

THE IMPACT OF ARIZONA STATE UNIVERSITY GRADUATES EMPLOYED IN ARIZONA IN 2021

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SUMMARY

Arizona State University (ASU) graduates are employed throughout the world. This paper examines only those graduates employed in Arizona — those contributing to the productivity and prosperity of the state.

Approximately 283,429 ASU graduates were working in Arizona in 2021. More than one-in-four of the state's working individuals who had earned at least a bachelor's degree had graduated from ASU. The aggregate earnings of the ASU graduates were around \$19.4 billion. Based on these earnings, these individuals contributed between \$1.37-and-\$1.65 billion in state and local government taxes, including between \$817 million and \$982 million in state government taxes, depending on the tax rate assumed.

The estimate of the number of ASU graduates working in Arizona in 2021 is based on actual employment and wage data for 190,702 individuals who graduated from ASU between 1990 and 2021 and were covered by the state's unemployment insurance program. Estimates of those who graduated from ASU prior to 1990 and of ASU graduates who were not covered by the unemployment insurance program but were working in Arizona in 2021 were added to the 190,702 figure to reach the total of approximately 283,429.

The impact of ASU graduates working in Arizona increased between 2012 and 2014 and was little changed between 2014 and 2016; it increased again in 2017, 2018, 2019, and 2020. It decreased slightly in 2021, by less than a fifth of a percentage point.

The share of the Arizona workforce who were ASU graduates was 6.17 percent in 2012 and increased to 6.99 percent in 2021. The share of aggregate wages earned by ASU graduates increased from 8.28 percent in 2012 to 9.23 percent in 2020, but decreased to 8.85 percent in 2021.

The average wage of ASU graduates climbed from 134.3 percent of the average wage of all workers in 2012 to 137.9 percent in 2019, but decreased to 132.5 percent in 2020 and to 126.7 percent in 2021.

In 2012, graduates of ASU accounted for 25.6 percent of all Arizona workers who had earned at least a bachelor's degree. This percentage increased to 26.9 percent in 2014 and 2015, then dropped to 25.9 percent in 2016, and to 25.6 percent in 2017 and 2018. It slightly increased to 25.7 percent in 2019, and increased to 26.4 percent in 2020. It dropped again in 2021, to 25.8 percent.

DESCRIPTION OF DATA

University Graduates Employed in Arizona

For each year from 2012 through 2021, the Arizona Board of Regents (ABOR) has created a dataset of graduates of Arizona's three public universities who were employed in Arizona during the year. While the ABOR dataset includes the number of "degrees awarded," this number really refers to the number of individuals earning a degree. An individual earning more than one degree is counted only once in this dataset, categorized in the year of the most recent degree. Thus, the dataset's number of "degrees awarded" is less than the official number of degrees awarded.

The ABOR dataset is created by matching Social Security numbers of university graduates to the numbers in the unemployment insurance file maintained by the Arizona Department of Economic Security, which works in conjunction with the U.S. Department of Labor. Reporting from the unemployment insurance file — the Quarterly Census of Employment and Wages (QCEW) — is done quarterly, with annual average figures also produced.

Each quarter, every business that employs workers covered by the state's unemployment insurance program must report (1) employment in each of the three months of the quarter during the pay period that includes the 12th day of the month and (2) total wages paid by the business during the quarter. Federal government civilian workers covered by the comparable federal unemployment insurance program also are included in the reporting.

Various members of the workforce are not included in the QCEW: most agricultural workers on small farms, those self-employed, those in the Armed Forces, and various others. Reporting is by job, not by individual — an individual working more than one covered job will appear in the file more than once.

Since the unemployment insurance records are confidential, ABOR's dataset of graduates employed in Arizona includes only aggregate totals. There are two significant limitations to this dataset. First, the unemployment insurance file does not include a significant number of workers — in 2021, the employment count from the unemployment insurance file was only 72 percent of the total employment in Arizona, as reported by the U.S. Bureau of Economic Analysis (BEA). Second, the dataset of graduates employed in Arizona constructed by the Board of Regents only includes graduates since 1990. Thus, the number of graduates of Arizona's public universities who are working in Arizona is understated significantly. This understatement effectively becomes even larger when the number of *individuals* counted in the Board of Regents dataset is compared to the total number of *jobs* reported in the QCEW.

The dataset constructed by the Board of Regents is subdivided by various characteristics:

- university
- bachelor's degrees versus graduate degrees
- those who attended school as Arizona residents versus nonresidents

The analysis described in this paper uses a dataset specific to Arizona State University (ASU) provided by ASU's Office of the University Provost.

By year of graduation, the following data items are available from the dataset of university graduates employed in Arizona:

- number of graduates
- number employed in Arizona (in any quarter during the year)
- percent of graduates employed in Arizona
- total and median wages of graduates employed in Arizona
- estimated state taxes paid by graduates employed in Arizona
- number employed in Arizona in all four quarters
- total and median wages of those employed in Arizona in all four quarters

The number of graduates is reported by academic year — for example, for 2021, the sum of the number graduating in August 2020, December 2020, and May 2021. The employment data are for calendar year 2021.

While the median wage of those employed in all four quarters is a reasonable measure of the typical annual wage of graduates included in the dataset, use of the median wage is arithmetically quite limited. Thus, the average wage of those employed in any quarter during the year also is calculated, as total wages divided by the total number employed.

Employment

The employment figures reported in the QCEW are based on a census of all covered workers and therefore are highly accurate, but as noted above, a large number of workers are not covered by the unemployment insurance program. Thus, focusing only on those covered by the program significantly understates the contribution of university graduates to the Arizona economy.

Employment estimates are available from several sources, but these estimates are not consistent due to definitional differences (certain categories of workers may be excluded by one source but not by another), differences in the way the data are collected (such as a sample of employers versus a census), and timing differences in when the data are collected. In order to provide a more complete picture of the economic activity in Arizona of ASU graduates, more complete employment estimates from the BEA are used in this report.

Most of the employment estimates, including those of the QCEW and BEA, do not differentiate between a person working full time and one working fewer hours. Employment is categorized by the place of work, not by where the worker lives. For example, an Arizona resident of Bullhead City who works across the Colorado River in Laughlin, Nevada is counted in the Nevada employment figures. Further, most of the employment estimates report the number of jobs, not the number of people employed — an individual working two jobs is counted twice in the employment figures. This is an important distinction when comparing the number of ASU graduates (individuals) employed in Arizona to total employment (number of jobs).

