

**July 30, 2020**

# 2018-2028 Employment Projections

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# Industry Projections Methodology: Estimation Process

- Projections are estimated using historical industry employment trends
- Estimates are refined by a review of current United States and Arizona economic developments
- Long-term projections estimate employment from 2019 through 2028
  - Historic data are used for base-year 2018 employment levels
  - Employment estimates for 2018 are the latest available annual data published by the BLS QCEW program
  - Projected data are modeled for forecast-year 2028 employment levels

# Industry Projections Methodology: Estimation Process

- The principle data source was the Quarterly Census of Employment and Wages (QCEW) data analyzed at the individual employer level
  - Near census of all employment subject to unemployment insurance tax law (92%-95% of total Arizona Employment)
- The industry classification structure differs slightly from CES industry classification
  - Notably: State and local government education employment is categorized in NAICS 611: Educational Services

# Industry Projections Methodology: Data Source

## Industry Projections Estimates **Include**:

- Nonfarm employment by subsector group (3-digit NAICS)
- Self-employed workers who work for profit or fees in their own business, profession, trade, or farm
- Private household workers employed as domestic workers
- Railway workers
- Religious organization employees
- Farm workers

## Industry Projections Estimates **Exclude**:

- Unpaid family workers
- Active duty military service men and women

# Substate Regions

Projected employment was estimated for 20 substate regions including:

## Fifteen Arizona Counties

- Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, and Yuma Counties

## Three Multi-County Areas

- Northeast Arizona: Apache, Navajo, and Gila Counties
- Southeast Arizona: Greenlee, Graham, and Cochise Counties
- Mohave and La Paz Counties

## Two Sub-County Areas

- City of Phoenix and Balance of Maricopa County

# Industry Projections Methodology: Economic Assumptions

- No major economic or political disruptions will occur
- Government agencies will operate within their budgets
- Population distribution will not differ significantly
- The U.S. economic framework will not differ significantly
- Long-term employment patterns will continue in most industries

The projections methodology in its entirety can be found at  
[https://www.azcommerce.com/media/1545673/lt\\_proj\\_method.pdf](https://www.azcommerce.com/media/1545673/lt_proj_method.pdf)

# Additional Forecast Assumptions

- Arizona's population growth will continue to be one of the strongest in the nation.
- The demand for health care services will continue to increase as a large portion of the population reaches medicare eligibility age.
- Nonstore retail and transportation and warehousing will drive employment growth within the retail trade sector.
- Impacts of COVID-19 on long-term job growth will be minimal, though not zero, and will be concentrated primarily within leisure and hospitality jobs.

# Arizona Industry Highlights

- Total Arizona employment is projected to grow by 511,529 jobs over the ten-year period, reaching 3,547,741 jobs in 2028.
- Total Arizona employment is projected to grow 1.6% annually from 2018-2028.
- Arizona employment growth (1.6% annualized) is projected to outpace U.S. employment growth (0.5% annualized) over the ten-year period.
- Educational and Health Services is projected to add the largest number of jobs (20,235 jobs annually).
- Educational and Health Services is also projected to record the largest percentage gain, growing 2.8% annually.



# U.S. / AZ Comparison: Projected Employment Growth

Area	Employment Levels		Employment Change		
	2018	2028	Numeric Change	Percentage Change	Annualized % Change
Arizona	3,036,212	3,547,741	511,529	16.8%	1.6%
United States	161,037,700	169,435,900	8,398,200	5.2%	0.5%

Source: Arizona Office of Economic Opportunity

# National Economic Trends

## Short-term

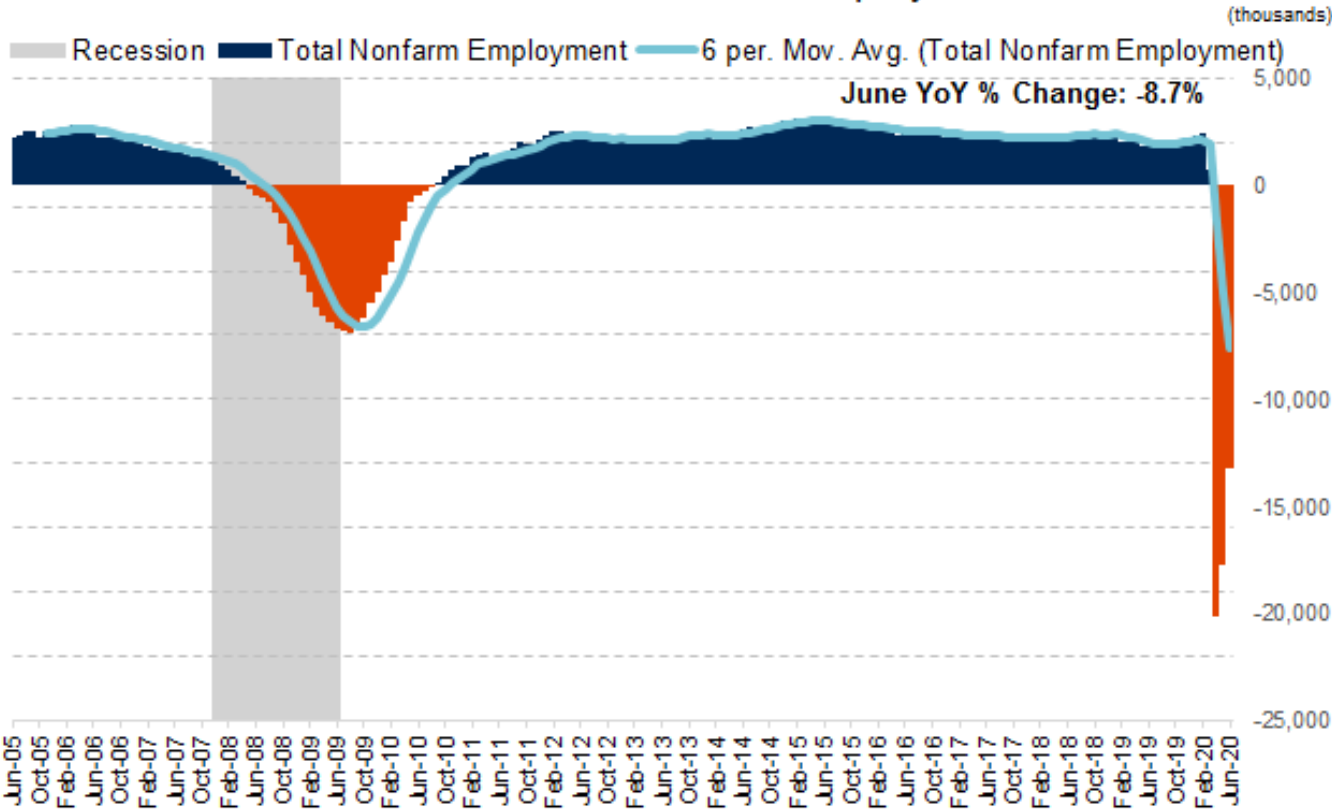
- The National Bureau of Economic Research determined that the U.S. economy entered into a new recession in February 2020.
- U.S. employment experienced record declines in April 2020 because of the COVID-19 pandemic.
- In April 2020, U.S. consumer expenditure recorded the largest decline in the past ten years.

## Long-term

- U.S. population continues to grow, but at a decelerating pace.
- A significant portion of the U.S. population is nearing retirement age, which will likely impact the demand for health care services
- Online retail (e-commerce) has grown dramatically over the last twenty years

# U.S. Nonfarm Employment

United States Total Nonfarm Employment



U.S. nonfarm employment recorded YoY losses in the past three months following 115 consecutive months of YoY growth

- April 2020: declined 13.4% YoY
- May 2020: declined 11.7% YoY
- June 2020: declined 8.7% YoY

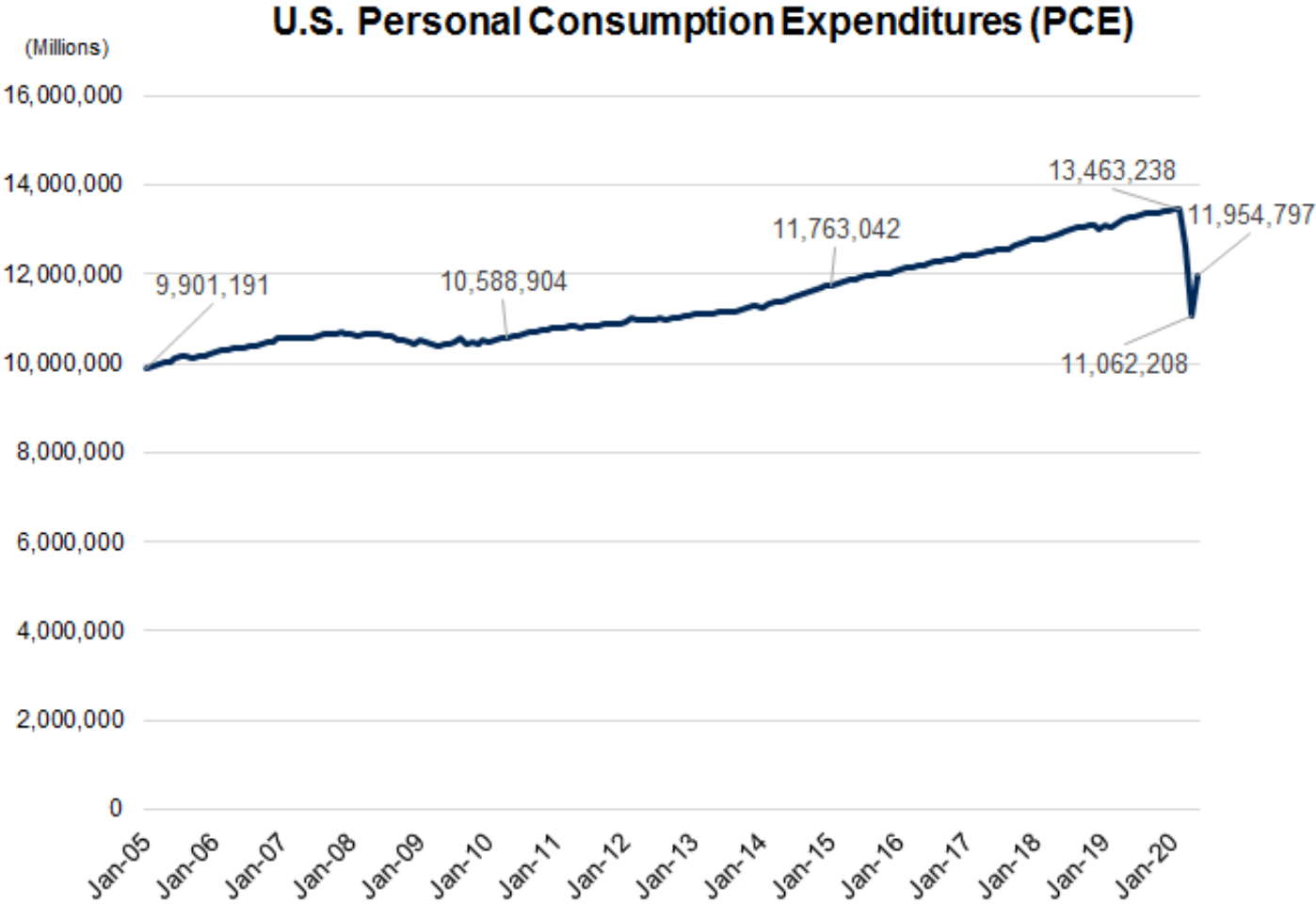
For comparison, at the height of the Great Recession ('07-'09), U.S. nonfarm employment declined by 5.0% YoY (Jul. '09)

Source: Produced by the Arizona Office of Economic Opportunity in cooperation with the U.S. Dept. of Labor, BLS

