An Investment in Arizona’s and Pima County’s Future

Economic & Revenue Impact Analysis

1997-98

The University of Arizona

Dr. Alberta H. Charney
Economic and Business Research Program
Eller College of Business and Public Administration

and

Dr. Vera K. Pavlakovich
Office of Economic Development
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Dr. Alberta H. Charney
Dr. Vera K. Pavlakovich
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Economic & Revenue Impact Analysis 1997-98

The University of Arizona: An Investment in Arizona’s and Pima County’s Future

Summary*

By nearly any academic measure, the University of Arizona in Tucson rates as one of the finest scholarly institutions in the United States. The UA is both a land grant school and a Research I center. As such it plays a valuable role in training citizens and conducting advanced research in several valuable areas, such as astronomy, medicine and optics.

The University of Arizona is also a major generator of economic activity for Pima County and Arizona. More precisely, for every $1 of state-appropriated funds, the university generates $6.31. The annual economic effect of the university’s presence is the generation of 42,500 jobs, $896 million in wages and a total dollar impact on the state economy of more than $1.9 billion.

In addition to its appropriation from the state, the university also attracts additional dollars to the local economy from several other sources that this report details. Essentially, for every dollar of state appropriated funds the UA generates another $1.10 in grants, contracts and gifts, that also help to support teaching, research and public service programs. The university also generates indirect and induced jobs, wages and sales in various economic sectors. Thus, the total impact by far exceeds the initial investment.

Revenues and Expenditures

Total UA expenditures, including payroll, fringe benefits and all other expenses, is $886 million. The university draws $306 million from state-appropriated funds and $141 million from student tuition and fees. Additionally, the combined income from grants, contracts and gifts totals approximately $336 million, or close to 38 percent of total revenues.

Employee Spending Impact

The 12,043 individuals employed by the UA in Pima County have an annual payroll of $402 million. Their spending generates an additional economic impact in Pima County of almost 5,950 jobs and $98 million in wages.

Construction Expenditures Impact

The university spent close to $25 million on construction programs, creating 463 jobs in construction and other industries. This construction activity contributed $10 million in wages to the Pima County economy.

Purchases and Operating Expenditures Impact

The university buys goods and services in the form of, for example, equipment, professional services, repair and maintenance services and office supplies. The economic impact of these purchases is over 2,000 jobs and $45 million in payroll.

Student Spending Impact

Not counting tuition, UA student spending injects $732 million per year into the local economy. This generates 17,000 jobs and $273 million in local wages.

Visitor Spending

The university attracts more than one million visitor days to Pima County each year, generating about 2,850 jobs and $37 million in wages.

TAX Revenue Impact

The university generates tax revenues directly through purchases of goods and services and indirectly through taxes paid by UA employees. In addition, employees of businesses that sell to the university, students and visitors pay taxes to all levels of governments. The total revenue impact is almost $96 million, including $57 million to state government, the $17 million to City of Tucson, $12 million to Pima County; and more than $100,000 to the Pima Association of Governments.

Total Impact on Pima County Economy

Summing up direct, indirect and induced jobs, the total impact of the university is 40,911 jobs, which accounts for more than 11 percent of total employment in Pima County. The combined wage impact is $865 million. The total dollar impact (including wages and tax revenues) is over $1.86 billion.

Impacts Outside Pima County

Through such programs as the College of Agriculture and the Arizona Health Science Center, the university’s economic and revenue impact extends to every county in the state. More than 1,600 jobs, $31.1 million in wages and $9 million in tax revenues are generated in Arizona counties other than Pima. Total dollar impact outside Pima County is $67 million (including wages and tax revenues).

Total Impact on Arizona Economy

Combining the impacts in Pima County with those in all other Arizona counties, the University of Arizona generates more than 42,500 jobs with $896 million in wages. The total dollar impact on the state economy is over $1.9 billion.

* Please note: Figures in this summary may differ from those in tables due to rounding.
Introduction

Most people associate a university with learning, research and innovation. Regional economic developers see universities as producers of highly skilled, highly educated human resources and as centers of innovation and technological change — factors that are becoming increasingly important in a globalized economy. Indeed, knowledge is increasingly considered the most important factor that distinguishes individuals, communities and regions from one another. Communities and regions with the capability to produce knowledge have much better chances for growth and development in a global economy.

Aside from their primary role as education and research facilities, universities also are powerful forces in local economies. The University of Arizona employs thousands of people — faculty, administrators and support staff — making it the largest employer in Pima County. To keep this large organization running, the university supports numerous local vendors through its spending. Employee and student spending also supports several thousand jobs in the community, while visitors attending various programs and activities bring extra dollars into the local economy. The University of Arizona provides not only direct employment, but, through a multiplier effect, supports additional indirect and induced jobs in the community. Through a variety of taxes, tax revenues are generated for local and state governments.

As a state institution, the University of Arizona is partly funded by taxpayer dollars. Nationally and internationally known programs and the expertise of individual faculty members attract additional funds in the form of research grants and gifts. Impact analyses have consistently shown that the university-generated economic return to the State of Arizona by far exceeds the state’s initial investment. The scope of this study is limited to economic and tax revenue impacts only. For the first time, an effort is made to assess the University of Arizona’s economic impact on Arizona counties other than Pima County.

Research Method

In order to assess the economic impacts of the University of Arizona on Pima County, detailed data on university and related expenditures were run through an input-output (I-O) model of Pima County. The model provides estimates of direct, indirect and induced jobs and associated wages, as well as the total dollar impact on the local economy. (Description of the I-O model and definition of economic impacts are provided in the Appendix.)

County-specific I-O models were used to estimate the economic impacts of university programs and expenditures in other counties in Arizona, including Maricopa County.

In addition to economic impacts, tax revenues were estimated by means of Pima County and Arizona revenue models. (More information is provided in the Appendix.)

Data on university expenditures were obtained from the Office of Financial Services and the Office of Procurement and Contracting Services. The estimates of visitor spending were based on information obtained through questionnaires sent to each of the university’s various colleges and individual offices that deal with the public.

Student expenditure data were updated from the 1994-95 study by using appropriate consumer price indices to recalculate expenditures. Student expenditure data were also adjusted for the decline in enrollment between the 1994-95 study and the present update.

All estimates in this study apply to fiscal year 1997-98, unless otherwise indicated.

University Revenues and Expenditures

Of the approximately $885.6 million in total revenues, $305.9 million (or 34.5 percent) come from state-appropriated funds (see Figure 1). Student tuition and fees account for another $141.3 million (16 percent). Student fees include all forms of fees charged to students, including registration, late registration, laboratories, music, student activities, nursing, and graduation. Auxiliary enterprise operations (sales and services) bring in $82.8 million. Approximately $20 million are derived from interest and dividend income and net realized gains.