Unlike other employment estimates, the employment data reported from the American Community Survey (ACS) reflects the number of individuals working and workers are classified by place of residence. The ACS is an ongoing survey of households conducted by the U.S. Census Bureau that is the source of a wide variety of socioeconomic data. The main shortcoming of the ACS is that it is based on a relatively small number of households. Sampling error can be a

significant concern. The accuracy of self-reporting, particularly for questions related to wages and income, also is an issue. Various ACS tables provide insight on employment in Arizona. The ACS employment figures are based on an individual's employment status at the time the questionnaire is completed.

Educational Attainment

In order to provide context on the contribution of ASU graduates employed in Arizona, the educational attainment of the Arizona workforce is examined. The ACS is the best source of data on educational attainment at a subnational level. In this report, Arizona's educational attainment is compared to the nation using three ACS tables: attainment for the population age 25 and older, attainment in each of five age groups, and attainment by labor force status among those 25-to-64 years old.

While ACS data for five years often are combined to reduce sampling error, the ACS data from 2021 are used in this analysis in order to be consistent with the Board of Regents dataset. For Arizona, sampling error for a single year of ACS data ranges from insignificant for broad measures to significant for small subsets of the population. Thus, the attainment data for the entire population at least 25 years of age is more reliable than the data for each of five age groups.

The Impact of College Graduates on the Workforce

Educational attainment is strongly correlated to an individual's earnings, with a bachelor's degree in particular causing a boost in earnings. The higher earnings realized over a lifetime of work greatly exceeds the costs of attending college.¹ Society also benefits from an educated populace in various ways, such as the lower crime rates of educated individuals.²

One of the benefits of having highly educated individuals in the workforce is to raise the wages of the entire workforce. Enrico Moretti specified this relationship in his 2004 *Journal of Econometrics* paper, "Estimating the Social Return to Higher Education: Evidence From Longitudinal and Repeated Cross-Sectional Data."³ The spillover of benefits to all workers can be traced to the enhanced worker productivity associated with greater educational attainment. Improved productivity results from the sharing of knowledge and skills across workers and from shifts in the industrial mix to knowledge-based activities. These productivity gains translate into higher output and earnings.⁴

¹ See "Has the Return to Investing in a College Education Declined?," December 2013, <https://economist.asu.edu/reports/has-the-return-to-investing-in-a-college-education-declined> and earlier papers at <https://economist.asu.edu/reports>.

² See "Benefits From Improving Educational Attainment in Arizona," August 2012, <https://economist.asu.edu/reports/benefits-from-improving-educational-attainment-in-arizona> and earlier papers at <https://economist.asu.edu/reports>.

³ Accessible from <https://eml.berkeley.edu/~moretti/socret.pdf>.

⁴ See "The Economic Impact of Raising the Educational Attainment of Arizona's Workforce; 2019 Update," July 2019, <https://economist.asu.edu/reports/the-economic-impact-of-raising-the-educational-attainment-of-arizonas-workforce-2019-update>.

ARIZONA STATE UNIVERSITY GRADUATES EMPLOYED IN ARIZONA IN 2021

Employment

According to the QCEW, annual average Arizona employment in 2021 totaled 2,935,150. The BEA's wage and salary employment estimate was 3,076,770, meaning that 141,620 wage and salary workers were not covered by unemployment insurance. The BEA estimates that the number of proprietors (self-employed, also not included in the QCEW) was 979,162, for a total employment figure of 4,055,932.

According to the ACS, an estimated 3,314,799 Arizonans were employed in 2021 in civilian jobs; an additional 26,223 were members of the armed forces. The total of 3,341,022 is 82 percent of the BEA's total number of jobs, suggesting that many workers (1) are employed by more than one business and/or (2) hold a wage and salary job as well as report self-employment income. Other data from the ACS indicates that 21 percent of employed Arizonans worked less than 35 hours per week.

Educational Attainment

Most commonly, educational attainment is expressed for those at least 25 years old. Though the age of 25 is arbitrary, a high proportion of individuals have completed their educations by that age. In 2021, Arizona's educational attainment in this large cohort was inferior to the nation. The share without either a high school diploma or a GED (general education development) certificate was higher in Arizona: 11.0 percent versus 10.6 percent nationally. Relative to the nation, lesser shares of Arizonans had earned a bachelor's degree (19.8-versus-21.2 percent nationally) and a graduate degree (12.6-versus-13.8 percent nationally).

An examination of educational attainment by age group reveals that Arizona was particularly far below the nation among those younger than 35 in 2021. Arizona also was below average among those 35-to-64 years old. In contrast, the educational attainment of those 65 and older was higher in Arizona than nationally. Since few of those age 65 and older are working, the standard statistics on the entire 25-and-older population understate Arizona's educational disadvantage as it applies to the workforce.

Data on educational attainment by labor force status indicate that among those in the workforce, the educational attainment in Arizona of those 25-to-64 years old was below the national figure in 2021. The proportion of those working in a civilian job who had earned at least a bachelor's degree was 36.9 percent in Arizona and 41.6 percent nationally.

Arizona State University Graduates Employed in Arizona

Detailed figures from the dataset of 1990-through-2021 graduates of Arizona State University who were employed in Arizona during 2021 are provided in the appendix. Data are shown by undergraduate versus graduate degree and by residency status while a student.

ABOR's data for graduates in the most recent academic year need to be interpreted carefully. A significant proportion of those graduating in academic year 2021 graduated in May 2021. The employment and wage information for these individuals in calendar year 2021 may reflect part-time employment prior to graduation and/or full-time employment after graduation. In the latter

case, the wage data are for less than a year of full-time employment. For those graduating in academic year 2021, the average wage and median wage is very low and the percentage employed in all four quarters is very low compared to those graduating in prior years.

The following are among the basic conclusions that can be reached using the dataset of ASU graduates from academic years 1990 through 2021:

- The number of individuals earning a degree has increased significantly over time, by 361 percent overall between 1990 and 2021.
- The increase in the number of individuals earning a degree has been higher for graduate students than undergrads, and much higher for those who were classified as nonresidents while attending school than among those classified as residents.
- In 2021, the shares of the total number of graduates were 38.3 percent for resident undergraduates, 30.1 percent for nonresident undergraduates, 10.4 percent for resident graduate students, and 21.2 percent for nonresident graduate students.
- The percentage of graduates employed in Arizona is much higher for residents than nonresidents.
- The share of graduates employed in Arizona decreases significantly with the number of years since graduation, regardless of residency status while students.
- The percentage employed in all four quarters was less than 70 percent among recent graduates but generally was greater than 70 percent among older graduates.
- The average wage and the median wage increase significantly with the number of years elapsed since graduation, though this effect weakens with the number of years elapsed.
- The median wage and the average wage are somewhat higher for those who were classified as nonresidents.
- The average wage exceeds the median wage (for graduates employed in all four quarters, as well as for graduates employed at some point during the year) presumably because of a small number of graduates earning very high wages that boosts the average but not the median. The difference between average and median wages is larger for older graduates.