Note: Data are Not Seasonally Adjusted



# U.S. Personal Consumption Expenditures (PCE)



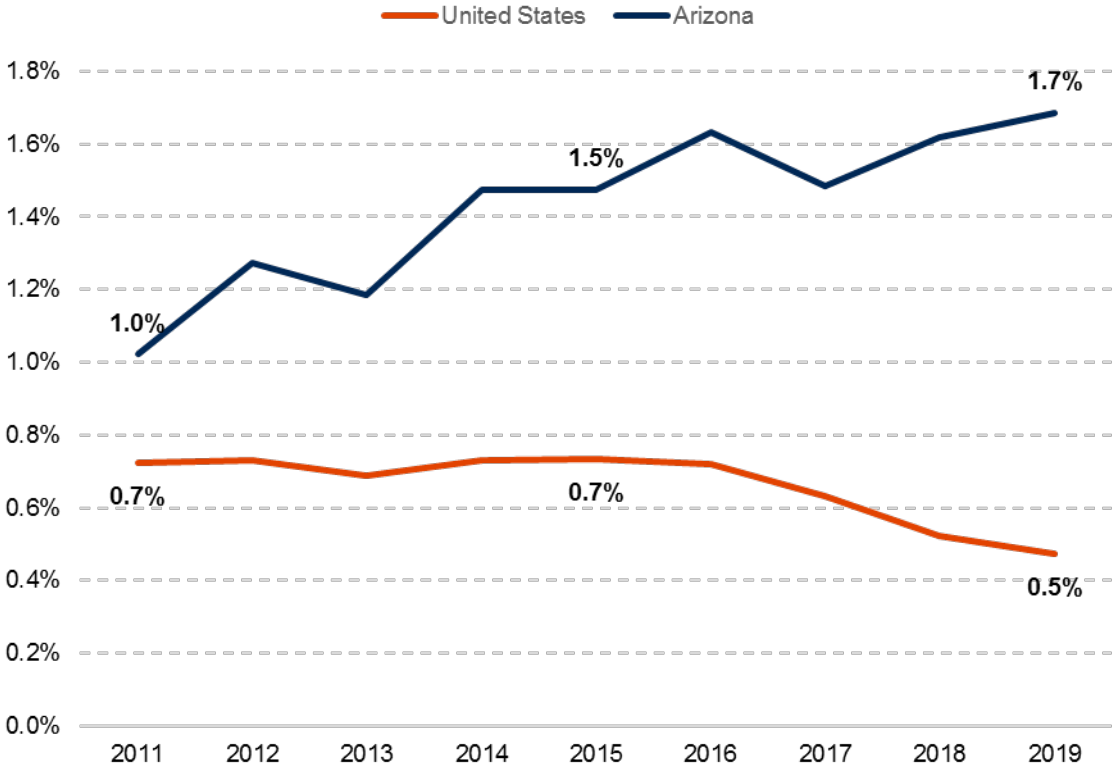
Source: Bureau of Economic Analysis

The U.S. PCE declined by \$2.4 trillion in Mar. and Apr. '20 to its lowest level over the last eight years

During the Great Recession ('07-'09) U.S PCE declined by \$276 billion over 17 months



# Population Growth



Source: U.S. Census Bureau

U.S. population growth has slowed over the past 4 years

The slowdown is due, in part, to falling birth rates and declining international migration

- 2019 international migration levels were the lowest in nine years

Arizona's population growth rate has increased over the past nine years, outpacing overall U.S. population growth



# Arizona Economic Trends

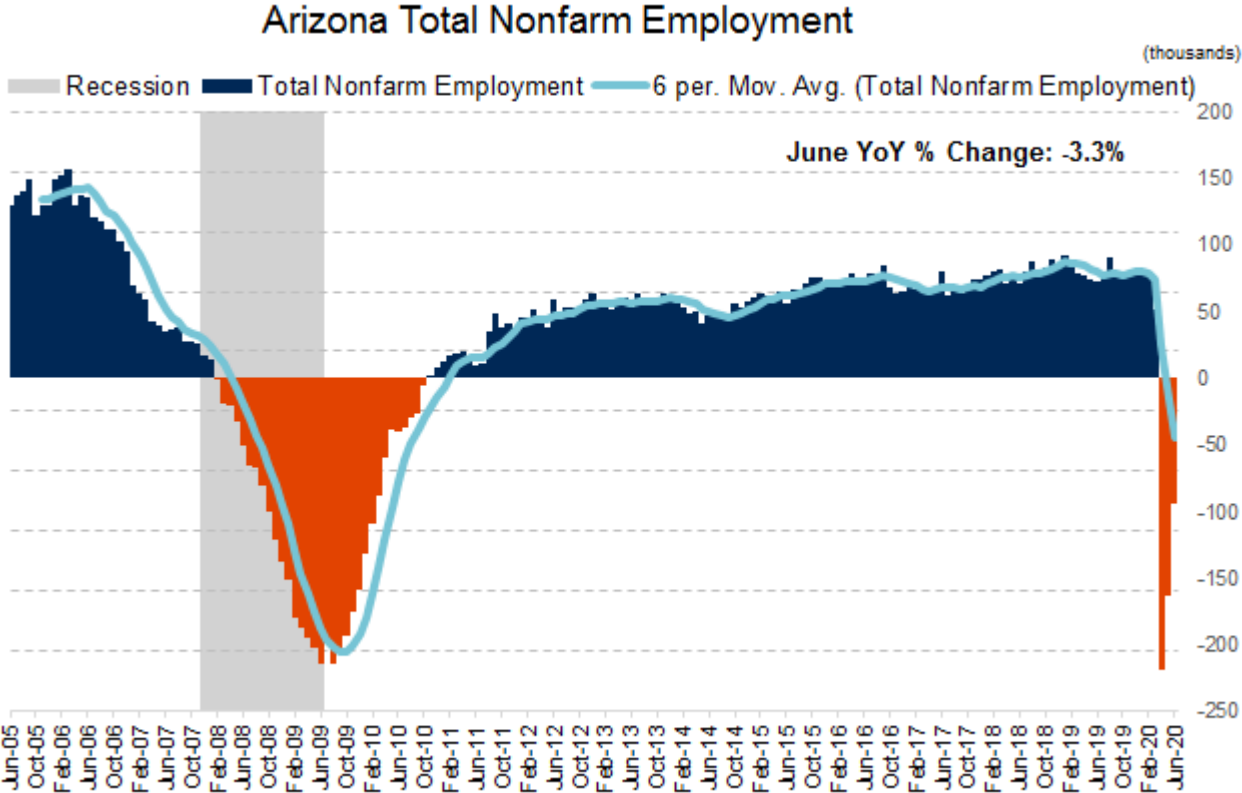
## Short-term

- Employment experienced record declines in April 2020 because of the impacts of COVID-19.
- Building permit authorization declined dramatically in April 2020 because of COVID-19 impacts.

## Long-term

- Arizona population growth has been among the fastest in the nation.
- Labor force levels have steadily grown over the past two decades.
- Arizona real GDP continues to keep pace with U.S. real GDP growth.

# Arizona Nonfarm Employment



Source: Produced by the Arizona Office of Economic Opportunity in cooperation with the U.S. Dept. of Labor, BLS

Note: Data are Not Seasonally Adjusted

Arizona employment decreased by 94,700 jobs from Jun. 2019 to Jun. 2020

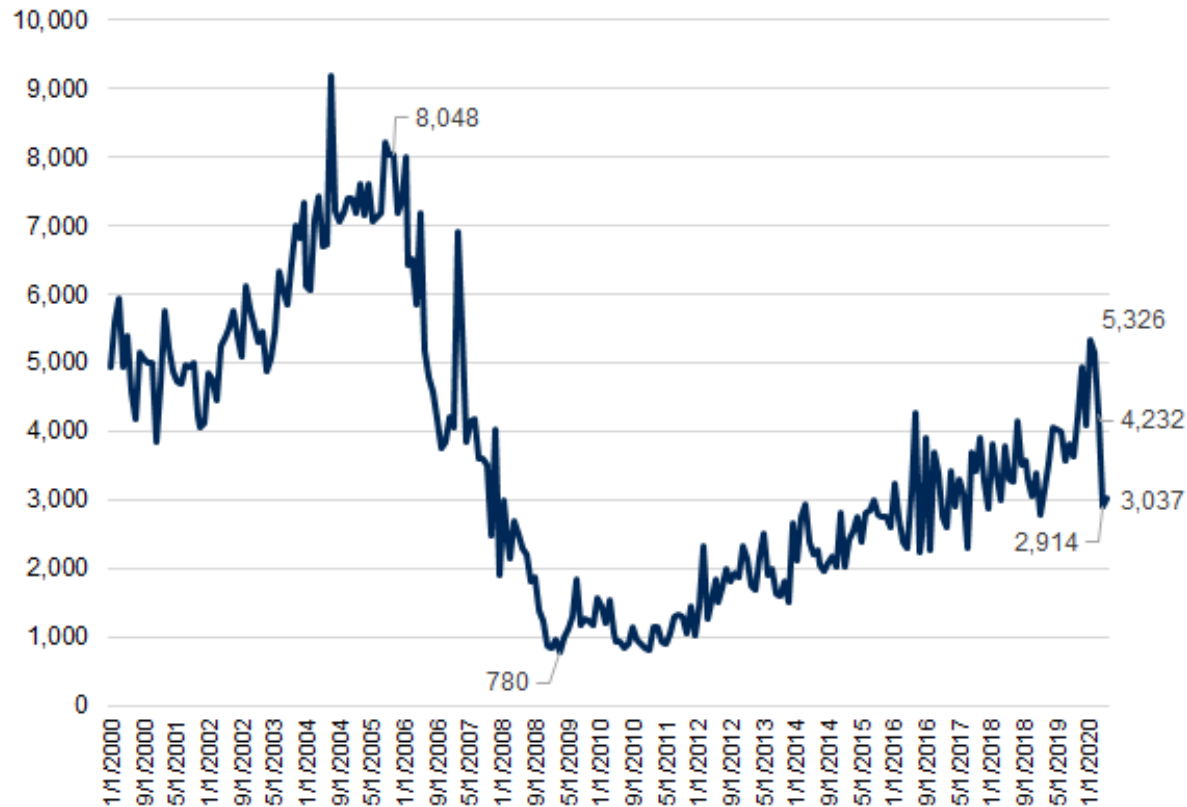
June 2020 employment declines were not as dramatic as losses recorded nationally.