The remaining revenues to the University of Arizona are derived from federal grants and contracts ($228.5 million) and private gifts, and non-federal grants and contracts ($107.2 million). The combined gifts, grants and contracts total $335.7 million (almost 38 percent of total revenues). Thus for every dollar of state-appropriated funds, the University of Arizona generates another $1.10 in grants, contracts and gifts, which also help to support teaching, research and public service programs.

Table 1 shows research and non-research awards by colleges and divisions for the fiscal year ending June 1998. The College of Science received almost $121 million in awards and grants and the College of Medicine received almost $83 million. Within the College of Science, the amount associated with astronomy in southern Arizona is approximately $88 million. This includes grants to the Steward Observatory, the Multiple Mirror Telescope Observatory, and the Lunar and Planetary Laboratory. These same awards are shown by funding source in Table 2.

### University Expenditures by Funding Uses

University expenditures can be addressed from two perspectives. First, as shown in Figure 2, expenditures can be analyzed by the uses of the funds. Instruction and research are the two main expenditures, accounting for $223 million and $207 million, respectively, or a total of 57...
percent of non-auxiliary enterprise operations. Expenditures such as scholarships and fellowships, student and public services, and academic and institutional support account for approximately 30 percent of all non-auxiliary enterprise operations. The remaining 13 percent is spent on operations and maintenance, facility additions, disposals and debt servicing.

The auxiliary enterprise operations, which include the bookstore and food services, account for a relatively small portion of total expenditures, approximately $83 million. These expenditures offset the revenues from auxiliary enterprises.

A second way of looking at university expenditures is by major spending category, as shown in Table 3. The University of Arizona spent approximately $849 million during the fiscal year ending June 1998. Detailed data on University of Arizona expenditures were obtained from the Office of Financial Services.2

As shown in Table 3, the major expenditure category is employee payroll, accounting for $413 million. In addition, the UA paid almost $45 million to students in the form of wages, and another $39 million in student support. Operation of the university creates direct demand for various services in the community. For example, the university spent about $50 million on outside professional services, $11 million on repair and maintenance, $8 million on printing, photo reproduction and media, over $35 million on operating supplies, and more than $14 million on travel. The university purchased $22 million worth of utilities and spent another $12 million on communications.

University instruction and research activities require continuous upgrading of equipment. Over $35 million were spent on equipment and $9 million on library and museum acquisitions.

Construction is another important activity. During fiscal year 1997-98 approximately $22 million were spent on construction and close to $3 million on land and building improvements. Thus, the university operation requires various inputs from the local economy and, by purchasing locally, the UA generates indirect jobs and wages. Spending by university employees and students supports additional jobs in the local economy, as money is spent locally on housing, groceries, transportation, entertainment and other services.

2The computer run removed duplicate expenditures and allocated expenditures into more than 200 object codes. Removal of duplicates assured that transfers and purchases, that were internal to the University, were not double counted.

3Note, that this figure includes wages paid to faculty and staff outside Pima County.
Economic Impacts

The economic impacts of the university are computed in five broad categories. First is the impact of university employees who spend their money in the local community. Second is an assessment of the impact of the university's construction expenditures. Third, the impacts of all other university purchases and operations are computed. The fourth and fifth categories of economic impact relate to student spending in Pima County and visitor spending in the area. Each of these is discussed separately below. Finally, the impacts of the University of Arizona outside Pima County also are detailed.

Table 2

Funding Sources of Total Awards FY 98

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dept. of Health &amp; Human Services</td>
<td>$68,239,039</td>
<td>19.8%</td>
</tr>
<tr>
<td>NASA</td>
<td>67,439,765</td>
<td>19.5%</td>
</tr>
<tr>
<td>National Science Foundation</td>
<td>20,373,927</td>
<td>5.9%</td>
</tr>
<tr>
<td>Department of Education</td>
<td>18,067,041</td>
<td>5.2%</td>
</tr>
<tr>
<td>Department of Defense</td>
<td>17,887,494</td>
<td>5.2%</td>
</tr>
<tr>
<td>Other Federal</td>
<td>9,507,427</td>
<td>2.8%</td>
</tr>
<tr>
<td>Department of Agriculture</td>
<td>7,926,549</td>
<td>2.3%</td>
</tr>
<tr>
<td>Department of Energy</td>
<td>4,449,539</td>
<td>1.3%</td>
</tr>
<tr>
<td>Department of Interior</td>
<td>3,383,996</td>
<td>1.0%</td>
</tr>
<tr>
<td>Total Federal</td>
<td>217,274,717</td>
<td>63.0%</td>
</tr>
<tr>
<td>Other Non-federal</td>
<td>65,516,153</td>
<td>19.0%</td>
</tr>
<tr>
<td>Foundations</td>
<td>31,893,842</td>
<td>9.2%</td>
</tr>
<tr>
<td>Industry</td>
<td>30,440,501</td>
<td>8.8%</td>
</tr>
<tr>
<td>Total Non-federal</td>
<td>127,850,496</td>
<td>37.0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$345,125,213</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

*Source: Profile 98, Vice President for Research, The University of Arizona.

University Faculty and Staff Spending Impact in Pima County

The university employed 12,043 individuals in various capacities in Pima County, including faculty, accountants, administrative assistants, groundskeepers, and other professionals and staff. Aggregate payroll figures for all employees total $402 million. University faculty and staff have a large impact on the Pima County economy through the purchase of goods and services and the payment of local taxes. The majority of the $402 million in wages paid to university employees is circulated back into the local economy. This support of local industry and services creates additional jobs and income in Pima County.

It is estimated that the total impact of university faculty and staff spending is 5,947 additional local jobs with payrolls of $98 million. Including all ripple effects, total sales volume in Pima County generated by university faculty and staff spending is $699 million, including $402 million in wages.