The number of individuals who graduated from ASU between academic years 1990 and 2021 who worked at jobs in Arizona that were covered by the unemployment insurance program in calendar year 2021 was 190,702. ASU graduates between 1990 and 2021 accounted for 6.5 percent of the QCEW total number employed, but this share is understated since it compares *individuals* with ASU degrees to the *number of jobs*.

The aggregate wages of individuals who graduated from ASU between academic years 1990 and 2021 (\$14.6 billion) accounted for 8.1 percent of the QCEW total. ABOR estimates that “state tax revenue” (really, state and local government tax revenue in Arizona) in 2021 by those who graduated from ASU between 1990 and 2021 — based only on wages earned as part of the unemployment insurance program — was \$1.03 billion: 7.07 percent of aggregate wages.

A summary of the ASU graduates from 1990 through 2021 is provided in the top portion of Table 1. The bottom portion of Table 1 focuses on academic year 2020 graduates.⁵ Table 1 needs

⁵ Graduates from 2020 instead of 2021 are used since the statistics for those graduating in May 2021 are affected by part-time wages earned while a student and less than full-year wages after graduation.

to be interpreted carefully. Student characteristics vary by residency status and by undergraduate and graduate programs. For example, the magnitude of the difference in the average wage between undergraduate and graduate degrees in 2020 reflects not only the wage premium of the graduate degree but also the greater number of years of work experience prior to graduation among those with a graduate degree. The differential in the average wage of those with undergraduate and graduate degrees declines with the number of years of work experience. Among graduates from academic year 2020, the average wage in 2021 of those with a graduate degree was 52 percent higher than those with a bachelor's degree, but the differential for graduates over the entire 1990-to-2021 period was 30 percent. According to the 2021 ACS, all Arizona workers with a graduate degree (including those graduating before 1990) earned 29 percent more than those who had earned a bachelor's degree.

Alternative Estimates of Taxes Paid

ABOR estimates state and local government tax payments based on the following income levels and tax rates:

- Less than \$25,001: 12.6 percent
- \$25,001 to \$75,000: 6.8 percent
- \$75,001 to \$100,000: 7.2 percent
- More than \$100,000: 6.9 percent

The average tax rate of ASU graduates between 1990 and 2021 who worked in Arizona in 2021 was 7.07 percent.

ABOR's tax rates come from the 2007 edition of an annual study of tax burdens produced by the government of the District of Columbia.⁶ The latest study is for 2020. Since the tax rates from this study fluctuate from year to year with changes in methodology, it is preferable to use the median rates over several years. The last major tax change in Arizona for individuals was fully implemented in 2008. Based on the 2009-through-2020 reports, the median combined state and local government tax rates in Arizona are higher than used by ABOR for those with incomes of \$50,000 or more. The median rate at each of four incomes between \$50,000 and \$150,000 is between 8.5-and-8.9 percent. Since the District of Columbia study does not measure every state and local tax — though it includes income taxes, sales taxes, property taxes, and automobile-related taxes — the overall tax rate would be slightly higher.

A study by the Institute on Taxation and Economic Policy (ITEP), which includes all taxes, reports a similar state and local government tax burden in Arizona.⁷ The figure is 8.5 percent for those earning between \$55,000 and \$96,400; the average wage of ASU graduates employed in Arizona reported by the ABOR is within this range. Using the 8.5 percent tax rate and the aggregate wage figures from the ABOR dataset, Arizona state and local government taxes paid

⁶ "Tax Rates and Tax Burdens in the District of Columbia — A Nationwide Comparison," Government of the District of Columbia, https://cfo.dc.gov/sites/default/files/dc/sites/ocfo/publication/attachments/2020%20Tax%20Rates%20and%20Tax%20Burdens_Nationwide%20Comparison.pdf

⁷ Institute on Taxation & Economic Policy, *Who Pays? A Distributional Analysis of the Tax Systems in All 50 States*, October 2018, <http://www.itep.org/whopays/>.

TABLE 1
ARIZONA STATE UNIVERSITY GRADUATES

	Total	Total Under-grad Degrees	Resident Under-grad Degrees	Non-resident Undergrad Degrees	Total Graduate Degrees	Resident Graduate Degrees	Non-resident Graduate Degrees
Graduates From 1990 Through 2021:							
Number Graduating From Arizona State University Employed in Arizona and Covered by the Unemployment Insurance Program in 2021:	436,579	307,983	225,015	82,968	128,596	68,811	59,785
Number	190,702	144,941	131,283	13,658	45,761	37,172	8,586
Share of Graduates (Percent)	44	47	58	16	36	54	14
Aggregate Wages (Dollars, Millions)	14,622	10,378	9,410	968	4,244	3,473	770
Average Wage (Dollars)	76,675	71,604	71,677	70,901	92,738	93,441	89,698
Estimated State and Local Government Tax Payments (Dollars, Millions)	1,033	736	667	69	297	243	54
Graduates From 2020:							
Number Graduating From Arizona State University Employed in Arizona and Covered by the Unemployment Insurance Program in 2021:	28,319	19,352	11,408	7,944	8,967	2,976	5,991
Number	13,728	10,398	8,938	1,462	3,330	2,312	1,018
Share of Graduates (Percent)	48	54	78	18	37	78	17
Aggregate Wages (Dollars, Millions)	645	434	374	60	212	151	61
Average Wage (Dollars)	47,020	41,718	41,820	41,067	63,575	65,389	59,457
Estimated State and Local Government Tax Payments (Dollars, Millions)	47	32	28	4	15	11	4

Source: Arizona Board of Regents from Arizona State University, Office of the University Provost.

on QCEW wages by those who graduated from ASU between 1990 and 2021 was approximately \$1.24 billion in 2021, compared to ABOR's estimate of \$1.03 billion.

In order to estimate the amount of taxes paid just to state government, U.S. Census Bureau data were used. In fiscal year 2020, state tax collections accounted for 59.5 percent of combined state and local government tax collections in Arizona.⁸ Applying this percentage to the estimates of state and local government taxes paid on QCEW wages by those who graduated from ASU between 1990 and 2021, the result is \$817 million based on ABOR's estimate of state and local government taxes and \$982 million based on the 8.5 percent state and local government tax rate.