- Arizona employment declined by 3.3% YoY
- U.S. employment declined by 8.7% YoY

For comparison, at the height of the Great Recession ('07-'09), Arizona nonfarm employment declined by 8.2% YoY (Aug. '09)



# Arizona New Private Housing Units Authorized by Building Permits



Source: U.S. Census Bureau

Note: Data are Seasonally Adjusted

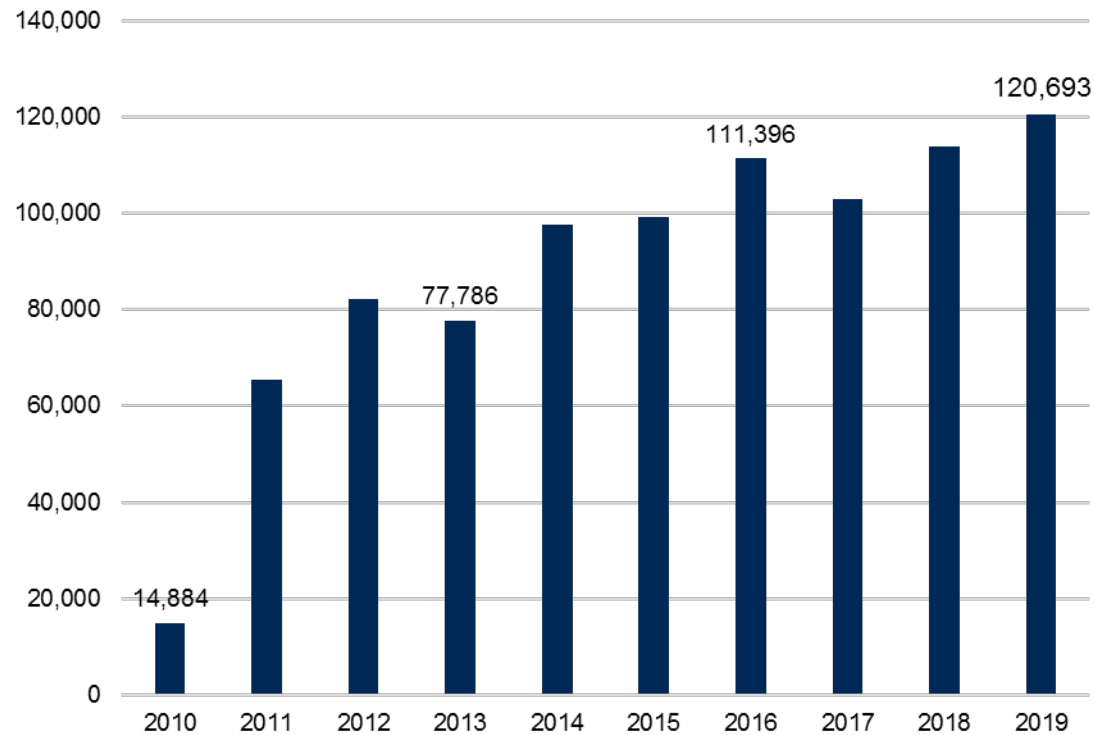
Building permit authorizations steadily increased from 2010-2019

Because of the COVID-19 pandemic, building permit authorizations dramatically declined in April 2020.

- 3,037 building permits were authorized in May 2020, 4% more than in April 2020.
- There was a 25% decrease in building permit authorizations YoY in May 2020.



# Arizona Annual Population Change



Source: U.S. Census Bureau

Arizona has recorded strong population growth in recent years

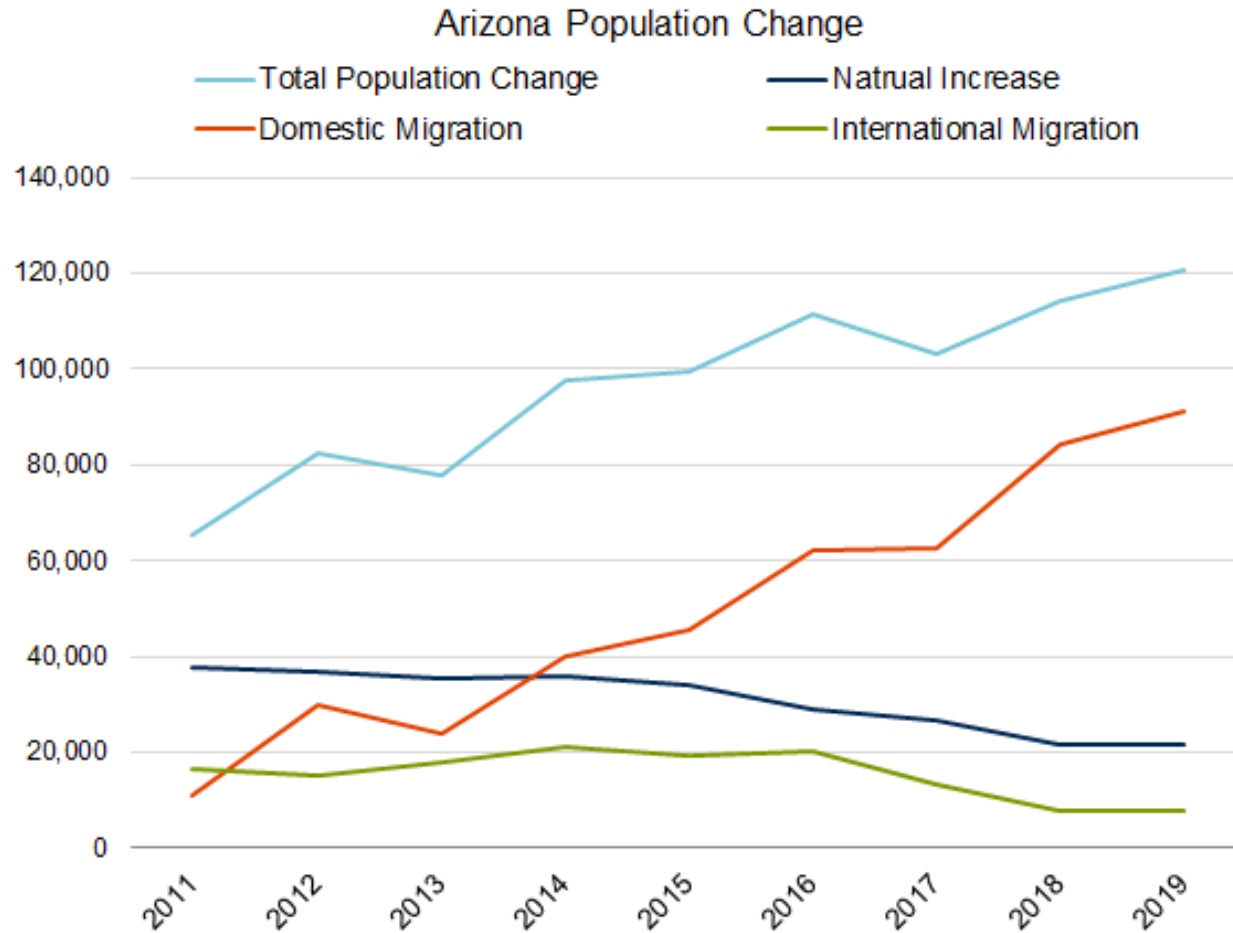
- Arizona population growth ranked 3<sup>rd</sup> in the nation in 2019 and 4<sup>th</sup> in 2018

Arizona population grew more than twice as fast as the U.S. population from 2010 to 2019

- Arizona population grew by 1.4% annually
- U.S. population grew by 0.7% annually

It is assumed that Arizona's strong population growth will continue through the projected period

# Arizona Annual Population Change

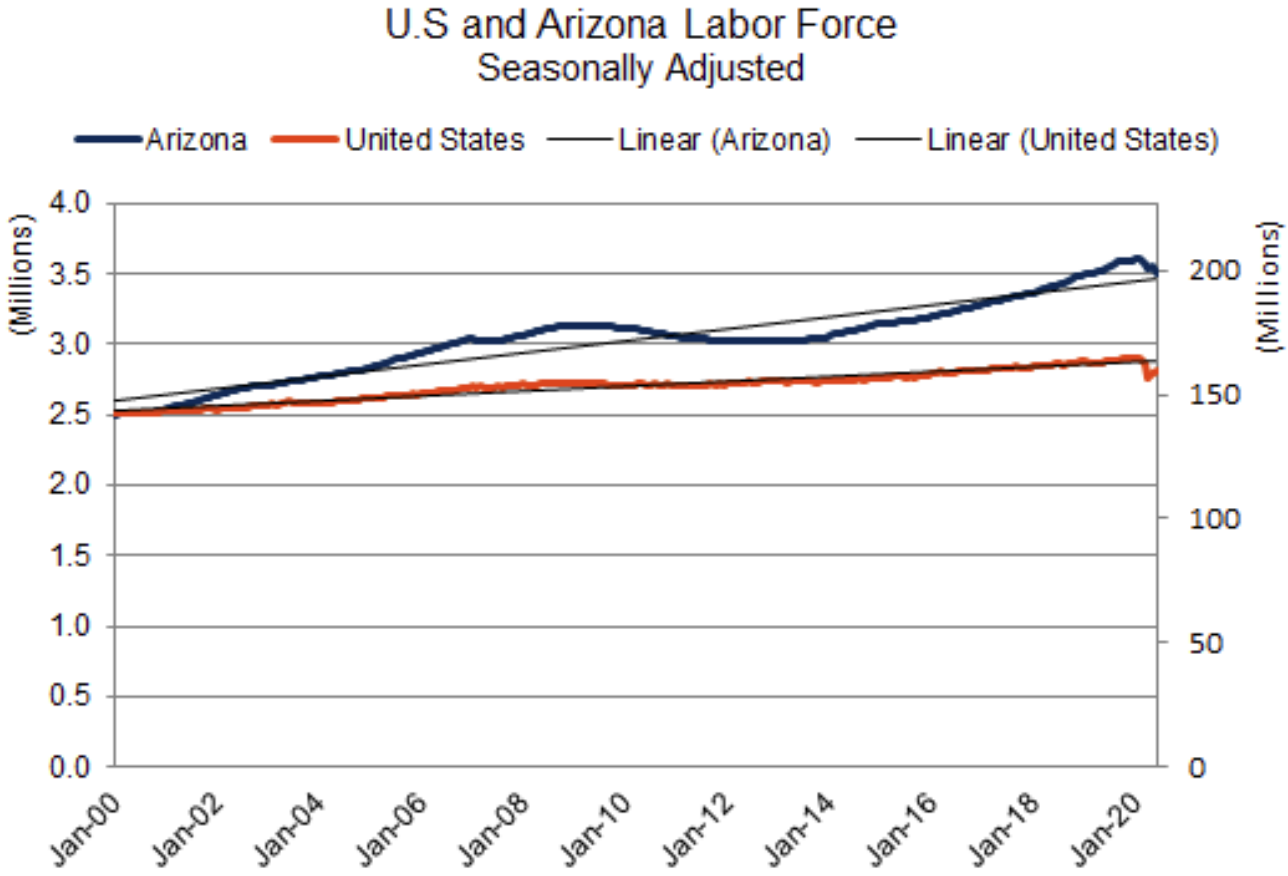


Source: U.S Census Bureau

Arizona's strong population growth can be, in part, attributed to migration into the state

- In 2011, total migration accounted for 42% of total population growth
- In 2019, total migration accounted for 82% of total population growth
- Arizona migration growth ranked 3<sup>rd</sup> in the nation in 2019

# Labor Force Growth



Source: Arizona Office of Economic Opportunity

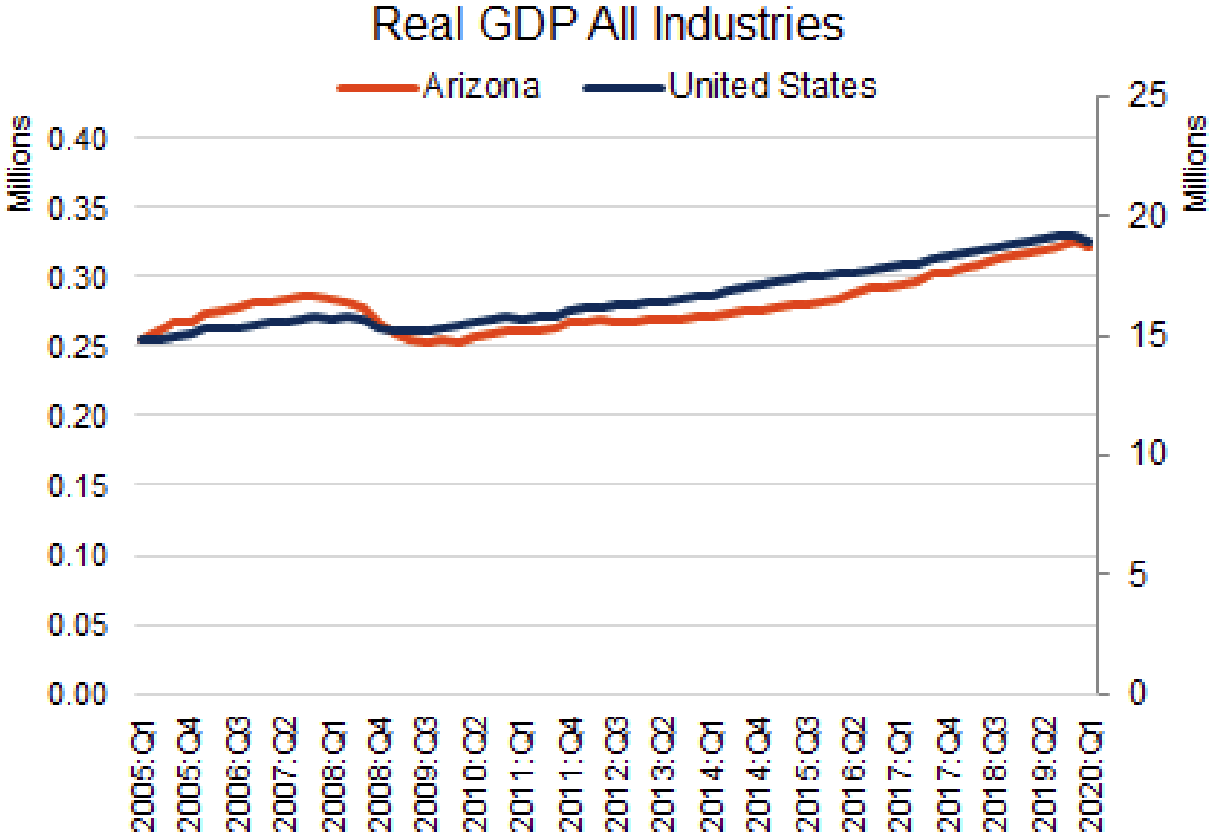
The Arizona labor force grew by nearly 1 million people over the past two decades (Jun. '00 - Jun. '20)