The impact figures estimated above result exclusively from faculty and staff spending. Some $46 million in wages paid to university undergraduates and graduate students was

Table 3

Total University Expenditures for FY98, By Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Wages and Salaries</td>
<td>$412,977,769</td>
<td>48.7</td>
</tr>
<tr>
<td>Employee Related Expenses</td>
<td>83,755,186</td>
<td>9.9</td>
</tr>
<tr>
<td>Capital:</td>
<td>68,778,985</td>
<td>8.1</td>
</tr>
<tr>
<td>Equipment</td>
<td>35,229,191</td>
<td></td>
</tr>
<tr>
<td>Construction in Progress</td>
<td>21,793,662</td>
<td></td>
</tr>
<tr>
<td>Library and Museum Acquisitions</td>
<td>8,869,040</td>
<td></td>
</tr>
<tr>
<td>Land, Buildings &amp; Improvements</td>
<td>2,866,461</td>
<td></td>
</tr>
<tr>
<td>Capital, Other</td>
<td>20,631</td>
<td></td>
</tr>
<tr>
<td>Outside Professional Services</td>
<td>50,385,361</td>
<td>5.9</td>
</tr>
<tr>
<td>Student Support</td>
<td>39,332,456</td>
<td>4.6</td>
</tr>
<tr>
<td>Cost of Sales</td>
<td>36,158,778</td>
<td>4.3</td>
</tr>
<tr>
<td>Operating Supplies</td>
<td>35,539,189</td>
<td>4.2</td>
</tr>
<tr>
<td>Student Wages</td>
<td>44,558,063</td>
<td>3.1</td>
</tr>
<tr>
<td>Utilities</td>
<td>22,133,011</td>
<td>2.6</td>
</tr>
<tr>
<td>Communications</td>
<td>18,954,265</td>
<td>2.2</td>
</tr>
<tr>
<td>Travel</td>
<td>14,660,773</td>
<td>1.7</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>13,643,013</td>
<td>1.6</td>
</tr>
<tr>
<td>Miscellaneous Services</td>
<td>11,761,196</td>
<td>1.4</td>
</tr>
<tr>
<td>Repair and Maintenance Services</td>
<td>11,082,831</td>
<td>1.3</td>
</tr>
<tr>
<td>License, Rentals &amp; Royalties</td>
<td>10,731,672</td>
<td>1.3</td>
</tr>
<tr>
<td>Printing, Photography and Media</td>
<td>7,823,613</td>
<td>0.9</td>
</tr>
<tr>
<td>Intra-University Transfers</td>
<td>(33,720,560)</td>
<td>-4.0</td>
</tr>
<tr>
<td>Total</td>
<td>$ 848,555,601</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Economic & Revenue Impact Analysis 1997-98

Table 4
Construction Projects Fiscal 1997-98

<table>
<thead>
<tr>
<th>Project Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Research Complex</td>
</tr>
<tr>
<td>Arizona Cancer Center Addition</td>
</tr>
<tr>
<td>Health &amp; Wellness Commons</td>
</tr>
<tr>
<td>Integrated Learning Center</td>
</tr>
<tr>
<td>Life Science North Shell Space</td>
</tr>
<tr>
<td>Main Library Expansion</td>
</tr>
<tr>
<td>Sierra Vista Academic Building - Cochise County</td>
</tr>
<tr>
<td>Special Collections and Archives</td>
</tr>
<tr>
<td>Strength &amp; Conditioning Facility</td>
</tr>
<tr>
<td>Student Union/Bookstore</td>
</tr>
<tr>
<td>University Heart Center</td>
</tr>
<tr>
<td>University Housing</td>
</tr>
<tr>
<td>Utilities Phase V</td>
</tr>
</tbody>
</table>

The University of Arizona

Excluded from this analysis. It is implicitly assumed that student wages are included in the economic impact of student expenditures, which are assessed later. Further, employee-related expenses (including the employer’s Social Security expenses and health insurance costs) are assumed to provide no immediate benefit to the Pima County economy and, consequently, are also excluded from the current analysis. While it is true that some of these employee-related expenses—such as Social Security payments to local retirees—may ultimately be channeled back into the local economy, their ultimate effect is so diluted as to justify exclusion from the current analysis. However, the monetary value of local health care expenses (including those paid by health insurance) have been included in the impact of university faculty and staff spending because of the immediate benefits to the local economy that these expenditures provide.

University Construction Expenditures Impact

Major construction projects commenced, completed or in progress by the university are listed in Table 4. The university spent almost $25 million during the fiscal year on construction programs. This created additional Pima County jobs in construction and other industries. Local construction firms, primarily, built campus classrooms, laboratories and office space.

In sum, construction expenditures by the university created 463 jobs in the local economy. This includes 195 jobs in construction and 268 jobs in other sectors of the local economy. Construction activity contributed a total of $10 million in wages to the Tucson area. Taking into account all of the multiplier effects, university construction expenditures generated a total of $41 million in Pima County.

University Purchases and Operating Expenditures Impact

University expenditures benefit Pima County in a variety of ways. The university purchases large volumes of local goods and services, including, but not limited to, computer components and other high-tech equipment, professional and maintenance services, printing and photographic services and operating supplies.

University of Arizona expenditures are categorized into over two hundred object codes. These codes were condensed to align with twenty of the economic divisions provided by the I-O (input-output) model. A category “other” contains expenditures not elsewhere classified. The UA purchasing department sorted purchasing orders by zip code to estimate dollars spent in Pima County, and those spent in other counties in Arizona. Dollars spent out of state are assumed to have no economic impact on Arizona. Further, dollars spent outside Pima County also are assumed to have no direct impact on Pima County. However, significant dollars are spent by the University of Arizona in other parts of the state and the geographic distribution of the impacts of those expenditures is analyzed later in this report.

The economic impact of expenditures associated with university operations (including purchases of equipment) is estimated to be 2,009 jobs, $45 million in wages, and an additional $101 million in sales. The total dollar impact of university operations and purchases is $146 million in Pima County.

Student Spending Economic Impact

During the 1997-1998 academic year, total university enrollment ranged from 31,570 to 33,737 students for a given semester. During the summer term, 9,409 students enrolled in the pre-session and/or first summer session, and 5,935 students attended the second summer session (Table 5).

Student spending propels an estimated $732.7 million per year into Tucson’s economy, not counting tuition fees paid to the university.

‘Over $120 million of university expenditures were removed from expenditures in the so-called “Other” category to avoid double counting. To illustrate, financial support for university students given in the form of scholarships and tuition waivers represents revenues foregone by the university and has no further impact beyond that calculated for the rest of the university. If, however, the support is in the form of living assistance, then the impact is measured as a part of the impact of student spending. An analysis of this is provided separately.
Thousands of visitors travel to Pima County every year to attend university athletic events, concerts, state and regional meetings, to interview students for jobs, to accompany students to school and attend graduation ceremonies, to visit students, faculty and staff, and for other university-sponsored activities.

Current figures indicate that the university attracts over one million visitor days to Pima County each year from outside the area. This estimate was generated from the results of a questionnaire sent to each of the university’s various colleges. Colleges responded with information on visitors to the campus associated with conferences, meetings or other college programs. Individual offices that deal with the public, such as the intercollegiate athletics department and the Office of Admissions, were also contacted for information on visitors and campus activities that attract parents, alumni and potential students to the campus.

Results from these surveys show that two thirds of all university-related visitor days are due to parents and students. The purposes of these visits include orientation and student recruitment activities, parents accompanying students at the beginning and end of semesters, mid-semester visits by parents, families, and friends to students, and graduation (Table 7). Visitors to Pima County who come to meet with university faculty and staff are estimated to represent 235,000 visitor days and approximately $14 million in local spending.