Extending the Analysis to Include Those Who Graduated From ASU Before 1990

In order to provide an estimate of the number of individuals who graduated from ASU before 1990 and who were working in Arizona in 2021, actual data on the number of degrees awarded by ASU before 1990 were collected, with the earliest data from 1971. The official graduation data from ASU count number of degrees — individuals with more than one ASU degree are counted more than once. These data are not consistent with the figures used in the Arizona Board of Regents dataset, which counts individuals, not number of degrees. Thus, in order to estimate the number of individuals who had earned a degree from ASU before 1990, the historical graduation data for the years before 1990 were adjusted, using the ratio from the 1990-through-1999 period of the number of graduates counted in the Board of Regents database to the official count of degrees granted. The ratio was 88.7 percent for those with an undergraduate degree, 91.3 percent for those with a graduate degree, and 89.4 percent for all graduates.

In order to estimate the number of ASU graduates from before 1990 who were working in Arizona in 2021 and counted in the unemployment insurance program, a “backward projection” was made of the percentage of ASU graduates who were employed in Arizona in 2021. The percentage drops with the number of years since graduation; the rate of decline is rapid among recent grads but is lower and relatively stable among earlier graduates. The average annual decrease of 1.38 percentage points between 1990 and 1999 was used for the pre-1990 period. Using the adjusted graduation figures and the estimated percentage of graduates employed in Arizona, the number of employed ASU graduates was calculated by year for the pre-1990 period.

The average wage for graduates in the pre-1990 period was backward projected in the same manner as the percentage employed. The average wage rises significantly by the number of years since graduation for relatively recent graduates. Among earlier graduates, the increase in the average wage by year is lower and more stable. The annual average increase from the 1990-through-1999 period was 0.5 percent; this figure was applied to the pre-1990 period.

Using these backward projections, the number of individuals who graduated from ASU through academic year 2021 who worked at jobs in Arizona that were covered by the unemployment insurance program in 2021 is estimated to be 205,109 — 7.5 percent higher than the number of those who graduated from 1990 through 2021. Due to the high average wage of individuals who graduated prior to 1990, the differential in the aggregate wage of the entire set of ASU graduates relative to the 1990-to-2021 group was greater at 9.7 percent.

⁸ U.S. Department of Commerce, Census Bureau, State and Local Government Finance, <https://www.census.gov/programs-surveys/gov-finances.html>

This methodology does not directly address the increasing share of retirees among older ASU graduates. While the percentage of ASU graduates working in Arizona declines with the number of years since graduation over the 1990-to-2021 period, this decrease presumably occurs mostly due to out-migration. Few ASU graduates since 1990 — most of whom were less than 55 years old in 2021 — are likely to have retired. In contrast, retirement becomes increasingly likely among those who graduated during the 1970s. Thus, the estimates of the numbers employed in Arizona of graduates from this time period may be overstated. However, the results of the methodology that was used results in only 1.1 percent of 1971 graduates employed in Arizona in 2021. Any overstatement of graduates from the 1970s working in Arizona is partially offset by the exclusion of graduates from before 1971, a few of whom likely were still part of the workforce in 2021. Further, it seems unlikely that the rate of out-migration from Arizona for job-related reasons would be as high among those approaching retirement age as among those who are younger. Thus, the estimated number of older ASU graduates working in Arizona is believed to be reasonable.

Those who have graduated from ASU accounted for 7.0 percent of the QCEW number of jobs in Arizona in 2021, but again this share is understated since it compares *individuals* with ASU degrees to the *number of jobs*. The aggregate wage of individuals who have graduated from ASU accounted for 8.9 percent of the QCEW total. The 2021 average wage of \$78,231 of those who have graduated from ASU was 26.7 percent higher than the average of the rest of the QCEW file (a group that includes those without a bachelor's degree and those who earned a degree from another institution). Based on the 7.07 percent tax rate and estimated QCEW wages, ASU graduates paid \$1.13 billion in state and local government taxes in 2021, of which \$674 million was paid to state government. Using the 8.5 percent tax rate, state and local government taxes paid amounted to \$1.36 billion, of which \$811 million was paid to state government.

Estimates from the ACS for 2021 indicate that 974,884 Arizona residents between the ages of 25 and 64 who had received at least a bachelor's degree were employed in civilian jobs. Based on various data from the ACS, the estimated total number of people working in civilian jobs in Arizona in 2021 who have earned a bachelor's or higher degree is 1,099,957. The estimated number of ASU graduates employed in the state and covered by the unemployment insurance program accounts for 18.7 percent of the estimated number of civilian workers with at least a bachelor's degree.

Extending the Analysis to Include ASU Graduates Employed in Arizona but Not Covered by the Unemployment Insurance Program

In order to estimate the number of ASU graduates working in Arizona in wage and salary jobs not covered by unemployment insurance or as proprietors (self-employed), the ASU shares of the QCEW total (6.99 percent of employment and 8.85 percent of wages) were applied to the BEA's total employment figure. The result is a total of 283,429 ASU graduates working in Arizona in 2021 (see Table 2). This figure is understated because the 6.99 percent figure is based on individuals with ASU degrees and the number of QCEW jobs.

The estimate of 283,429 ASU graduates working in Arizona accounts for 25.8 percent of the estimated number of employed Arizonans with at least a bachelor's degree in 2021. Thus, more

TABLE 2
ARIZONA STATE UNIVERSITY GRADUATES EMPLOYED IN ARIZONA IN 2021
COMPARED TO TOTAL EMPLOYMENT IN ARIZONA

	Employment	Aggregate Earnings*	Average Earnings
Employment in Arizona:			
QCEW Wage and Salary	2,935,150	\$181,245	\$61,750
Other Wage and Salary From BEA	141,620	11,952	84,397
Total Wage and Salary From BEA	3,076,770	193,197	62,792
Proprietors From BEA	979,162	26,327	26,887
Total From BEA	4,055,932	219,524	54,124
ASU Graduates Employed in Arizona:			
QCEW Wage and Salary, 1990 Through 2021	190,702	14,622	76,675
Estimate From Before 1990	14,407	1,424	98,821
Total QCEW Wage and Salary	205,109	16,046	78,231
Other Wage and Salary Plus Proprietors	78,320	3,389	43,269
Total	283,429	19,435	68,570
ASU Share of Total Employment in Arizona	6.99%	8.85%	126.7%

* In millions. Consists of wages and salaries and proprietors' Income.