The Arizona labor force grew nearly three-times as fast as the U.S. labor force from Jun. '00 to Jun. '20

- Arizona labor force grew by 1.7% annually
- U.S. labor force grew by 0.6% annually



# Real Gross Domestic Product (GDP) Growth



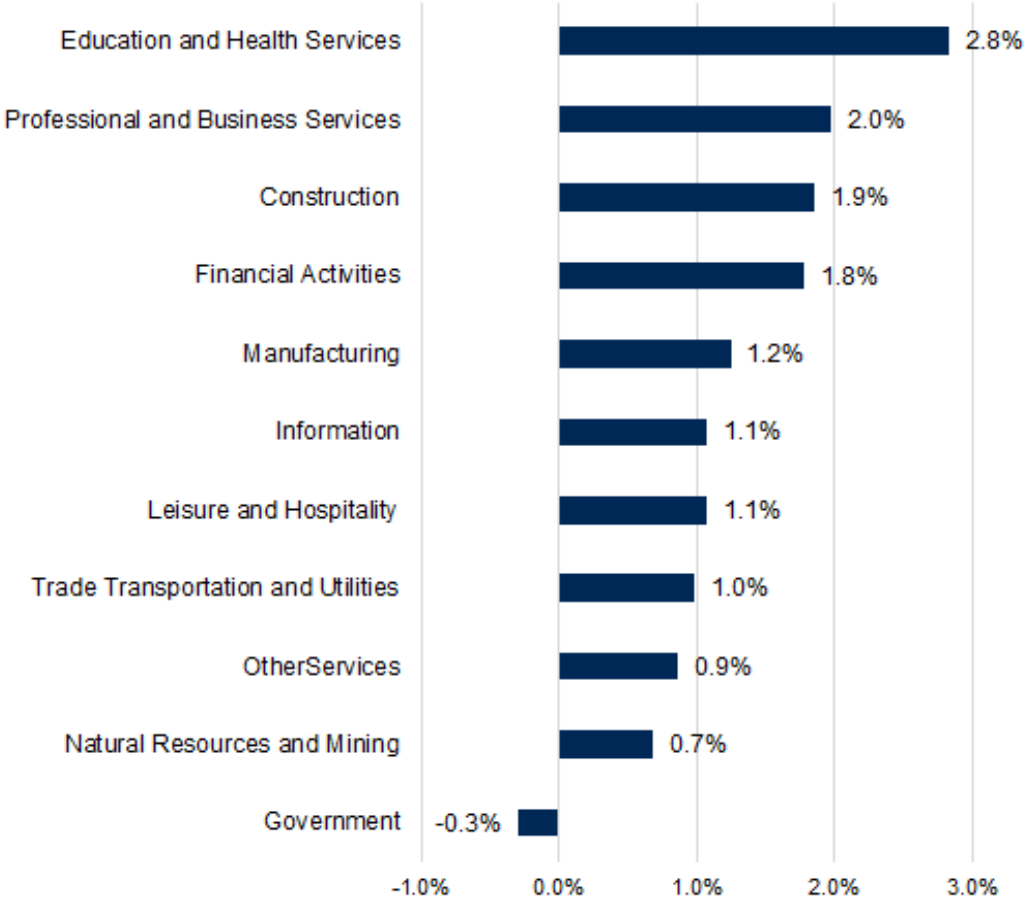
Source: BEA

Arizona real GDP grew at a similar rate as U.S. real GDP from Q1 2005 to Q1 2020

- Arizona real GDP grew by 1.5% annually
- U.S. real GDP grew by 1.7% annually

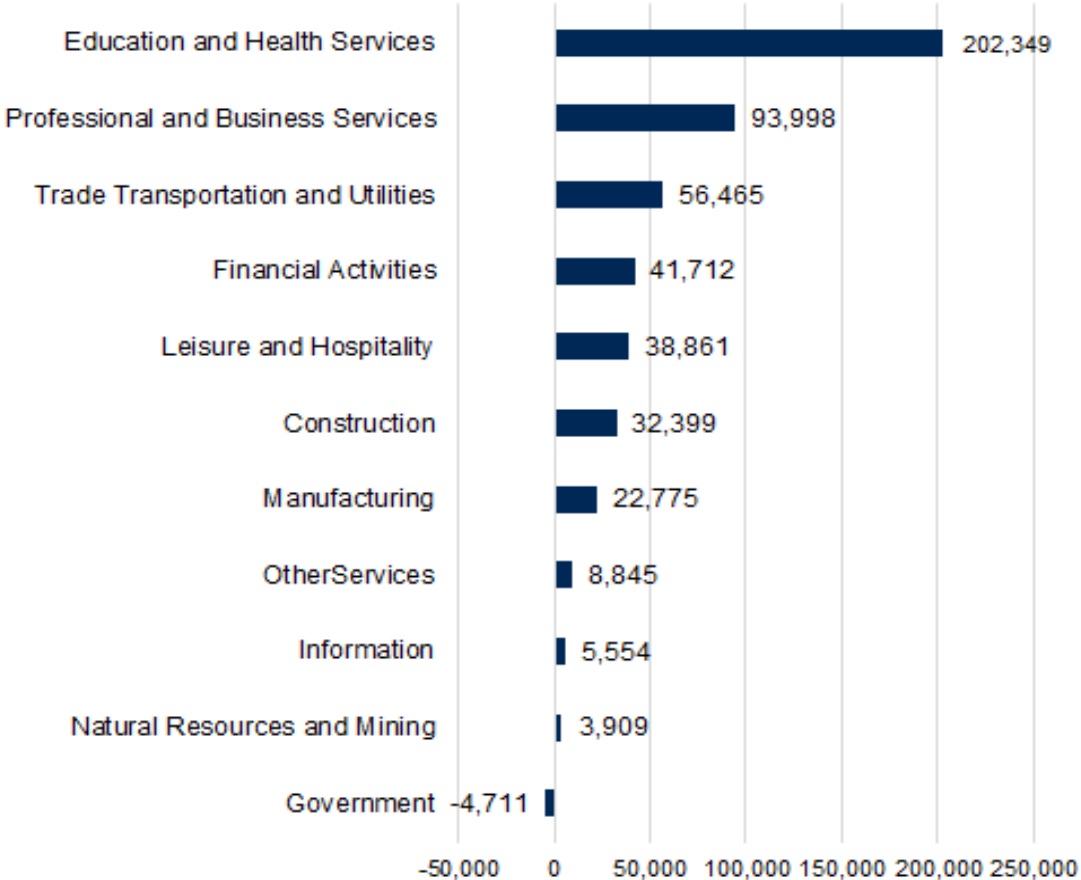
# Projected Industry Employment Change

**Arizona Supersector Employment**  
2018-2028 Annualized Percentage Change



Source: Arizona Office of Economic Opportunity

**Arizona Supersector Employment**  
2018-2028 Total Numeric Change

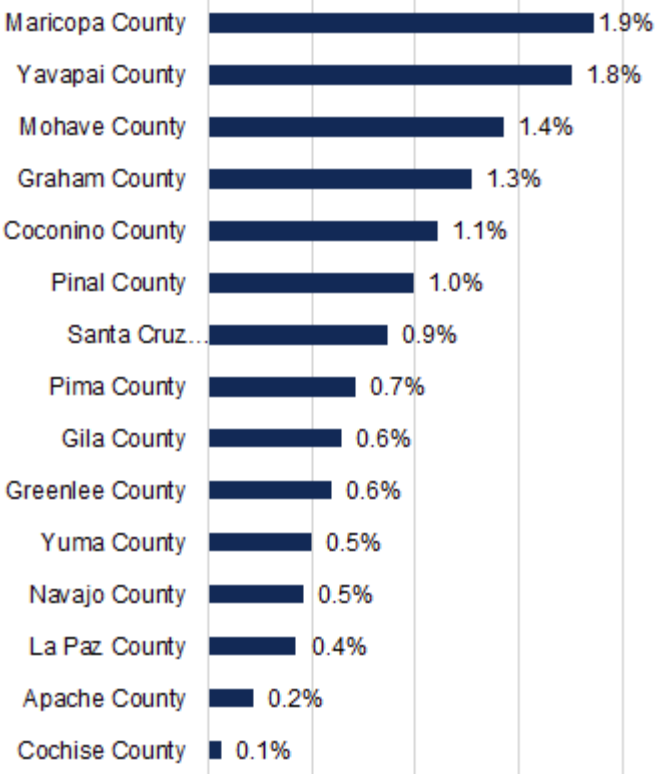


Source: Arizona Office of Economic Opportunity

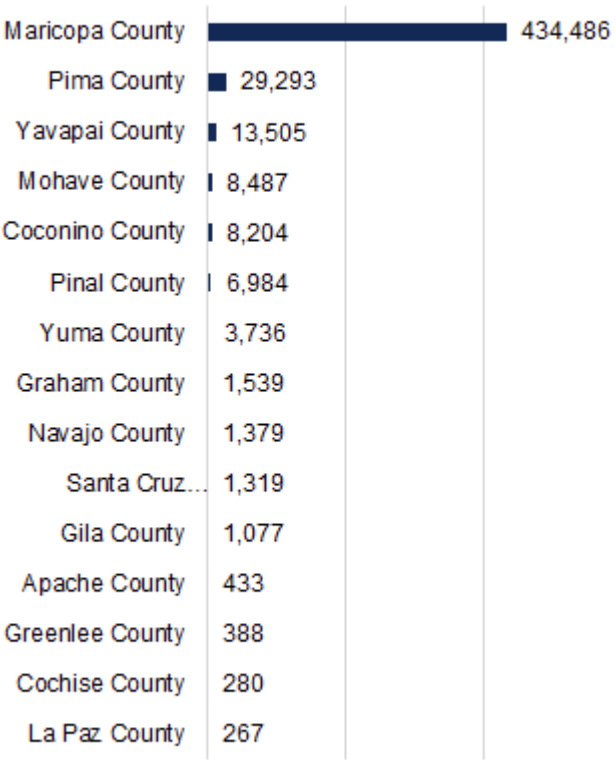


# Projected Total Employment by Arizona Region

**Arizona County Employment**  
2018-2028 Annualized Percent Change



**Arizona County Employment**  
2018-2028 Total Numeric Change



- Maricopa County is projected to account for 85% of job gains in Arizona from 2018-2028
- Maricopa County accounted for 86% of job gains in Arizona from 2010-2018