It is estimated that athletic and alumni activities generate 50,000 visitor days per year from sporting events, reunions, Homecoming and

The primary components of student expenditures, based on 1994-95 survey results, are detailed in Table 6. Each of these categories was entered into the Input-Output model to determine its impact on the Pima County economy.

According to the model, student expenditures on housing, food, books, cars, gasoline, utilities and other purchases in the community have the collective effect of creating an estimated 17,601 jobs and $273 million in wages in Pima County. After all ripple effects, the total dollar impact due to student spending in the local economy approaches $875 million per year.

### Table 5

<table>
<thead>
<tr>
<th>1997-1998 Headcount Enrollment (Students)</th>
<th>Fall 1997</th>
<th>Spring 1998</th>
<th>Presession and Summer Session I</th>
<th>Summer Session II</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Undergraduate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshmen</td>
<td>5,656</td>
<td>3,974</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomores</td>
<td>4,897</td>
<td>4,624</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juniors</td>
<td>5,588</td>
<td>5,464</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seniors</td>
<td>8,620</td>
<td>8,787</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unclassified</td>
<td>856</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-degree seeking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>25,617</td>
<td>23,770</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Graduate/Professional</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Professional</td>
<td>1,094</td>
<td>1,072</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>7,026</td>
<td>6,728</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>8,120</td>
<td>7,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>33,737</td>
<td>31,570</td>
<td>9,409</td>
<td>5,935</td>
</tr>
</tbody>
</table>

*Note: Total headcount for Spring 1998 includes 427 Sierra Vista students.

Source: Decision and Planning Support and Summer Session Office

### Table 6

<table>
<thead>
<tr>
<th>Components of Student Expenditures</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent/Mortgage</td>
<td>26</td>
</tr>
<tr>
<td>Dorm/Fraternity</td>
<td>8</td>
</tr>
<tr>
<td>Utilities/Cable</td>
<td>7</td>
</tr>
<tr>
<td>Groceries</td>
<td>6</td>
</tr>
<tr>
<td>Eating Out</td>
<td>4</td>
</tr>
<tr>
<td>Motor Vehicle Expenses</td>
<td>11</td>
</tr>
<tr>
<td>Public Trans. &amp; Airfare</td>
<td>4</td>
</tr>
<tr>
<td>Books</td>
<td>3</td>
</tr>
<tr>
<td>Clothing &amp; Personal Care</td>
<td>5</td>
</tr>
<tr>
<td>Entertainment &amp; Recreation</td>
<td>7</td>
</tr>
<tr>
<td>Durable goods</td>
<td>7</td>
</tr>
<tr>
<td>Health Care</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
</tr>
</tbody>
</table>

Source: The University of Arizona, An Investment in Arizona’s and Pima County’s Future: Economic Impact 1994-95, Office of Economic Development.
other functions. An additional 35,000 visitor days are related to other university and college activities, such as conferences, workshops and recruitment efforts.

In terms of economic impact, university-affiliated visitors to Pima County spend an estimated $58 million per year on local goods and services. This, in effect, creates 2,848 jobs and $37 million in local wages. After the expenditures circulate through the local economy and create multiplier effects, university visitors bring in a total of $102 million per year in Pima County sales.

### Total Economic Impact

The total impact of university expenditures on employment and wages in the Pima County economy is enormous. The employment impact of the university is 40,911 jobs. As Table 9 reveals, this figure includes employees directly employed by the UA and also those jobs created by university expenditures in the community. This total employment figure for university employees and all jobs created by university expenditures represents over 11 percent of total employment in Pima County.

The combined wage impact of all university spending, student spending, and visitor spending associated with the university accounts for $865 million in Pima County wages. The combined dollar impact is over $1.86 billion for the fiscal year.

### Comparison of UA 1997-98 Impacts with 1994-95 Impacts

Employment at the University of Arizona is marginally higher in 1997-98 than in 1994-95 (Table 9). The higher job impact associated with employee spending is primarily a result of wage and salary increases. Construction spending is lower in 1997-98 than in 1994-95, while other university purchases are higher. Student spending increased in the aggregate although enrollment has fallen since the 1994-95 study. The dollar impact of visitor spending increased to $102 million (including wages) but the decline in jobs per $1 million of visitor expenditures resulted in a slight decrease in visitor-related jobs. Overall, there are about 1,400 more jobs in Pima County that depend upon the university than there were in 1994-95.

### Table 7

<table>
<thead>
<tr>
<th>Visitor Days and Estimated Expenditures</th>
<th>Visitor Days</th>
<th>Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Visitors and Parent Activities</td>
<td>680,000</td>
<td>$34 million</td>
</tr>
<tr>
<td>Athletics and Alumni Activities</td>
<td>50,000</td>
<td>5 million</td>
</tr>
<tr>
<td>College and University Activities</td>
<td>35,000</td>
<td>5 million</td>
</tr>
<tr>
<td>Faculty and Staff Visitors</td>
<td>235,000</td>
<td>14 million</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,000,000</strong></td>
<td><strong>$58 million</strong></td>
</tr>
</tbody>
</table>

5 These figures are underestimated due to the lack of more specific data on attendance at sporting events and associated expenditure pattern.

### Table 8

<p>| Summary of Economic Impacts of the University of Arizona on Pima County (1997-98) |</p>
<table>
<thead>
<tr>
<th>Source of Impact</th>
<th>Jobs</th>
<th>Wages (including wages)</th>
<th>Sales (including wages)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UA Employees</td>
<td>12,043</td>
<td>$402 million</td>
<td>$402 million</td>
</tr>
<tr>
<td>Employee Spending</td>
<td>5,947</td>
<td>98 million</td>
<td>297 million</td>
</tr>
<tr>
<td>Construction Spending</td>
<td>463</td>
<td>10 million</td>
<td>41 million</td>
</tr>
<tr>
<td>UA Purchases/Operations</td>
<td>2,009</td>
<td>45 million</td>
<td>146 million</td>
</tr>
<tr>
<td>Student Spending</td>
<td>17,601</td>
<td>273 million</td>
<td>874 million</td>
</tr>
<tr>
<td>Visitor Spending</td>
<td>2,848</td>
<td>37 million</td>
<td>102 million</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>40,911</strong></td>
<td><strong>$865 million</strong></td>
<td><strong>$1,862 million</strong></td>
</tr>
</tbody>
</table>