Sources: U.S. Department of Labor, Bureau of Labor Statistics (QCEW: Quarterly Census of Employment and Wages); U.S. Department of Commerce, Bureau of Economic Analysis (BEA); and Arizona Board of Regents from Arizona State University, Office of the University Provost.

than one-in-four working individuals in Arizona who had earned at least a bachelor's degree had graduated from ASU. The aggregate earnings of the ASU graduates were around \$19.4 billion. Based on the 7.07 percent tax rate and \$19.4 billion in earnings, ASU graduates paid \$1.37 billion in state and local government taxes in 2021, of which \$817 million was paid to state government. Using the 8.5 percent tax rate, state and local government taxes paid amounted to \$1.65 billion, of which \$982 million was paid to state government.

The Impacts of ASU Graduates on the Workforce

The estimates of 283,429 ASU graduates working in Arizona, earning \$19.4 billion, and paying between \$1.37 and \$1.65 billion in state and local government taxes do not provide a complete accounting of the impacts of ASU graduates on the Arizona economy. College graduates in the workforce boost the productivity of all workers, which results in an increase in wages for all workers. This is discussed in the May 2019 University Economist Paper, "The Economic Impact of Raising the Educational Attainment of Arizona's Workforce: 2019 Update,"

<https://economist.asu.edu/reports/the-economic-impact-of-raising-the-educational-attainment-of-arizonas-workforce-2019-update>.

ARIZONA STATE UNIVERSITY GRADUATES EMPLOYED IN ARIZONA, 2012 THROUGH 2021

The estimated number of ASU graduates (including those graduating prior to 1990) working in Arizona and covered by unemployment insurance accounted for 6.17 percent of all workers in the unemployment insurance program in 2012. Except for a dip in 2015, this share has increased, reaching 6.99 percent in 2021 (see Table 3). The share of aggregate wages earned by ASU graduates increased from 8.28 percent in 2012 to 9.23 percent in 2020, but experienced a dip in 2015 and again in 2021, decreasing to 8.85 percent.

The average wage of ASU graduates climbed from 134.3 percent of the overall average in 2012 to 137.6 percent in 2015. While the 2016 figure slipped to 137.2 percent, the 2017 figure increased back to 137.6 and the 2018 figure rose to 138.2. However, since 2019, the figure has been decreasing each year, reaching 126.7 percent in 2021.

The estimated share of Arizona workers holding at least a bachelor's degree who are a graduate of ASU climbed from 25.6 percent in 2012 to 26.9 percent in 2014, held steady in 2015, then fell to 25.9 percent in 2016, and dropped further to 25.6 percent in 2017 and 2018. It increased slightly to 25.7 percent in 2019 and then increased to 26.4 percent in 2020, but dipped to 25.8 percent in 2021.

While the one-year percentage increase in ASU graduates working in Arizona did not vary much across the first few years, averaging between 3-and-4 percent, it increased noticeably in 2021, to 6.3 percent. The annual percentage increase in the total number of employed university graduates in Arizona, derived from the ACS, was much bigger in 2016 through 2021 than in the three previous years.

TABLE 3
SUMMARY OF ARIZONA STATE UNIVERSITY GRADUATES EMPLOYED IN ARIZONA, 2012 THROUGH 2021

	Employment		Aggregate Earnings		Average Earnings		Tax Payments Estimated Range for State and Local Governments in Millions of 2021 Dollars		Share of Workforce With a University Degree
	Number	Share of Total	Millions of 2021 Dollars	Share of Total	2021 Dollars	Share of Total			
2012	203,372	6.17%	\$12,994	8.28%	\$63,892	134.3%	\$935	\$1,065	25.6%
2013	211,576	6.27	13,772	8.55	65,094	136.4	988	1,129	26.4
2014	219,106	6.35	14,344	8.71	65,467	137.2	1,026	1,176	26.9
2015	223,985	6.31	14,909	8.68	66,564	137.6	1,066	1,223	26.9
2016	231,010	6.34	15,471	8.70	66,969	137.2	1,105	1,269	25.9
2017	238,834	6.41	16,495	8.82	69,067	137.6	1,175	1,402	25.6
2018	249,691	6.47	17,158	8.94	68,715	138.2	1,218	1,458	25.6
2019	259,883	6.55	18,192	9.03	69,999	137.9	1,288	1,546	25.7
2020	266,716	6.97	19,473	9.23	73,009	132.5	1,378	1,655	26.4
2021	283,429	6.99	19,435	8.85	68,750	126.7	1,373	1,652	25.8

Note: The upper range of the tax payment is based on an 8.2 percent tax rate from 2012 through 2016 and an 8.5 percent rate in 2017 through 2021.

Source: Calculated by authors.

APPENDIX
ARIZONA STATE UNIVERSITY GRADUATES FROM 1990 THROUGH 2021 EMPLOYED IN ARIZONA IN 2021:
DETAIL BY CATEGORY OF DEGREE

Source: Arizona Board of Regents, from Arizona State University, Office of the University Provost.

ALL DEGREES: 2021

Academic Year of Graduation	Number Earning a Degree	Number Employed in Arizona	Percent Employed in Arizona	Aggregate Wages in Millions	Average Wage	Estimated State and Local Government Tax Payments in Millions	Number Employed in Arizona During All Four Quarters	Percent Employed in All Four Quarters
1990	6,756	1,769	26.2%	\$180.7	\$102,167	\$12.7	958	54.2%
1991	7,128	2,122	29.8	218.6	103,000	15.3	1,197	56.4
1992	7,096	2,210	31.1	215.5	97,505	15.1	1,309	59.2
1993	7,650	2,387	31.2	243.2	101,867	17.0	1,457	61.0
1994	7,751	2,559	33.0	261.5	102,170	18.3	1,572	61.4
1995	8,090	2,841	35.1	294.2	103,570	20.6	1,805	63.5
1996	8,043	2,966	36.9	303.2	102,214	21.3	1,929	65.0
1997	8,553	3,216	37.6	338.2	105,167	23.7	2,129	66.2
1998	9,111	3,477	38.2	355.7	102,299	24.9	2,382	68.5
1999	9,215	3,454	37.5	360.7	104,429	25.2	2,355	68.2
2000	9,629	3,852	40.0	413.8	107,419	28.9	2,709	70.3
2001	9,359	3,728	39.8	394.7	105,866	27.6	2,615	70.1
2002	9,875	4,114	41.7	432.7	105,179	30.2	2,912	70.8
2003	10,455	4,446	42.5	462.7	104,066	32.3	3,184	71.6
2004	11,049	4,780	43.3	470.2	98,367	32.9	3,448	72.1
2005	11,299	4,968	44.0	483.6	97,342	33.8	3,563	71.7
2006	11,629	5,204	44.8	507.9	97,596	35.6	3,788	72.8
2007	12,009	5,422	45.1	508.5	93,781	35.6	4,014	74.0
2008	12,677	5,699	45.0	539.3	94,629	37.8	4,255	74.7
2009	13,673	5,930	43.4	548.6	92,516	38.4	4,421	74.6
2010	14,377	6,712	46.7	591.0	88,052	41.4	5,035	75.0
2011	14,803	6,956	47.0	589.9	84,799	41.3	5,298	76.2
2012	15,464	7,405	47.9	577.1	77,934	40.5	5,582	75.4
2013	16,252	7,775	47.8	587.2	75,522	41.3	5,788	74.4
2014	17,107	8,113	47.4	594.9	73,331	41.9	6,162	76.0
2015	18,396	8,638	47.0	586.0	67,843	41.3	6,478	75.0
2016	19,401	8,892	45.8	582.0	65,457	41.2	6,556	73.7
2017	20,933	9,556	45.7	580.6	60,755	41.2	7,110	74.4
2018	23,674	10,549	44.6	609.0	57,728	43.4	7,787	73.8
2019	25,690	11,969	46.6	622.0	51,968	44.7	8,573	71.6
2020	28,319	13,728	48.5	645.5	47,020	46.9	9,522	69.4
2021	31,116	15,265	49.1	523.6	34,303	40.8	8,298	54.4
TOTAL	436,579	190,702	43.7	14,622.2	76,675	1,033.2	134,191	70.4