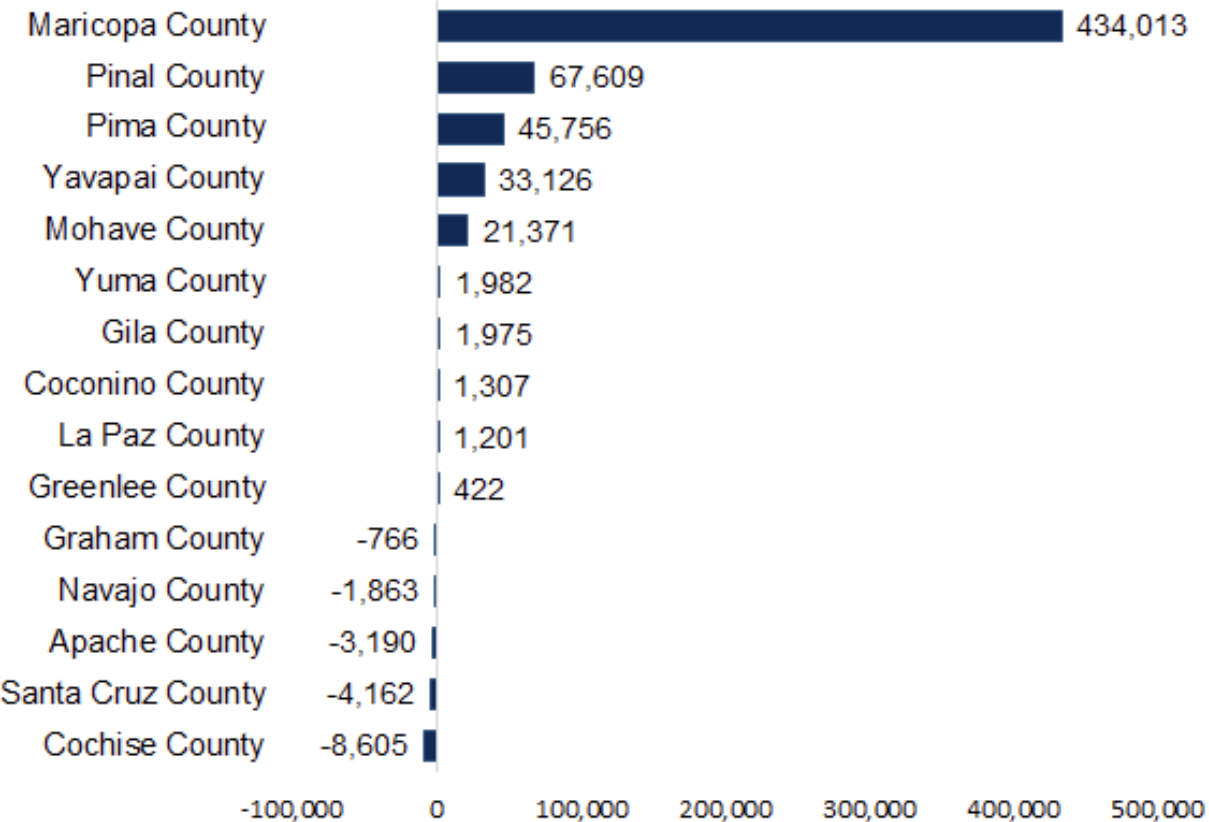
Source: Arizona Office of Economic Opportunity

Source: Arizona Office of Economic Opportunity



# Population Considerations

Net Migration Change by County 2010 to 2019



From 2010-2019, Arizona net migration increased by 590,000 people

- Maricopa County accounted for 74% (434,000 people) of the total net migration growth for the state.

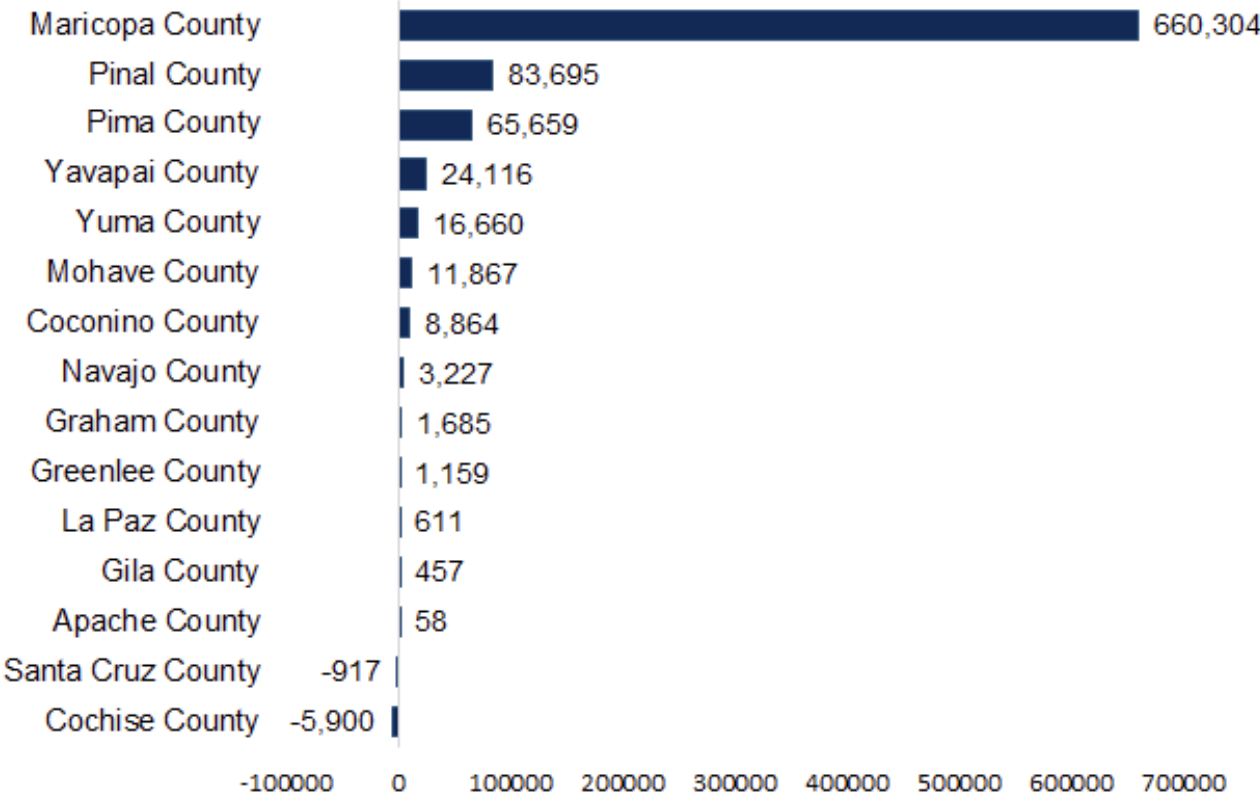
Maricopa County population represented 61% of Arizona population from 2010-2019

Source: U.S Census Bureau



# Population Considerations

Total Population Change by County 2010 to 2019



From 2010-2019, Arizona’s total population increased by 871,545 people

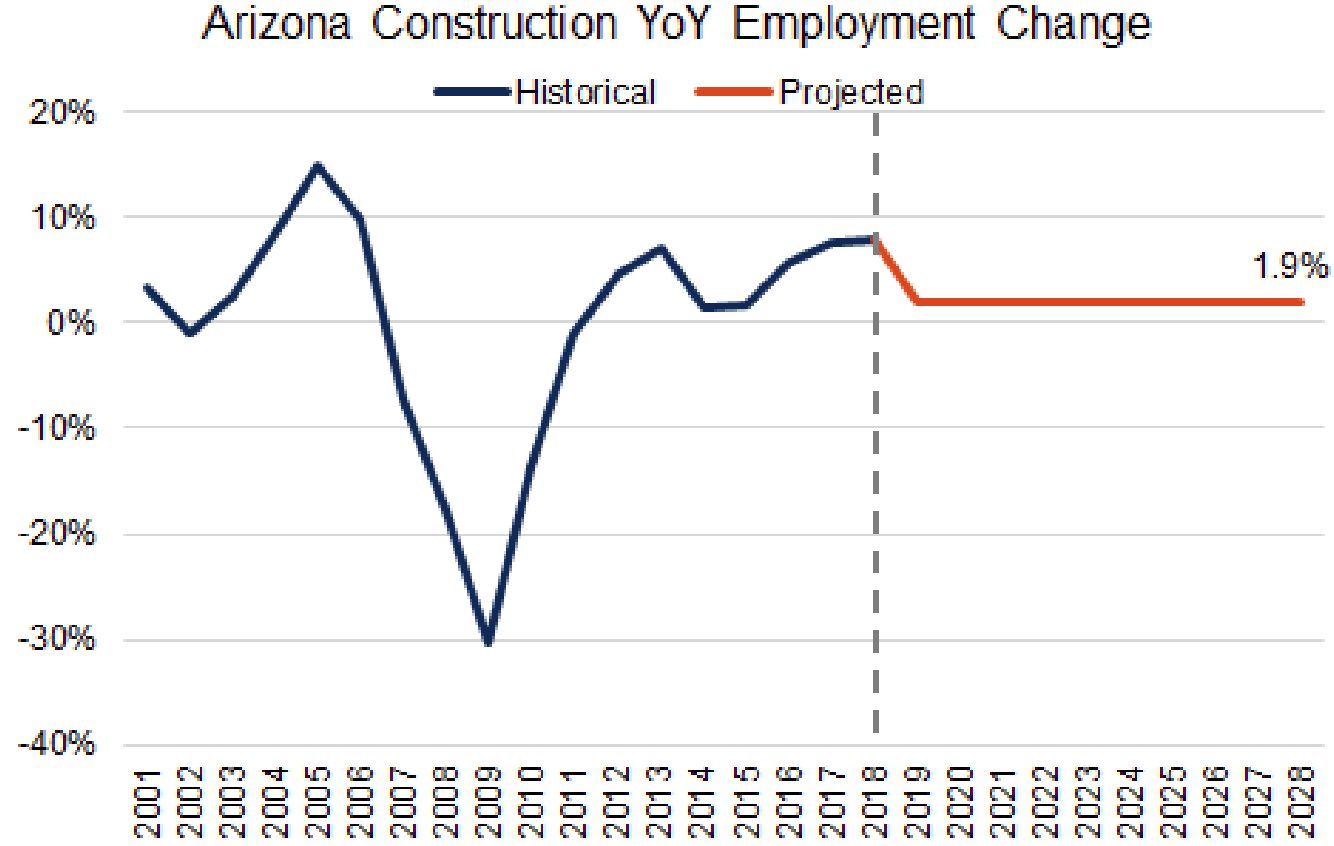
- Maricopa County accounted for 76% (660,000 people) of the total population change for the state.