Total impact 1,862,000,000 in Pima County
**TABLE 9**

**Comparison of UA 1997-98 Pima County Impacts with 1994-95 Impacts**

<table>
<thead>
<tr>
<th>Source of Impacts</th>
<th>1994-95 (number of jobs)</th>
<th>1997-98 (number of jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UA Employees</td>
<td>12,033</td>
<td>12,043</td>
</tr>
<tr>
<td>Employee Spending</td>
<td>5,267</td>
<td>5,947</td>
</tr>
<tr>
<td>Construction Spending</td>
<td>689</td>
<td>463</td>
</tr>
<tr>
<td>UA Purchases</td>
<td>1,632</td>
<td>2,009</td>
</tr>
<tr>
<td>Student Spending</td>
<td>16,982</td>
<td>17,601</td>
</tr>
<tr>
<td>Visitor Spending</td>
<td>2,900</td>
<td>2,848</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>39,503</strong></td>
<td><strong>40,911</strong></td>
</tr>
</tbody>
</table>

**Direct and Indirect Tax Revenue Impacts**

Tax revenue impacts are estimated for several different levels of government. In Arizona, several major sources of city and county government revenues are state-shared revenues. These are taxes imposed by the state, collected by the state and partially redistributed by the state to cities and counties. The primary state-shared taxes are:

- State-Shared Sales Revenues, which are distributions of state sales taxes;
- Highway User Revenue Fund Revenues, which are fuel tax collections, use fuel (primarily diesel) tax collections, truck fees and a variety of other highway-related tax and fee collections that are shared with counties and incorporated cities and towns; and
- Urban Revenue Sharing Fund, which distributes a portion of the state income tax to incorporated cities and towns.

Other revenue sources that may be less familiar include the Use Tax, which is paid on equipment and supplies purchased from out-of-state; the Cactus League Surcharge, which is a $3.50 tax on each rental car transaction in Pima County; and the City Bed Tax, which is a $1 per-night room tax on hotel rooms in the City of Tucson; and the Vehicle License Tax, which is a property tax paid on the value of motor vehicles.

Direct revenue impacts, as shown in Table 10, are those taxes paid concurrently as an expenditure is made. For example, the University of Arizona pays a contracting tax (a component of the sales tax) on its construction activity. Construction generates a total of $1.1 million in revenues to state, county and city governments. Since the university does not pay property taxes, university construction generates only sales tax revenues to the city and state, with the state returning a portion back to cities and counties.

Other local university expenditures generate approximately $7.6 million in revenue to state, county and city governments. Note that these revenues exclude “pass through” taxes collected by the university and paid to the state for taxable sales to students, faculty and staff (e.g., at the bookstore or Student Union restaurants). Pass through taxes are estimated as part of student and faculty/staff spending.

Student spending worth $550 million generates $18.6 million in state, county and city government revenues, and visitor spending generates $4.2 million.

Additional revenues are generated by the $402 million University of Arizona payroll in Pima County and by the additional $463 million in wages created throughout the economy when the university buys locally and when students and visitors make local purchases (Table 11). The combined induced revenues derived from all wages are more than $64 million to state, county and city governments.

**Total Revenue Impact**

Total revenue impacts are summarized in Table 12. The State of Arizona recoups over $57 million, which is 18.6 percent of the state appropriation for the University of Arizona. In total, the university contributes close to $96 million to state, county and city governments in tax revenues. Note that tax revenues that accrue to school districts or other special districts are excluded from this analysis.

**The University of Arizona Enriches Every County in Arizona**

Figure 3 indicates the number of University of Arizona programs, and the number of employees and students in all Arizona counties. Programs in other counties are part of the College of Agriculture, except for the presence of the Arizona Health Science Center in the Phoenix metropolitan area and UA South, the Sierra Vista campus in Cochise County. The UA has more than 500 employees in Arizona’s other 14 counties.
Assessing the economic impact in these various counties is more complex than simply examining the employees, wages and spending of each of these programs. Table 13 shows total economic impacts. The first column shows University of Arizona employment in each county. The second column shows employment associated with wages spent in those counties, purchases made by those county programs and purchases made by the University of Arizona main campus in those counties. Figure 4 helps visualize the statewide impact of the University of Arizona based on data in Table 13. In total, 1,608 jobs are created in Arizona outside Pima County, paying over $31 million in wages and representing over $67 million in gross sales. The largest impacts are in Maricopa County, Arizona’s most populous county. There, University of Arizona programs and main campus purchases result in over $50 million in total sales, after multiplier effects are taken into account.

The main university campus in Tucson makes many purchases outside of Pima County but within Arizona. Most of these purchases occur in Maricopa County. As a result, the total size of the economic impact in Maricopa County far exceeds what can be attributed to university programs in that county.

### Table 13
**DIRECT REVENUE IMPACTS FOR UA CONSTRUCTION AND OTHER EXPENDITURES, STUDENT EXPENDITURES AND VISITOR EXPENDITURES**