ALL UNDERGRADUATE DEGREES: 2021

Academic Year of Graduation	Number Earning a Degree	Number Employed in Arizona	Percent Employed in Arizona	Aggregate Wages in Millions	Average Wage	Estimated State and Local Government Tax Payments in Millions	Number Employed in Arizona During All Four Quarters	Percent Employed in All Four Quarters
1990	5,030	1,462	29.1%	\$144.7	\$99,006	\$10.1	783	53.6%
1991	5,270	1,747	33.1	179.7	102,841	12.6	1,005	57.5
1992	5,338	1,808	33.9	175.8	97,249	12.3	1,094	60.5
1993	5,642	1,909	33.8	194.4	101,810	13.6	1,189	62.3
1994	5,613	2,052	36.6	205.5	100,134	14.4	1,288	62.8
1995	5,731	2,233	39.0	223.1	99,893	15.6	1,462	65.5
1996	5,779	2,288	39.6	218.9	95,691	15.4	1,497	65.4
1997	6,086	2,477	40.7	253.5	102,358	17.8	1,663	67.1
1998	6,573	2,695	41.0	263.9	97,918	18.5	1,881	69.8
1999	6,585	2,627	39.9	260.5	99,164	18.2	1,834	69.8
2000	7,004	2,985	42.6	302.8	101,455	21.2	2,130	71.4
2001	6,808	2,912	42.8	288.7	99,129	20.2	2,053	70.5
2002	7,097	3,153	44.4	310.6	98,517	21.7	2,244	71.2
2003	7,487	3,374	45.1	330.1	97,838	23.1	2,418	71.7
2004	7,923	3,653	46.1	338.3	92,620	23.7	2,658	72.8
2005	8,446	3,894	46.1	356.9	91,647	25.0	2,821	72.4
2006	8,652	4,092	47.3	373.1	91,190	26.2	3,010	73.6
2007	8,824	4,228	47.9	372.3	88,054	26.1	3,166	74.9
2008	9,228	4,322	46.8	377.1	87,247	26.5	3,239	74.9
2009	9,562	4,350	45.5	357.7	82,225	25.1	3,266	75.1
2010	10,124	4,946	48.9	415.8	84,062	29.2	3,766	76.1
2011	10,345	5,108	49.4	403.7	79,025	28.3	3,945	77.2
2012	10,991	5,578	50.8	401.0	71,886	28.2	4,221	75.7
2013	11,555	5,867	50.8	402.8	68,663	28.4	4,384	74.7
2014	12,037	6,175	51.3	416.3	67,412	29.4	4,702	76.1
2015	12,542	6,506	51.9	408.3	62,761	28.9	4,902	75.3
2016	12,992	6,634	51.1	399.2	60,178	28.3	4,917	74.1
2017	14,294	7,140	50.0	398.8	55,852	28.4	5,310	74.4
2018	16,073	7,898	49.1	408.6	51,731	29.3	5,797	73.4
2019	17,702	9,020	51.0	423.0	46,890	30.7	6,427	71.3
2020	19,352	10,398	53.7	433.8	41,718	32.0	7,196	69.2
2021	21,298	11,410	53.6	339.5	29,759	27.3	6,347	55.6
TOTAL	307,983	144,941	47.1	10,378.4	71,604	735.8	102,615	70.8

RESIDENT UNDERGRADUATE DEGREES: 2021

Academic Year of Graduation	Number Earning a Degree	Number Employed in Arizona	Percent Employed in Arizona	Aggregate Wages in Millions	Average Wage	Estimated State and Local Government Tax Payments in Millions	Number Employed in Arizona During All Four Quarters	Percent Employed in All Four Quarters
1990	4,116	1,364	33.1%	\$136.2	\$99,868	\$9.5	721	52.9%
1991	4,276	1,632	38.2	165.7	101,543	11.6	925	56.7
1992	4,338	1,703	39.3	162.2	95,262	11.4	1,019	59.8
1993	4,493	1,766	39.3	170.5	96,562	12.0	1,092	61.8
1994	4,529	1,907	42.1	185.9	97,499	13.0	1,187	62.2
1995	4,729	2,104	44.5	207.5	98,639	14.6	1,371	65.2
1996	4,837	2,164	44.7	206.8	95,577	14.5	1,403	64.8
1997	4,957	2,298	46.4	231.6	100,804	16.2	1,526	66.4
1998	5,130	2,493	48.6	240.8	96,572	16.9	1,730	69.4
1999	5,116	2,401	46.9	234.5	97,680	16.4	1,675	69.8
2000	5,388	2,706	50.2	272.4	100,649	19.0	1,926	71.2
2001	5,269	2,669	50.7	258.6	96,893	18.1	1,864	69.8
2002	5,663	2,911	51.4	284.1	97,596	19.9	2,081	71.5
2003	5,976	3,105	52.0	296.9	95,604	20.8	2,220	71.5
2004	6,360	3,398	53.4	308.9	90,911	21.6	2,468	72.6
2005	6,725	3,607	53.6	325.9	90,340	22.8	2,632	73.0
2006	6,966	3,827	54.9	345.3	90,218	24.2	2,821	73.7
2007	7,089	3,929	55.4	339.0	86,285	23.8	2,949	75.1
2008	7,340	4,049	55.2	352.2	86,976	24.7	3,034	74.9
2009	7,518	4,054	53.9	329.7	81,325	23.1	3,053	75.3
2010	8,084	4,627	57.2	387.9	83,827	27.2	3,523	76.1
2011	8,259	4,767	57.7	372.2	78,084	26.1	3,682	77.2
2012	8,775	5,196	59.2	370.6	71,327	26.1	3,945	75.9
2013	9,119	5,450	59.8	373.2	68,480	26.3	4,084	74.9
2014	9,096	5,702	62.7	382.2	67,021	27.0	4,379	76.8
2015	9,230	5,917	64.1	368.6	62,291	26.1	4,467	75.5
2016	9,254	6,089	65.8	364.9	59,926	25.9	4,544	74.6
2017	9,199	6,393	69.5	355.8	55,660	25.3	4,794	75.0
2018	9,597	6,847	71.3	354.9	51,832	25.5	5,104	74.5
2019	10,253	7,649	74.6	359.6	47,008	26.1	5,521	72.2
2020	11,408	8,936	78.3	373.7	41,824	27.5	6,288	70.4
2021	11,926	9,623	80.7	291.7	30,308	23.3	5,542	57.6
TOTAL	225,015	131,283	58.3	9,410.0	71,677	666.8	93,570	71.3