Source: U.S Census Bureau





# Industry Highlight: Construction

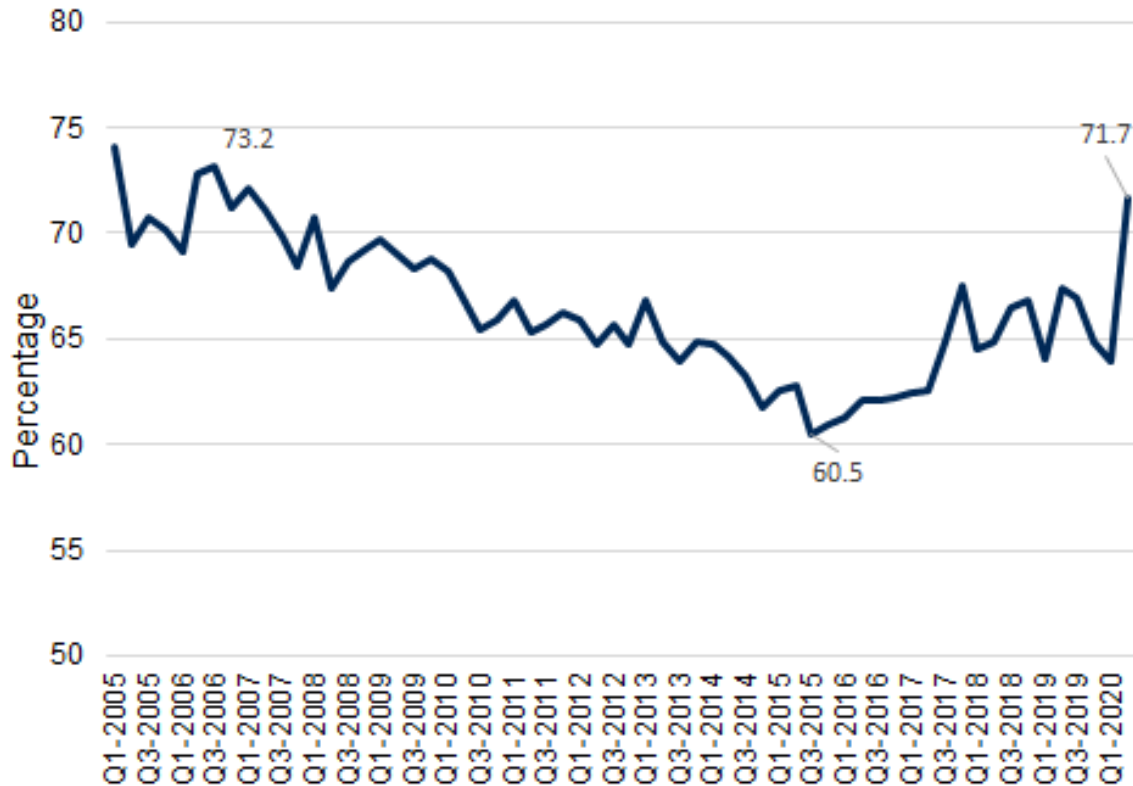


Source: Arizona Office of Economic Opportunity

Construction employment growth is projected to continue through 2028

- Demand to purchase and rent residential housing is likely to continue
- Population growth is likely to continue driving demand for residential construction

# Arizona Homeownership Rate



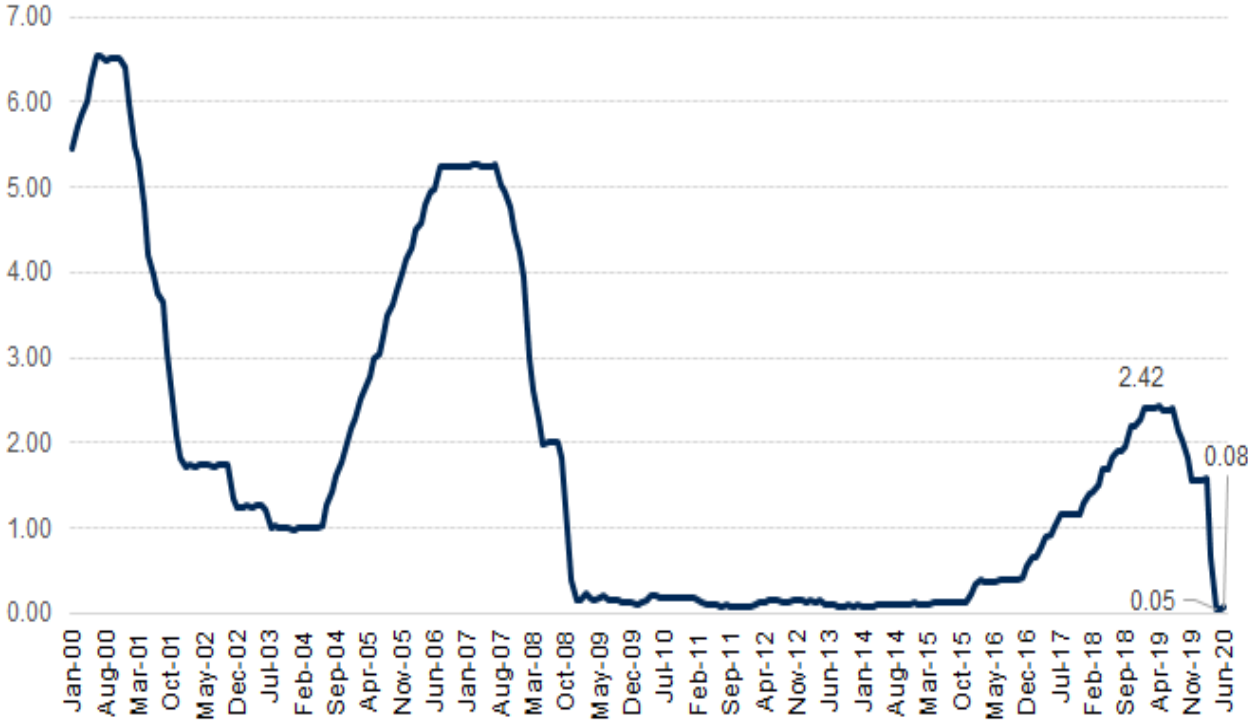
Source: U.S. Census Bureau  
 Note: Data are Not Seasonally Adjusted

## Demand for residential housing continues

- Homeownership rates have continued to increase over the past four years
- Homeownership rates rebounded from historic lows of 60.5% in 2015 to 71.7% in Q2 2020



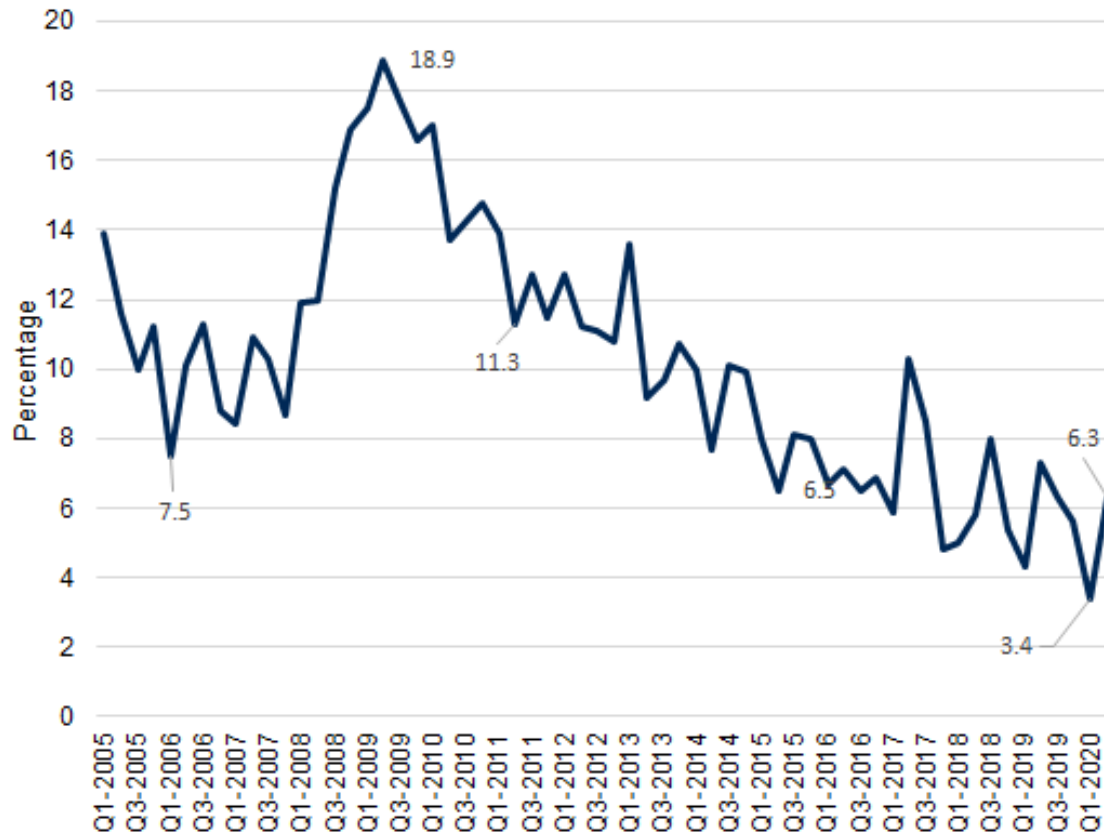
# Effective Federal Funds Rate



Source: Board of Governors of the Federal Reserve System (US)

In response to the economic impact caused by the COVID-19 pandemic, the Federal Reserve has lowered the effective federal funds rate to near zero

# Arizona Rental Vacancy Rate



Source: U.S. Census Bureau

Note: Data are Not Seasonally Adjusted

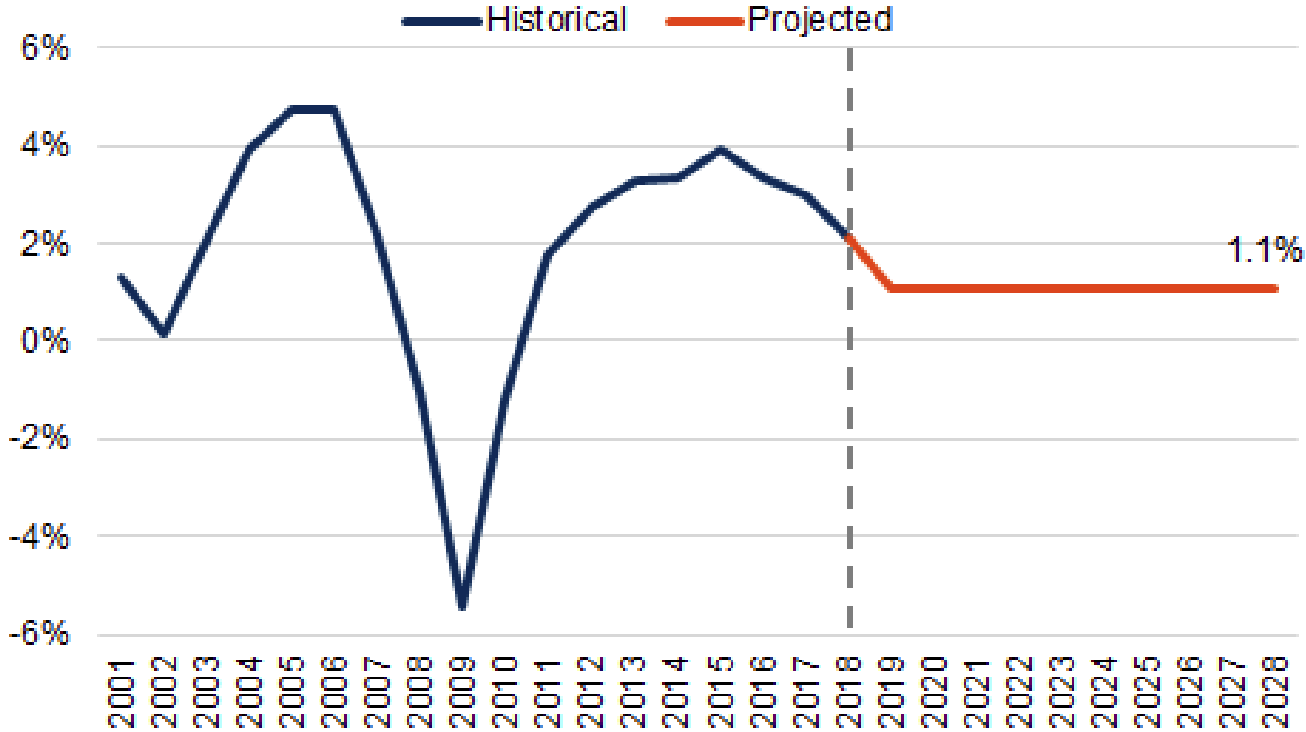
Demand for rental housing continues to outpace supply