<table>
<thead>
<tr>
<th>State Revenues</th>
<th>Direct UA Construction Exp.</th>
<th>Direct UA Other Local Exp.</th>
<th>Direct Student Spending</th>
<th>Direct Visitor Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Tax</td>
<td>-</td>
<td>938,929</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Highway User Revenue Fund</td>
<td>-</td>
<td>-</td>
<td>724,590</td>
<td>55,126</td>
</tr>
<tr>
<td>Sales Tax</td>
<td>697,574</td>
<td>4,116,593</td>
<td>10,102,718</td>
<td>1,846,123</td>
</tr>
<tr>
<td>TOTAL</td>
<td>697,574</td>
<td>5,055,522</td>
<td>10,827,308</td>
<td>1,901,249</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pima County Revenues</th>
<th>Direct UA Construction Exp.</th>
<th>Direct UA Other Local Exp.</th>
<th>Direct Student Spending</th>
<th>Direct Visitor Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Shared Sales Tax</td>
<td>37,130</td>
<td>254,887</td>
<td>1,140,431</td>
<td>257,080</td>
</tr>
<tr>
<td>State Shared Hwy User Rev. Fund</td>
<td>-</td>
<td>-</td>
<td>366,258</td>
<td>27,848</td>
</tr>
<tr>
<td>2% County Hotel/Motel Tax</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>59,547</td>
</tr>
<tr>
<td>Cactus League Surcharge</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>214,815</td>
</tr>
<tr>
<td>TOTAL</td>
<td>37,130</td>
<td>254,887</td>
<td>1,506,689</td>
<td>559,288</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>City of Tucson Revenues</th>
<th>Direct UA Construction Exp.</th>
<th>Direct UA Other Local Exp.</th>
<th>Direct Student Spending</th>
<th>Direct Visitor Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Shared Sales Tax</td>
<td>5,786</td>
<td>49,666</td>
<td>177,694</td>
<td>40,057</td>
</tr>
<tr>
<td>State Shared Hwy User Rev. Fund</td>
<td>-</td>
<td>-</td>
<td>445,976</td>
<td>33,992</td>
</tr>
<tr>
<td>City Sales Tax</td>
<td>321,100</td>
<td>1,680,281</td>
<td>3,741,429</td>
<td>1,008,029</td>
</tr>
<tr>
<td>City Bed Tax</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>229,026</td>
</tr>
<tr>
<td>TOTAL</td>
<td>326,886</td>
<td>1,729,947</td>
<td>4,365,099</td>
<td>1,311,104</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pima Assn. of Governments Revenues</th>
<th>Direct UA Construction Exp.</th>
<th>Direct UA Other Local Exp.</th>
<th>Direct Student Spending</th>
<th>Direct Visitor Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Shared Hwy User Rev. Fund</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,987</td>
</tr>
<tr>
<td>TOTAL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,987</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Revenues for Other Arizona Counties</th>
<th>Direct UA Construction Exp.</th>
<th>Direct UA Other Local Exp.</th>
<th>Direct Student Spending</th>
<th>Direct Visitor Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Shared Sales Tax</td>
<td>27,909</td>
<td>303,254</td>
<td>857,209</td>
<td>193,235</td>
</tr>
<tr>
<td>State Shared Hwy User Rev. Fund</td>
<td>-</td>
<td>-</td>
<td>(54,339)</td>
<td>(4,165)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>27,909</td>
<td>303,254</td>
<td>802,870</td>
<td>189,070</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Revenues for Other Arizona Cities and Towns</th>
<th>Direct UA Construction Exp.</th>
<th>Direct UA Other Local Exp.</th>
<th>Direct Student Spending</th>
<th>Direct Visitor Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Shared Sales Tax</td>
<td>34,352</td>
<td>294,904</td>
<td>1,055,112</td>
<td>237,847</td>
</tr>
<tr>
<td>State Shared Hwy User Rev. Fund</td>
<td>-</td>
<td>-</td>
<td>54,738</td>
<td>4,101</td>
</tr>
<tr>
<td>TOTAL</td>
<td>34,352</td>
<td>294,904</td>
<td>1,109,850</td>
<td>241,948</td>
</tr>
</tbody>
</table>

**TOTAL**  
$1,123,851 $7,638,514 $18,611,816 $4,204,646
CONCLUSION

This economic and tax revenue analysis has shown that the University of Arizona plays a major role in Pima County's economy, contributing 11 percent of the total employment. The total dollar impact in Pima County exceeds $1.86 billion.

The university impact spills outside the boundaries of Pima County to every other county in Arizona. Total dollar impact in Arizona is more than $1.9 billion and more than 42,500 jobs statewide. Estimates in this study are conservative in nature, however, reflecting both the type of modeling used in the analysis and insufficient data to capture additional sources of economic and tax revenue impacts.

Impressive as they are, the estimated economic and tax revenue impacts should not obscure other important aspects of the university's presence. Higher education is an investment that provides enormous returns to individuals, governments, the local community and society at large. Many of these larger impacts, however, are hard to quantify in terms of standard measures such as jobs and dollars. Thus, the narrowly defined economic and revenue impacts need to be evaluated in the broader context, summarized below (economic and tax revenue impacts are highlighted):

Individuals receive a high rate of return from higher education:

- Higher earnings over the lifetime of university graduates
- University education provides the broad knowledge necessary for flexibility in job and career selection
- Higher job satisfaction for university graduates
- Higher quality of life for university graduates
- The university is a life enrichment experience
- University education broadens one's outlook, increasing tolerance and understanding of others
- Higher education creates enlightened citizens

State and local governments receive a high rate of return from higher education:

- Government tax revenues from university expenditures

<table>
<thead>
<tr>
<th>Table 11</th>
<th>Summary of Induced Revenue Impacts of the University of Arizona</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Induced for $402 M</strong></td>
<td><strong>Induced for $411 M</strong></td>
</tr>
<tr>
<td>UA Wages</td>
<td>Non-UA Wages</td>
</tr>
<tr>
<td>STATE OF ARIZONA</td>
<td></td>
</tr>
<tr>
<td>Individual Income Tax</td>
<td>$8,016,667</td>
</tr>
<tr>
<td>Sales Tax</td>
<td>7,719,024</td>
</tr>
<tr>
<td>Highway User Revenue Fund</td>
<td>1,522,550</td>
</tr>
<tr>
<td>Vehicle License Tax</td>
<td>414,525</td>
</tr>
<tr>
<td>Property Tax</td>
<td>266,069</td>
</tr>
<tr>
<td>TOTAL</td>
<td>17,938,835</td>
</tr>
<tr>
<td>PIMA COUNTY REVENUES</td>
<td></td>
</tr>
<tr>
<td>State Shared Sales Tax</td>
<td>846,213</td>
</tr>
<tr>
<td>State Shared Hwy User Rev Fund</td>
<td>591,834</td>
</tr>
<tr>
<td>Vehicle License Tax</td>
<td>280,085</td>
</tr>
<tr>
<td>Property Tax</td>
<td>2,878,999</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4,597,131</td>
</tr>
<tr>
<td>CITY OF TUCSON REVENUES</td>
<td></td>
</tr>
<tr>
<td>Urban Revenue Sharing</td>
<td>181,890</td>
</tr>
<tr>
<td>State Shared Sales Tax</td>
<td>123,245</td>
</tr>
<tr>
<td>State Shared Hwy User Rev Fund</td>
<td>619,167</td>
</tr>
<tr>
<td>Vehicle License Tax</td>
<td>268,588</td>
</tr>
<tr>
<td>Property Tax</td>
<td>325,458</td>
</tr>
<tr>
<td>City Sales Tax</td>
<td>2,888,072</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4,406,420</td>
</tr>
<tr>
<td>PIMA ASSN. OF GOVERNMENT REVENUES</td>
<td></td>
</tr>
<tr>
<td>State Shared Hwy User Rev Fund</td>
<td>54,067</td>
</tr>
<tr>
<td>TOTAL</td>
<td>54,067</td>
</tr>
<tr>
<td>REVENUES FOR OTHER ARIZONA COUNTIES</td>
<td></td>
</tr>
<tr>
<td>State Shared Sales Tax</td>
<td>539,317</td>
</tr>
<tr>
<td>State Shared Hwy User Rev Fund</td>
<td>121,164</td>
</tr>
<tr>
<td>TOTAL</td>
<td>660,481</td>
</tr>
<tr>
<td>REVENUES FOR OTHER ARIZONA CITIES AND TOWNS</td>
<td></td>
</tr>
<tr>
<td>Urban Revenue Sharing</td>
<td>1,080,029</td>
</tr>
<tr>
<td>State Shared Sales Tax</td>
<td>731,809</td>
</tr>
<tr>
<td>State Shared Hwy User Rev Fund</td>
<td>417,477</td>
</tr>
<tr>
<td>Vehicle License Tax</td>
<td>11,497</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,240,812</td>
</tr>
<tr>
<td>TOTAL</td>
<td><strong>$29,897,746</strong></td>
</tr>
</tbody>
</table>
Table 12
Summary of Revenue Impacts