NONRESIDENT UNDERGRADUATE DEGREES: 2021

Academic Year of Graduation	Number Earning a Degree	Number Employed in Arizona	Percent Employed in Arizona	Aggregate Wages in Millions	Average Wage	Estimated State and Local Government Tax Payments in Millions	Number Employed in Arizona During All Four Quarters	Percent Employed in All Four Quarters
1990	914	98	10.7%	\$8.5	\$87,011	\$0.6	62	63.3%
1991	994	115	11.6	13.9	121,256	1.0	80	69.6
1992	1,000	105	10.5	13.6	129,469	0.9	75	71.4
1993	1,149	143	12.4	23.8	166,622	1.7	97	67.8
1994	1,084	145	13.4	19.5	134,788	1.4	101	69.7
1995	1,002	129	12.9	15.5	120,355	1.1	91	70.5
1996	942	124	13.2	12.1	97,679	0.9	94	75.8
1997	1,129	179	15.9	21.9	122,303	1.5	137	76.5
1998	1,443	202	14.0	23.1	114,539	1.6	151	74.8
1999	1,469	226	15.4	26.0	114,930	1.8	159	70.4
2000	1,616	279	17.3	30.5	109,267	2.1	204	73.1
2001	1,539	243	15.8	30.1	123,692	2.1	189	77.8
2002	1,434	242	16.9	26.5	109,587	1.9	163	67.4
2003	1,511	269	17.8	33.3	123,618	2.3	198	73.6
2004	1,563	255	16.3	29.4	115,394	2.0	190	74.5
2005	1,721	287	16.7	31.0	108,077	2.2	189	65.9
2006	1,686	265	15.7	27.9	105,223	1.9	189	71.3
2007	1,735	299	17.2	33.3	111,295	2.3	217	72.6
2008	1,888	273	14.5	24.9	91,262	1.7	205	75.1
2009	2,044	296	14.5	28.0	94,551	2.0	213	72.0
2010	2,040	319	15.6	27.9	87,460	2.0	243	76.2
2011	2,086	341	16.3	31.4	92,181	2.2	263	77.1
2012	2,216	382	17.2	30.4	79,495	2.1	276	72.3
2013	2,436	417	17.1	29.6	71,054	2.1	300	71.9
2014	2,941	473	16.1	34.1	72,137	2.4	323	68.3
2015	3,312	589	17.8	39.7	67,483	2.8	435	73.9
2016	3,738	545	14.6	34.3	62,989	2.4	373	68.4
2017	5,095	747	14.7	43.0	57,497	3.1	516	69.1
2018	6,476	1,051	16.2	53.7	51,070	3.9	693	65.9
2019	7,449	1,371	18.4	63.4	46,231	4.6	906	66.1
2020	7,944	1,462	18.4	60.0	41,067	4.4	908	62.1
2021	9,372	1,787	19.1	47.9	26,802	3.9	805	45.0
TOTAL	82,968	13,658	16.5	968.4	70,901	69.0	9,045	66.2

ALL GRADUATE DEGREES: 2021

Academic Year of Graduation	Number Earning a Degree	Number Employed in Arizona	Percent Employed in Arizona	Aggregate Wages in Millions	Average Wage	Estimated State and Local Government Tax Payments in Millions	Number Employed in Arizona During All Four Quarters	Percent Employed in All Four Quarters
1990	1,726	307	17.8%	\$36.0	\$117,223	\$2.5	175	57.0%
1991	1,858	375	20.2	38.9	103,742	2.7	192	51.2
1992	1,758	402	22.9	39.7	98,656	2.8	215	53.5
1993	2,008	478	23.8	48.8	102,094	3.4	268	56.1
1994	2,138	507	23.7	56.0	110,412	3.9	284	56.0
1995	2,359	608	25.8	71.2	117,075	5.0	343	56.4
1996	2,264	678	29.9	84.2	124,226	5.9	432	63.7
1997	2,467	739	30.0	84.7	114,582	5.9	466	63.1
1998	2,538	782	30.8	91.8	117,394	6.4	501	64.1
1999	2,630	827	31.4	100.2	121,155	7.0	521	63.0
2000	2,625	867	33.0	110.9	127,952	7.7	579	66.8
2001	2,551	816	32.0	106.0	129,909	7.4	562	68.9
2002	2,778	961	34.6	122.1	127,038	8.5	668	69.5
2003	2,968	1,072	36.1	132.6	123,671	9.2	766	71.5
2004	3,126	1,127	36.1	131.9	116,997	9.2	790	70.1
2005	2,853	1,074	37.6	126.7	117,991	8.8	742	69.1
2006	2,977	1,112	37.4	134.7	121,171	9.4	778	70.0
2007	3,185	1,194	37.5	136.2	114,061	9.5	848	71.0
2008	3,449	1,377	39.9	162.2	117,797	11.3	1,016	73.8
2009	4,111	1,580	38.4	190.9	120,848	13.3	1,155	73.1
2010	4,253	1,766	41.5	175.2	99,230	12.2	1,269	71.9
2011	4,458	1,848	41.5	186.2	100,760	13.0	1,353	73.2
2012	4,473	1,827	40.8	176.1	96,399	12.3	1,361	74.5
2013	4,697	1,908	40.6	184.3	96,613	12.9	1,404	73.6
2014	5,070	1,938	38.2	178.7	92,191	12.5	1,460	75.3
2015	5,854	2,132	36.4	177.7	83,351	12.4	1,576	73.9
2016	6,409	2,258	35.2	182.8	80,966	12.8	1,639	72.6
2017	6,639	2,416	36.4	181.8	75,244	12.8	1,800	74.5
2018	7,601	2,651	34.9	200.4	75,595	14.1	1,990	75.1
2019	7,988	2,949	36.9	199.1	67,499	14.0	2,146	72.8
2020	8,967	3,330	37.1	211.7	63,575	15.0	2,326	69.8
2021	9,818	3,855	39.3	184.1	47,751	13.5	1,951	50.6
TOTAL	128,596	45,761	35.6	4,243.8	92,738	297.5	31,576	69.0

