by South Dakota. Changing the level of direct spending allows us to calculate the magnitude of the indirect and induced effects associated with the initial level of spending.

Because the model continues to calculate additional spending until all of the money leaves the region (i.e., “leakage”), the larger and more economically diverse the region, the longer it will take for spending to leave the region and the larger the impact is likely to be. For example, employees of South Dakota may spend some amount of their income on buying a car. If there are no car manufacturers in their state or county, this spending will leave the region and the multiplier effect will stop. At the national level, some portion of that same spending by that same individual may go to a national auto producer. That spending would lead to more spending at the national level than would be captured by a more regional model. The national impact will be larger than the sum in the individual states, and the individual state impact will be larger than the sum of the impacts in its congressional districts.
WHAT IS AN ECONOMIC-CONTRIBUTION ANALYSIS?

Technically, this study is a contribution analysis. The study quantifies the economic contribution of the university in terms of economic impact, jobs, and local and state tax revenue. The study calculates how spending by employees, visitors, and students contributes to the economy of South Dakota and beyond. It examines how expenditures create additional impact in the economy directly and through the multiplier.

For the purposes of this study, an economic contribution is defined as the gross changes in South Dakota’s existing economy that can be attributed to the universities. Contribution analysis is a descriptive analysis that tracks gross economic activity: how spending by the university and its constituencies cycles dollars through the economy. The university's economic-contribution analysis does not consider how spending at this university may crowd out spending at another college or university within the state. This type of analysis is one of the most common that is performed and is often mislabeled as an economic-impact study. Please note that while the terms used to express the contribution of South Dakota to the statewide economy are referred to as economic impact, this is a contribution analysis.

Spending by students, staff, and faculty who are explicitly participating in activities associated with South Dakota’s output represents a “stemming-from effect” and could also be considered a direct effect of the higher-education industry. For example, a student who attends classes and spends $10 on lunch at a local restaurant is a stemming-from effect of the university. This contribution analysis then follows the direct economic activity and associated stemming-from effects through the economy, with the output of each sector broken down and attributed to expenditures on intermediate inputs or to value-added components such as labor, taxes, and returns to capital. Output multipliers, which are sector- and region-specific, are derived from the appropriate model and relate an industry’s economic activity (or changes in the industry’s economic activity) to gross sales in the other sectors of the regional economy.

The contribution analysis does not account for the fact that if a student attending class were a local resident, then the $10 they spent on lunch potentially represents $10 they are not spending at another restaurant elsewhere in town. The direct effect in a contribution analysis includes purchases by students from in and out of state and is neither a measure of changes to the state’s economic base nor a measure of the value added to the region above what was paid to input suppliers.

WHAT SHOULD YOU REMEMBER ABOUT THE STUDY WHEN YOU READ IT?

• It is a point-in-time calculation of impact for FY 19.
• It quantifies the amount of impact that the universities produce each year.
• The economic numbers can fluctuate from year to year based on operational spending, capital spending, pay and benefits, number of employees, number of students, and state appropriation.
• This is an economic-contribution analysis that casts a broader net to calculate impact than an economic-impact study.
• These are conservative numbers and adhere to industry-respected protocols.
WHAT METHODOLOGY WAS USED TO COMPLETE THIS STUDY?

IMPLAN data and software were used to conduct this economic-contribution analysis. The IMPLAN database is built using county, state, ZIP code, and federal economic statistics that are specialized by region, not estimated from national averages, to measure the contribution or impact of an organization’s economic activity.

WHAT WERE THE MULTIPLIERS FOR THIS STUDY?

The multipliers used in this study range from 1.8 to 2.1. The multipliers are derived through the input-output models created using the IMPLAN software based upon industries selected during the modeling process.

WHAT DATA DOES THIS STUDY USE TO CALCULATE THE ECONOMIC IMPACT?

Primary data used in this analysis is for FY 19 and was obtained from the South Dakota Board of Regents and the university.

Data addresses the following subjects:
- Operating expenditures.
- Capital expenditures.
- Pay and benefits by employee type.
- Number and types of students (all in-state and out-of-state students included).
- Athletics.
- Volunteerism.
- Charitable giving.
- Alumni data.

Secondary data was used to estimate the following:
- Student spending habits based on the universities’ budgets for spending (full- and part-time undergraduate and graduate students, excluding tuition and fees).
- Visitor numbers and visitor spending habits (day and overnight visitors).

WHAT ARE THE COMMUNITY-BENEFIT IMPACTS BASED UPON?

Charitable-giving impacts are based upon assumptions found in the U.S. Census donor data. These models do not assume a 100% participation rate for staff, faculty, and students and are not based on averages. Some colleges and universities had primary data available on volunteerism, and in those cases actual hours were used in the calculation. For the purposes of this study, it is assumed that 24.9% of staff and faculty donate an average of $2,064 annually and 14.9% of students donate an average of $250 each year.

Volunteer impacts are based upon assumptions found in the U.S. Census, and the value of a volunteer hour was obtained from the Points of Light Foundation and is estimated at $23.56 per hour.
WHY DID THE SDBOR COMMISSION A STUDY?

The SDBOR commissioned the analysis to quantify the impact of all six public higher education institutions in its system. SDBOR and the university have a number of helpful tools to explain the value proposition for supporting higher education; this independent study is one way to help explain its worth. In trying to explain the value of South Dakota public higher education to internal and external constituents, it is important to quantify the workforce and economic gains realized throughout the state. There are many ways to view the impact and value of a university and university system — economic impact is one.

WHY DOES THIS STUDY LOOK DIFFERENT FROM OTHERS WE HAVE SEEN PUBLISHED?

The veracity of the data and methodology are consistent with industry-standard protocols for conducting an effective economic-impact study that is conservative. The data is an independent assessment of the university’s contribution to the overall economy — the numbers drive the message, not the other way around. The report is designed to make the data analysis accessible to all readers.