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Induced</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>$18,481,653</td>
<td>$38,599,680</td>
<td>$57,081,333</td>
</tr>
<tr>
<td>Pima County</td>
<td>2,357,994</td>
<td>9,891,820</td>
<td>12,249,814</td>
</tr>
<tr>
<td>City of Tucson</td>
<td>7,733,036</td>
<td>9,481,463</td>
<td>17,214,499</td>
</tr>
<tr>
<td>Pima Assn. of Gov.</td>
<td>1,987</td>
<td>116,338</td>
<td>118,325</td>
</tr>
<tr>
<td>Other AZ Counties</td>
<td>1,323,103</td>
<td>1,421,182</td>
<td>2,744,285</td>
</tr>
<tr>
<td>Other AZ Cities</td>
<td>1,681,054</td>
<td>4,821,641</td>
<td>6,502,695</td>
</tr>
<tr>
<td>Total</td>
<td>$31,578,827</td>
<td>$64,332,124</td>
<td>$95,910,951</td>
</tr>
</tbody>
</table>

- Government tax revenues from university visitors
- Government tax revenues from university faculty/staff wages
- Government tax revenues from student expenditures
  - Tax revenues from relatively high wages for the working lifetime of alumni
- University graduates require less public spending than other residents for health and social services
- University graduates who enter government services bring new ideas and skills to government
- University graduates are informed citizens and voters
- University graduates provide an informed pool of candidates for public office
- University graduates and university employees are resources to our elected officials

State and local communities receive a high rate of return from higher education:

- University State-funded jobs and wages in the community
- University research-funded jobs and wages in the community
  - Jobs and wages associated with UA expenditures
  - Jobs and wages associated with UA faculty and staff expenditures
  - Jobs and wages associated with UA student expenditures
  - Jobs and wages associated with UA visitor expenditures
  - Community receives recognition associated with university academics, research and athletics
  - A quality university increases the attractiveness of the community to industry and entrepreneurs
  - University research and technology transfers generate local job spin-offs
  - Community has access to university educational facilities and programs, such as coursework, research libraries, museums, and presentations by students and faculty
  - Community has access to university recreational facilities, athletic events, world class concerts and performances, museums, student and faculty art shows, music and dance performances, and drama productions.

- The University provides numerous services directly to the public, such as advice and expertise regarding gardening and plant diseases, information on the state and regional economy, and job outlook.
- University faculty conduct both funded and non-funded studies (as part of their research programs) that have direct relevance to issues affecting the state and local community
- University faculty, professionals and staff serve on numerous boards and committees for private, non-profit, public and service organizations, and state and local governments, offering their expertise free of charge
- Expertise of university faculty, professionals and staff is available to the state and local community
- The university attracts students and researchers from around the world, making Tucson, Pima County and the State of Arizona known worldwide

And, finally, Society at large receives a high return from higher education:

- University training provides the flexible work force necessary in today’s changing world
- The University trains teachers from pre-school to the university level who pass on knowledge and new skills to future generations
• University-trained individuals apply the latest in knowledge and technology to problems facing our world
• University research generates new knowledge and a better understanding of scientific, business and social issues
• University research develops new technology
• University-generated technology helps create new products, new methods of production and new jobs

• New technology increases worker productivity and, therefore, worker wages
• University research provides new organizational and management tools which increase economic efficiency
• University-educated workers and university research are necessary for Arizona and the United States to compete in today’s global economy
• University-trained artists and musicians create beauty and enhance the quality of life
• The University attracts students and researchers from around the world, enhancing world communication, understanding and world peace
• University faculty play important ambassadorial roles when visiting colleagues and institutions abroad
• Our university education system is a model that is being emulated around the world, increasing our influence on other societies

<table>
<thead>
<tr>
<th>County</th>
<th>University Employment</th>
<th>Employment due to University and Employee Spending</th>
<th>Total Employment Impact</th>
<th>Total Sales Impact ($1,000)</th>
<th>Total Wage Impact ($1,000)</th>
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</thead>
<tbody>
<tr>
<td>Apache</td>
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<td>13</td>
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<td>201</td>
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<td>Cochise</td>
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<td>134</td>
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<td>2,740</td>
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<td>Coconino</td>
<td>8</td>
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<td>16</td>
<td>594</td>
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<tr>
<td>Gila</td>
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<td>26</td>
<td>807</td>
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<td>1</td>
<td>7</td>
<td>148</td>
<td>117</td>
</tr>
<tr>
<td>La Paz</td>
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<td>4</td>
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<td>453</td>
<td>328</td>
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<tr>
<td>Maricopa</td>
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<td>875</td>
<td>1,044</td>
<td>50,050</td>
<td>20,711</td>
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<td>Mohave</td>
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<td>12</td>
<td>389</td>
<td>270</td>
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<tr>
<td>Navajo</td>
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<td>7</td>
<td>17</td>
<td>505</td>
<td>300</td>
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<td>Pima*</td>
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<td>28,868</td>
<td>40,911</td>
<td>1,862,000</td>
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<td>Pinal</td>
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<td>17</td>
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<td>Yavapai</td>
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<tr>
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<td>Outside of Pima</td>
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<td>1,608</td>
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<td>Arizona Total</td>
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<td>42,519</td>
<td>$1,929,001</td>
<td>$896,110</td>
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</tbody>
</table>

*Impacts for Pima County also include visitor and student spending, which are not included in the impacts for other counties.
Figure 3
The University of Arizona Around the State of Arizona

Apache County
- College of Agriculture
  - Number of Programs: 2
  - Approx. Exp.: $150,000
  - Students: 13
  - Employees: 9

Navajo County
- Cooperative Extension
  - Number of Programs: 2
  - Approx. Exp.: $250,000
  - Students: 16
  - Employees: 10

Greenlee County
- College of Agriculture
  - Number of Programs: 1
  - Approx. Exp.: $135,000
  - Students: 4
  - Employees: 6

Mohave County
- College of Agriculture
  - Number of Programs: 1
  - Approx. Exp.: $290,000
  - Students: 11
  - Employees: 8

La Paz County
- College of Agriculture
  - Number of Programs: 1
  - Approx. Exp.: $300,000
  - Students: 20
  - Employees: 14