- Rental vacancy rates have declined to near historic lows in Q2 2020

Construction employment is projected to increase as new residential housing is needed to meet demand

# Industry Highlight: Leisure and Hospitality

Arizona Leisure and Hospitality YoY Employment Change



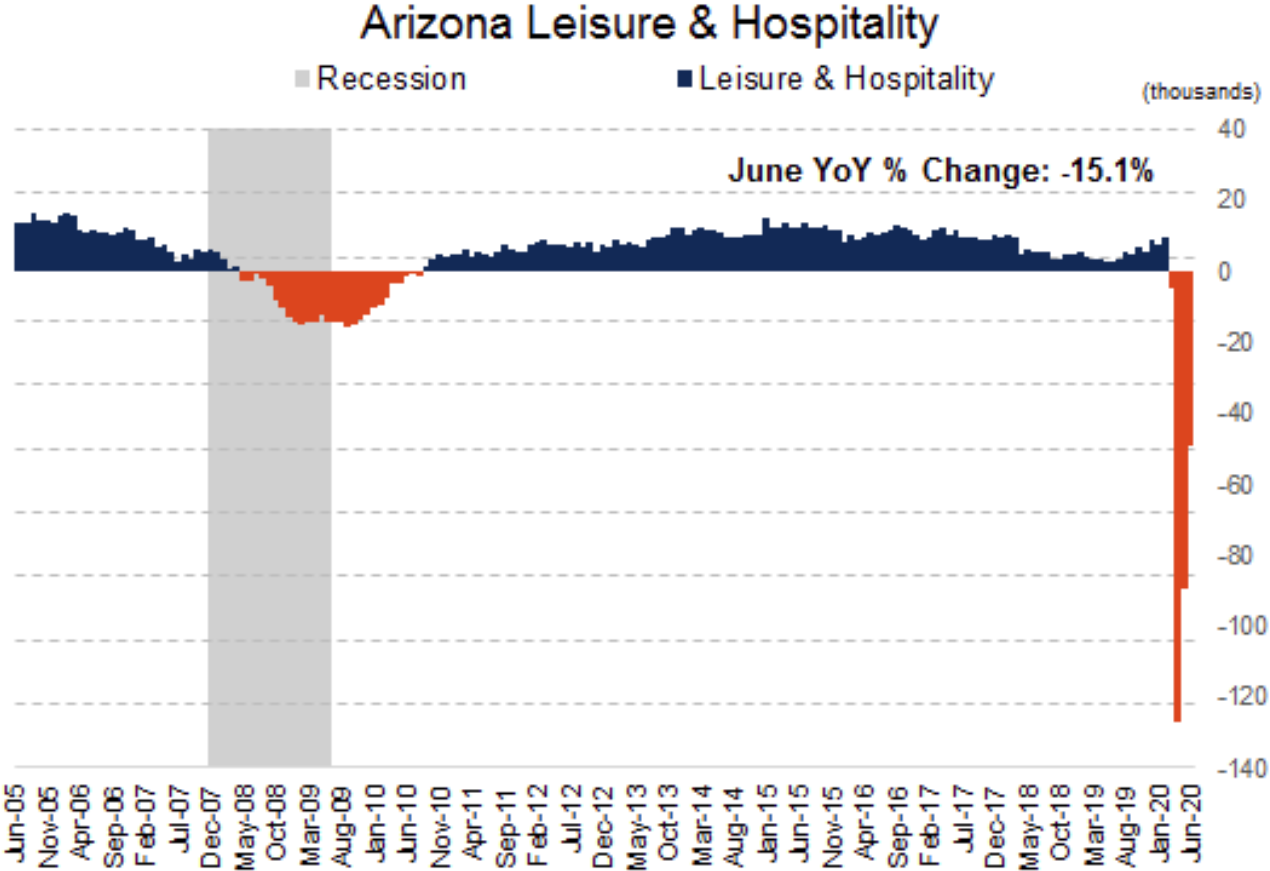
Source: Arizona Office of Economic Opportunity

Leisure and Hospitality (L&H) is projected to gain jobs through 2028, though at a slower pace than it has in recent years

Job gains are projected to be strongest in:

- Food Service and Drinking Places (1.3% annual growth)
- Performing Arts, Spectator Sports, and Related (1.1% annual growth)
- Amusement, Gambling, and Rec. Industries (0.9% annual growth)

# Industry Highlight: Leisure and Hospitality



Source: Produced by the Arizona Office of Economic Opportunity in cooperation with the U.S. Dept. of Labor, BLS

Note: Data are Not Seasonally Adjusted

Leisure and Hospitality (L&H) recorded the largest job declines of any sector because of the COVID-19 pandemic

- In April 2020, L&H employment declined by 38% YoY

For comparison, during the Great Recession ('07-'09) Construction recorded the largest job declines of any sector

- Construction employment declined 33% YoY in it's worst month (Aug. '09)

# Industry Highlight: Health Care and Social Assistance

Sector	Historic Change <sup>1</sup> (2008-2018)		Projected Change <sup>2</sup> (2018-2028)	
	Numeric Change	% Change (Annual)	Numeric Change	% Change (Annual)
Health Care and Social Assistance	103,780	3.1%	175,695	3.7%
Ambulatory Health Care Services	41,534	2.9%	74,494	3.8%
Hospitals	22,952	2.3%	39,213	3.1%
Nursing and Residential Care Facilities	15,687	3.3%	26,852	4.0%
Social Assistance	23,607	4.7%	35,136	4.4%

Health Care employment is projected to increase by 3.7% annually from 2018-2028

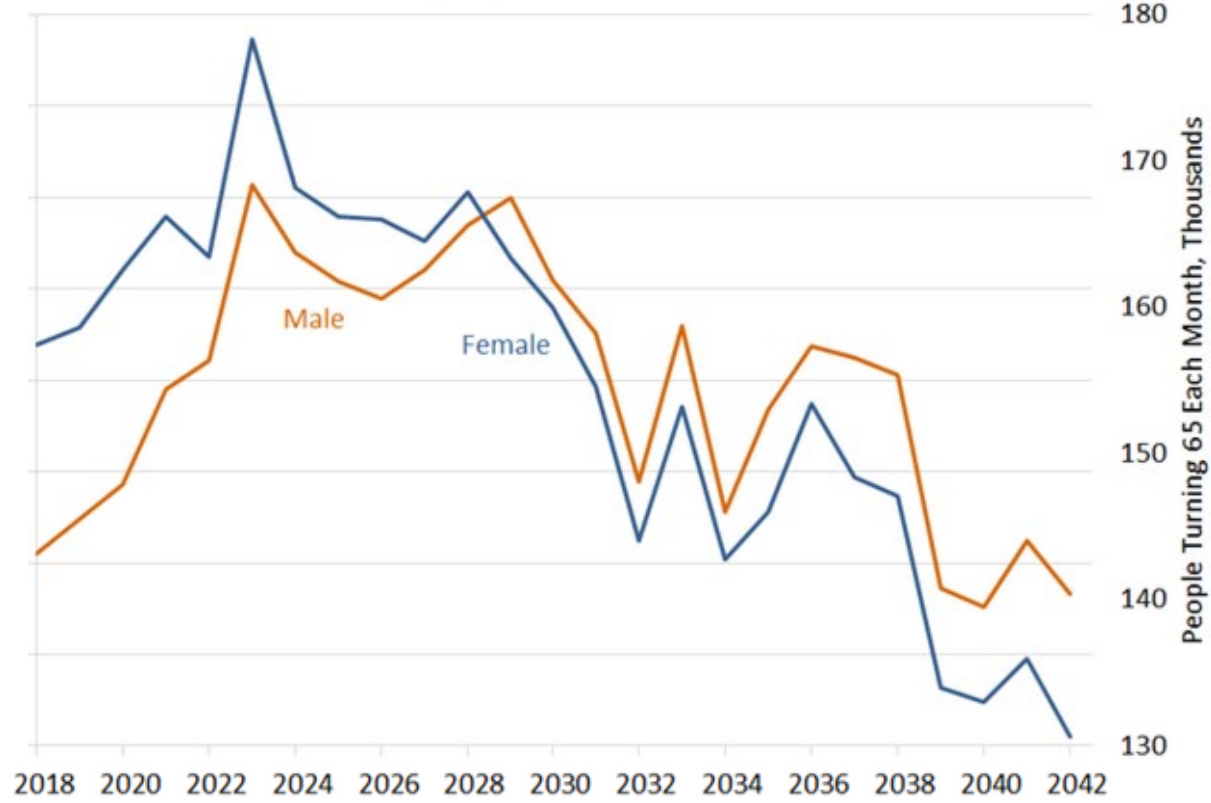
- Projected growth is higher than the 2008-2018 growth rate of 3.1%
- Growth will be driven, in part, by increasing population growth and an aging population

<sup>1</sup> Employment change from 2008 - 2018

<sup>2</sup> Employment change from 2018 - 2028

Source: Arizona Office of Economic Opportunity

# The Aging U.S. Population



Source: Federal Reserve Bank of St. Louis

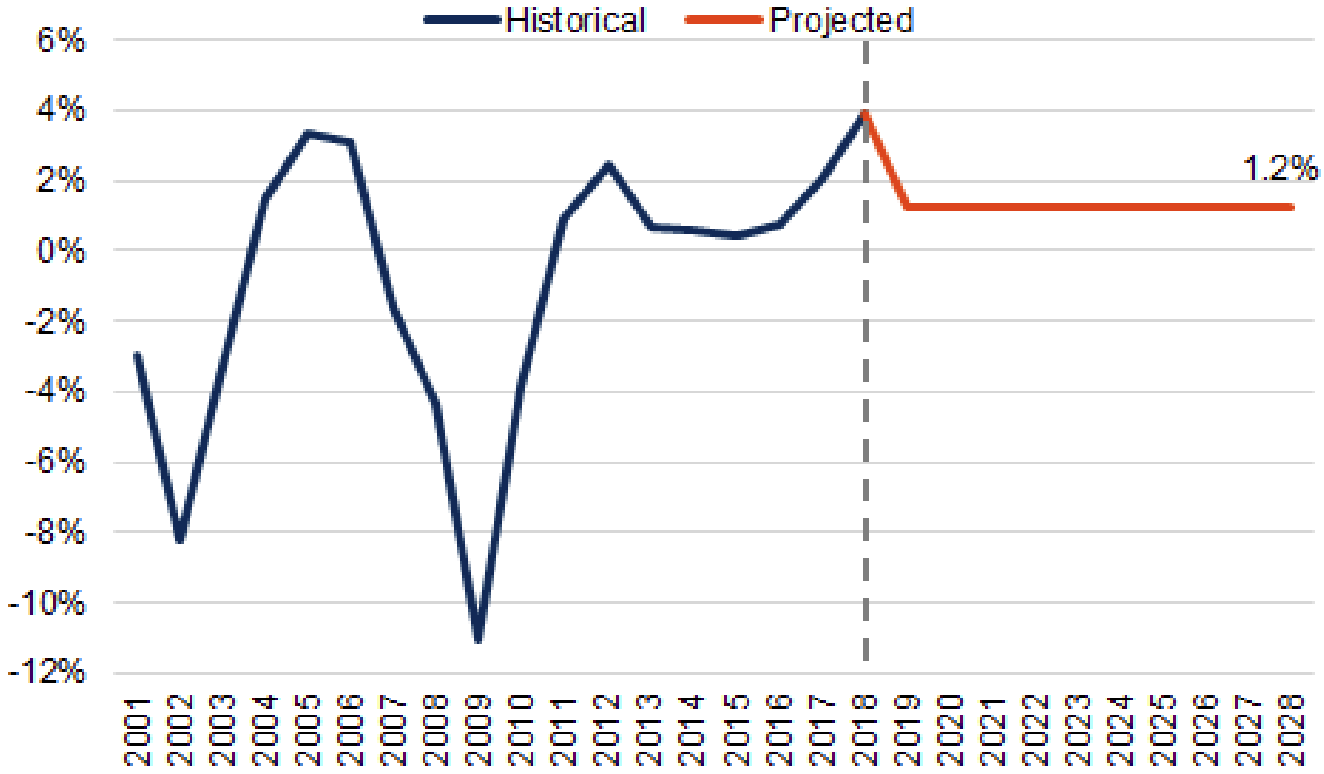
The number of people reaching retirement age will begin to increase dramatically in 2020 and 2021<sup>1</sup>