RESIDENT GRADUATE DEGREES: 2021

Academic Year of Graduation	Number Earning a Degree	Number Employed in Arizona	Percent Employed in Arizona	Aggregate Wages in Millions	Average Wage	Estimated State and Local Government Tax Payments in Millions	Number Employed in Arizona During All Four Quarters	Percent Employed in All Four Quarters
1990	1,112	255	22.9%	\$29.5	\$115,744	\$2.1	144	56.5%
1991	1,332	324	24.3	35.2	108,544	2.5	162	50.0
1992	1,247	363	29.1	36.4	100,234	2.6	195	53.7
1993	1,417	439	31.0	44.4	101,151	3.1	243	55.4
1994	1,546	473	30.6	51.8	109,564	3.6	263	55.6
1995	1,712	560	32.7	64.3	114,871	4.5	310	55.4
1996	1,624	616	37.9	73.4	119,230	5.1	385	62.5
1997	1,714	641	37.4	70.5	109,939	4.9	394	61.5
1998	1,772	679	38.3	78.6	115,788	5.5	429	63.2
1999	1,839	746	40.6	89.1	119,428	6.2	459	61.5
2000	1,772	742	41.9	96.2	129,701	6.7	495	66.7
2001	1,696	703	41.5	92.6	131,671	6.4	480	68.3
2002	1,969	869	44.1	109.5	126,031	7.6	592	68.1
2003	2,042	951	46.6	115.3	121,198	8.0	669	70.3
2004	2,006	966	48.2	110.4	114,257	7.7	665	68.8
2005	1,975	950	48.1	108.6	114,340	7.6	648	68.2
2006	1,889	965	51.1	116.1	120,344	8.1	663	68.7
2007	2,038	1,044	51.2	113.9	109,060	7.9	727	69.6
2008	2,315	1,230	53.1	142.7	115,980	9.9	899	73.1
2009	2,435	1,349	55.4	158.6	117,590	11.1	975	72.3
2010	2,670	1,523	57.0	147.1	96,595	10.3	1,077	70.7
2011	2,733	1,577	57.7	155.6	98,656	10.8	1,162	73.7
2012	2,602	1,532	58.9	140.6	91,776	9.8	1,133	74.0
2013	2,650	1,592	60.1	146.1	91,802	10.2	1,177	73.9
2014	2,618	1,593	60.8	144.1	90,441	10.1	1,214	76.2
2015	2,665	1,697	63.7	137.1	80,792	9.6	1,250	73.7
2016	2,712	1,770	65.3	140.3	79,258	9.8	1,294	73.1
2017	2,710	1,904	70.3	141.6	74,356	10.0	1,430	75.1
2018	2,862	2,015	70.4	151.1	74,996	10.6	1,558	77.3
2019	2,938	2,179	74.2	147.4	67,653	10.4	1,624	74.5
2020	2,976	2,312	77.7	151.2	65,389	10.6	1,684	72.8
2021	3,223	2,613	81.1	134.1	51,311	9.7	1,563	59.8
TOTAL	68,811	37,172	54.0	3,473.4	93,441	243.2	25,963	69.8

NONRESIDENT GRADUATE DEGREES: 2021

Academic Year of Graduation	Number Earning a Degree	Number Employed in Arizona	Percent Employed in Arizona	Aggregate Wages in Millions	Average Wage	Estimated State and Local Government Tax Payments in Millions	Number Employed in Arizona During All Four Quarters	Percent Employed in All Four Quarters
1990	614	52	8.5%	\$6.5	\$124,477	\$0.5	31	59.6%
1991	526	51	9.7	3.7	73,233	0.3	30	58.8
1992	511	39	7.6	3.3	83,964	0.2	20	51.3
1993	591	39	6.6	4.4	112,710	0.3	25	64.1
1994	592	34	5.7	4.2	122,219	0.3	21	61.8
1995	647	48	7.4	6.9	142,783	0.5	33	68.8
1996	640	62	9.7	10.8	173,870	0.7	47	75.8
1997	753	98	13.0	14.2	144,949	1.0	72	73.5
1998	766	103	13.4	13.2	127,985	0.9	72	69.9
1999	791	81	10.2	11.1	137,066	0.8	62	76.5
2000	853	125	14.7	14.7	117,572	1.0	84	67.2
2001	855	113	13.2	13.4	118,944	0.9	82	72.6
2002	809	92	11.4	12.6	136,553	0.9	76	82.6
2003	926	121	13.1	17.3	143,111	1.2	97	80.2
2004	1,120	161	14.4	21.5	133,437	1.5	125	77.6
2005	878	124	14.1	18.1	145,961	1.3	94	75.8
2006	1,088	147	13.5	18.6	126,597	1.3	115	78.2
2007	1,147	150	13.1	22.3	148,872	1.6	121	80.7
2008	1,134	147	13.0	19.6	133,006	1.4	117	79.6
2009	1,676	231	13.8	32.3	139,879	2.2	180	77.9
2010	1,583	243	15.4	28.1	115,742	2.0	192	79.0
2011	1,725	271	15.7	30.6	113,006	2.1	191	70.5
2012	1,871	295	15.8	35.5	120,405	2.5	228	77.3
2013	2,047	316	15.4	38.2	120,848	2.7	227	71.8
2014	2,452	345	14.1	34.6	100,269	2.4	246	71.3
2015	3,189	435	13.6	40.6	93,336	2.8	326	74.9
2016	3,697	488	13.2	42.5	87,159	3.0	345	70.7
2017	3,929	512	13.0	40.2	78,546	2.8	370	72.3
2018	4,739	636	13.4	49.3	77,494	3.5	432	67.9
2019	5,050	770	15.2	51.6	67,064	3.7	522	67.8
2020	5,991	1,018	17.0	60.5	59,457	4.3	642	63.1
2021	6,595	1,242	18.8	50.0	40,261	3.8	388	31.2
TOTAL	59,785	8,589	14.4	770.4	89,698	54.3	5,613	65.4