Maricopa County
- College of Agriculture
  - Number of Programs: 4
  - Approx. Exp.: $7,875,000
  - Students: 335
  - Employees: 169

Cook County
- Main Campus
  - Number of Programs: Remaining
  - Approx. Exp.: $876,270,000
  - Students: 33,330
  - Employees: 12,043

Pima County
- College of Agriculture
  - Number of Programs: 1
  - Approx. Exp.: $208,000
  - Students: 20
  - Employees: 7

Pinal County
- College of Agriculture
  - Number of Programs: 3
  - Approx. Exp.: $1,925,000
  - Students: 36
  - Employees: 94

Santa Cruz County
- College of Agriculture
  - Number of Programs: 1
  - Approx. Exp.: $2,980,000
  - Students: 367
  - Employees: 92

Yavapi County
- College of Agriculture
  - Number of Programs: 3
  - Approx. Exp.: $275,000
  - Students: 10
  - Employees: 8

Yuma County
- College of Agriculture
  - Number of Programs: 4
  - Approx. Exp.: $2,700,000
  - Students: 48
  - Employees: 79

Gila County
- College of Agriculture
  - Number of Programs: 3
  - Approx. Exp.: $310,000
  - Students: 7
  - Employees: 15

Yavapai County
- College of Agriculture
  - Number of Programs: 3
  - Approx. Exp.: $310,000
  - Students: 7
  - Employees: 15

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inputs: total wage impact of the project. The model computes direct and induced revenue impacts. Direct revenue impacts are computed for the following categories of revenues that are retained by the State of Arizona following distribution to cities, towns and counties:

- Use Tax
- Sales Taxes

Direct revenue impacts are computed for Pima County for the following categories:

- County Excise Taxes
- State Shared Sales Tax Revenues

Direct revenue impacts are computed for the City of Tucson for the following categories:

- City Sales Taxes
- State Shared Sales Tax Revenues

Induced revenues are those revenues that are generated when income or wages are spent in the local economy. When an industry hires additional workers, its payroll represents an increase in income to the area. As this money is respent, taxes are paid in the form of, for example, sales taxes, property taxes, vehicle license taxes. In addition, when a basic industry expands, the output and work force of other industries that sell to the basic industry also expand. Workers in these technically linked industries also respent their money in the community, generating revenues.

Induced revenue that is retained by the state (after sharing with the cities and counties) is computed for the following
five categories (definitions are provided at the end):

- Income Tax
- Sales Tax
- Fuel Tax and Highway User Revenue Fund
- Vehicle License Tax
- Property Tax

Induced revenue impacts are computed for five revenue sources for county governments:
- County Excise Tax
- State Shared Sales Tax
- State Shared Fuel Tax and Highway User Revenue Fund
- Vehicle License Tax
- Property Tax

Induced revenue impacts are computed for six different revenue sources for the largest city in each county:
- Urban Revenue Sharing
- State Shared Sales Tax
- State Shared Fuel Tax and Highway User Revenue Fund
- Vehicle License Tax
- Property Tax
- City Sales Tax

Note that the revenue impact model does not estimate revenues that will be distributed to special districts or school districts. However, it should be recognized that these other government entities will receive a portion of induced revenues.

The following discussion summarizes most of the assumptions and computations that underlie estimation of induced revenues. Each county spreadsheet computes the change in taxable activity associated with a change in wages of $X in that county. Thus, for $X increase in wages, the spreadsheets compute the change in the taxable income (personal and corporate), taxable sales (retail, contracting, communications, utilities, restaurants and bars, personal and real property rentals, printing and publishing), fuel consumption (in gallons), motor carrier activity, vehicle license taxes and net assessed value.

The responsiveness of each taxable activity to a change in wages (or personal income) is referred to as income “elasticity,” specifically defined as the percent of change in a taxable activity divided by the percent change in income. A very responsive taxable activity, i.e., one which grows faster than the growth in personal income, is known as an “elastic” revenue base. A taxable activity that grows less than proportionally to income is “inelastic,” and a taxable activity that grows proportionally to income is said to have a “unitary” elasticity.

Elasticities for each of the taxable activities were either obtained from secondary sources or computed by the author. These elasticities were used in conjunction with existing tax laws in Arizona to compute total revenues generated from each taxable source. Then Arizona’s revenue sharing formulas were applied to compute the induced revenue impacts for the state, counties and cities.

Note that there are substantial linkages among the revenue sources. For example, a change in taxable activity in a city is also a change in taxable activity in the county and state. The revenue sharing formulas create additional linkages, e.g., a change in net assessed valuation in a county affects not only that country’s and the state’s property tax collections, it can also affect the amount of state-shared sales taxes received by the county government because net assessed value appears in one version of the sales tax sharing formula. Similarly, a change in Vehicle License Tax collections changes the amount of vehicle license taxes collected by the city and the county, as well as affecting the Highway User Revenue Fund (HURF) distributions because a portion of the Vehicle License Tax is deposited in the HURF.

For a detailed description of Arizona’s revenues and revenue sharing formulas and computation of income elasticities implicit in the Pima County revenue model, contact the authors.

**Definitions of Specific Tax Categories:**

Property taxes are imposed in Arizona at many different levels of government, including counties, cities, school districts and a variety of special districts, e.g., community colleges, fire districts, etc. Only property taxes that accrue to Pima County and the two cities are computed in this study.

The Vehicle License Tax is a tax imposed on the value of the car, currently set at a rate of $4.00 per $100 of value, where value is set at 60 percent of the manufacturer’s base retail price for the first 12 months of vehicle life, and value is reduced by 15 percent in each 12 month period following the first 12 months of the vehicle’s life.

The State-Shared Fuel Taxes and Highway User Revenue Funds (HURF) consists primarily of: gasoline tax collections, diesel fuel tax collections, a portion of the Vehicle License Tax, county registration collections (i.e., the charge paid at registration), and the motor carrier tax (imposed on trucks according to the miles driven, where the rate varies with the weight of the trucks).

State-Shared Sales Tax Collections consists of a state-imposed “sales” tax on 17 categories of taxable activities. The most important of these for the present analysis are utilities, communications, publishing, printing, restaurants and bars, rentals of real and personal property, contracting (materials only or 65 percent of the contracting award), amusements, hotels/motels and retail. Each of these activities is taxed by the State at 5 percent, except hotels and motels which are currently taxed at 5.5 percent.

Urban Revenue Sharing - 13.6 percent of the proceeds of state income taxes (total net collections from the individual and corporate income taxes, less voluntary contributions) collected two fiscal years prior to the current fiscal year are credited to the Urban Revenue Sharing Fund. Each city and town receives its share of the fund according to its share of incorporated population based on the last U.S. decennial or special census, adjusted for changes in city or town boundaries.