Research has shown that nearly half of lifetime medical expenditures is incurred during the senior years (age 65+)<sup>2</sup>



# Industry Highlight: Manufacturing

Arizona Manufacturing YoY Employment Change



Source: Arizona Office of Economic Opportunity

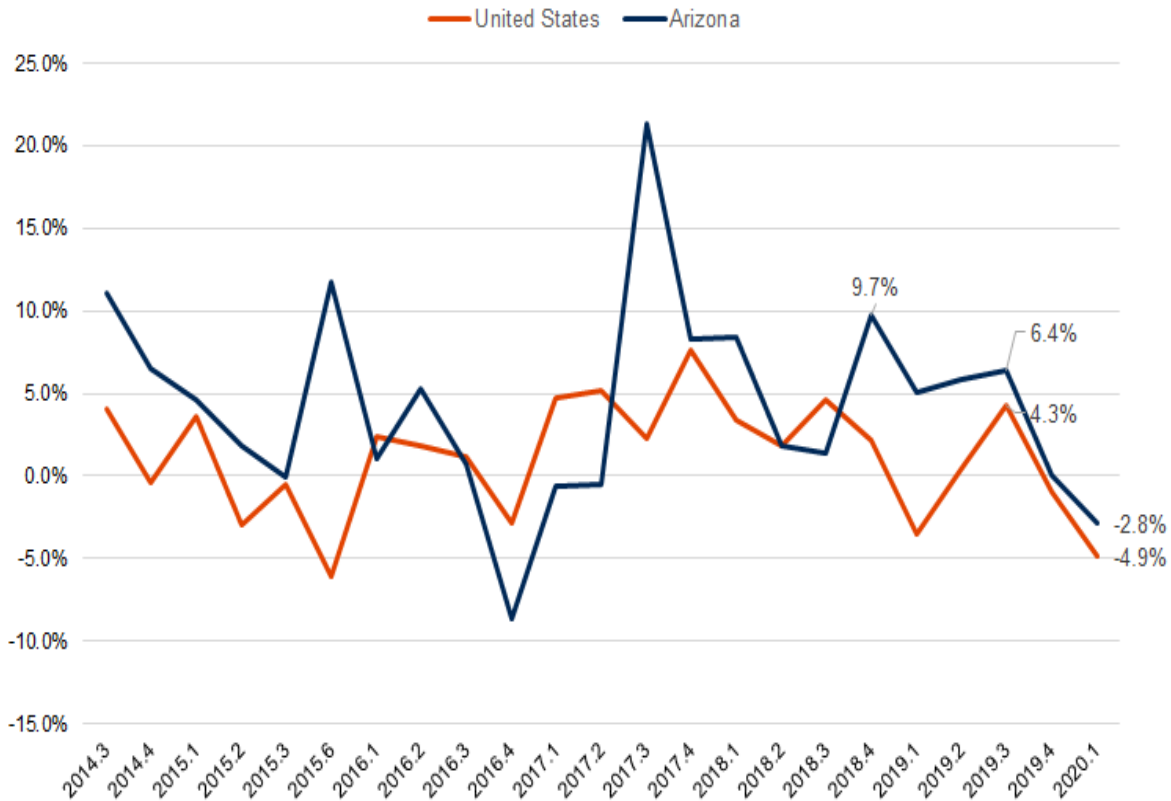
Manufacturing employment growth is projected to continue through 2028

Manufacturing employment growth has accelerated over the past several years.

- From 2016-2019, manufacturing gained 17,800 jobs, growing by 2.7% annually (Source: BLS CES)

# Real Manufacturing GDP

## Seasonally Adjusted Annual Rate



Source: U.S. Bureau of Economic Analysis

\*Chemical Mfg. is comprised of Petrochemical; Industrial Gas; and Synthetic Dye Mfg., among others

\*\*Miscellaneous Mfg. is comprised of Medical Equipment, Jewelry, Sporting Goods and Office Supplies Mfg., among others

Mfg. GDP declined in Q1 2020, after posting positive growth for several quarters prior

Mfg. job gains in 2018-2028 are projected to be strongest in:

- Chemical Manufacturing\* (3.0% annual growth)
- Miscellaneous Manufacturing\*\* (2.9% annual growth)
- Food and Beverage Manufacturing (2.8% annual growth)

# Industry Highlight: Transportation and Warehousing

Sector	Historic Change <sup>1</sup> (2018-2028)		Projected Change <sup>2</sup> (2018-2028)	
	Numeric Change	% Change (Annual)	Numeric Change	% Change (Annual)
Transportation and Warehousing	23,685	2.7%	40,211	3.4%
Couriers and Messengers	2,869	2.7%	8,200	5.2%
Scenic and Sightseeing Transportation	150	2.8%	55	0.9%
Support Activities for Transportation	3,176	2.6%	3,560	2.3%
Transit and Ground Passenger Transport	2,802	3.2%	3,585	3.0%
Truck Transportation	1,863	0.9%	5,391	2.2%
Warehousing and Storage	13,723	9.3%	19,950	6.4%

<sup>1</sup> Employment change from 2018 - 2028

<sup>2</sup> Employment change from 2018 - 2028

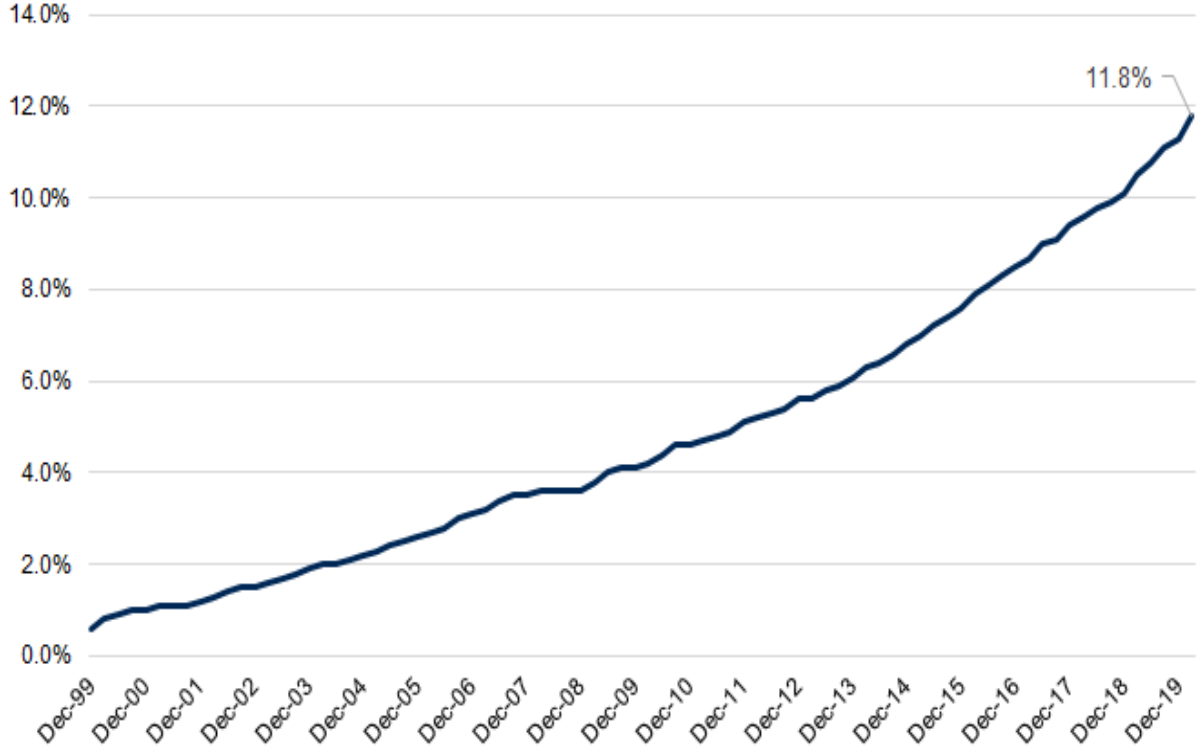
Source: Arizona Office of Economic Opportunity

Job growth in Warehousing and Storage is projected to account for the majority of job gains in Transportation and Warehousing

- Warehousing and Storage employment nearly doubled over the past five years (2014-2019) and nearly tripled over the past ten years (2009-2019)
- The emergence of online retail has increased the demand for warehousing and storage jobs

# U.S. E-Commerce (Online Retail) Sales

U.S. E-commerce Sales as a Percentage of Total Retail Sales



Source: U.S. Census Bureau  
Note: Data are Not Seasonally Adjusted

Over the past two decades, e-commerce has accounted for an increasing percent of total retail sales

- In Q1 2020, e-commerce sales represented 11.8% of total retail sales
- Impacts of COVID-19 on consumer spending habits will likely accelerate the growth of e-commerce in the short to mid-term

# Industry Highlight: Retail Sales

## Declining Retail Sectors

	Historic Change <sup>1</sup> (2008-2018)	Projected Change <sup>2</sup> (2018-2028)
Sector	% Change (Annual)	% Change (Annual)
Furniture and Home Furnishings Stores	-1.6%	-0.3%
Electronics and Appliance Stores	-2.1%	-2.5%
Clothing and Clothing Accessories Stores	-0.2%	-1.6%
Sporting Goods, Hobby, Book, and Music Stores	-1.1%	-2.6%
General Merchandise Stores	-0.3%	-0.3%

<sup>1</sup> Employment change from 2008 - 2018

<sup>2</sup> Employment change from 2018 - 2028

Source: Arizona Office of Economic Opportunity

## Growing Retail Sectors

	Historic (2008-2018)	Projected (2018-2028)
Sector	% Change (Annual)	% Change (Annual)
Motor Vehicle and Parts Dealers	1.0%	0.3%
Building Material and Garden Equipment and Supplies Dealers	0.8%	1.0%
Food and Beverage Stores	0.3%	0.3%
Health and Personal Care Stores	0.9%	0.7%
Miscellaneous Store Retailers	0.5%	0.6%
Nonstore Retailers	3.7%	4.9%

Overall, Retail Trade is projected to grow 0.3% annually

# Report Summary

- Total employment is projected to continue gaining jobs, growing by 1.6% annually from 2018 – 2028.
- All private sector major industries are projected to add jobs through 2028.
- All fifteen Arizona counties are projected to add jobs through 2028
- Growth is projected to be led by Education and Health Services (2.8% annually), Professional and Business Services (2.0% annually), and Construction (1.9% annually).
- Health care jobs will continue to grow across the state as demand for health care services is anticipated to increase

# Questions?

## Upcoming Release Schedule:

July 2020 Employment Report on Aug. 20

## Contact

Website: [Laborstats.az.gov](http://Laborstats.az.gov)

Email: [Laborinfo@oeo.az.gov](mailto:Laborinfo@oeo.az.gov)

Phone: 602-771-2222

# Works Cited

1. Vadenbroucke, Guillaume. (2020 January 13). *How many people will be retiring in the years to come?* Federal Reserve Bank of St. Louis. <https://www.stlouisfed.org/on-the-economy/2020/january/staff-pick-people-retiring-years-come>
2. Alemayehu, Berhanu, and Kenneth E Warner. "The lifetime distribution of health care costs." *Health services research* vol. 39,3 (2004): 627-42. doi:10.1111/j.1475-6773.2004.00248.x