



ARIZONA DIRECTIONS 2014

FOSTERING DATA-DRIVEN DIALOGUE IN PUBLIC POLICY



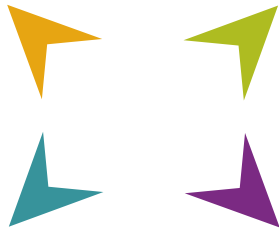


THE VISION FOR ARIZONA DIRECTIONS IS TO IMPROVE THE QUALITY OF LIFE FOR ALL ARIZONANS THROUGH THE USE OF DATA TO AFFECT INDIVIDUAL AND COLLECTIVE DECISION MAKING AND PUBLIC POLICY.

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ARIZONA INDICATORS

A Morrison Institute for Public Policy Project

Arizona Indicators centralizes data showing Arizona's competitive position and trajectory. By providing interactive data visualizations with expert analysis and policy options, Arizona Indicators helps community leaders, business leaders, elected officials and the public identify areas where progress is needed and promotes evidence-based decision making.

ArizonaIndicators.org

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A NOTE FROM OUR ARIZONA INDICATORS PARTNERS



Dr. Michael M. Crow
President
Arizona State University

As Arizonans increasingly call for civil discourse and seek collective impact approaches to shared challenges, data have a critical role to play. Quality data are agnostic toward political views and provide an objective yardstick for measuring the state's competitive position and progress. Often, in this age of data-overload and 24/7 media noise, we struggle to find sources of information that separate facts from agendas.

Arizona is fortunate to have ArizonaIndicators.org, a site that is dedicated to objective data – data that are vetted by scholars and presented with nonpartisan descriptions and applied research to make them actionable.

The site was launched in 2007 by Arizona State University and the Arizona Community Foundation in order to advance evidence-based decision making in the state. Today, the project is managed by Morrison Institute for Public Policy and continues to provide Arizonans with a centralized source of information on 11 broad issue areas, including the economy, public finance, education, innovation, health, and human services. The project also polls Arizonans about their views, facilitates public dialogue among diverse stakeholders, and publishes timely policy briefs – all with the goal of empowering Arizonans to advance data-driven solutions.

To support this mission, ArizonaIndicators.org launched the *Arizona Directions* statewide report card in 2012. Its vision is to improve the quality of life for all Arizonans through the use of data to affect individual and collective decision-making and public policy. Last year's report examined the economic consequences of Arizona's Latino educational achievement gap, the unharnessed potential of career and technical education to help fill the skills gap, the status of statewide economic development efforts, and the Sun Corridor's megapolitan standing and growth potential.

This year, *Arizona Directions* examines the state's economic health by assessing the many competitive threats to Arizona's share of the new global economy. Recognizing that human capital is inextricably linked to economic power, the report card evaluates both ends of the P-20 spectrum: early childcare and education and the high school /postsecondary-to-industry nexus.

This report is about informed action and shared accountability for Arizona's future prosperity. Whether you are the parent of a preschooler, the director of human resources for an aerospace and defense contractor, or an economic developer seeking to strengthen trade across the CANAMEX Corridor, this report will inform and contextualize your significant role in strengthening Arizona's competitive trajectory.

Sincerely,



Dr. Steven G. Seleznow
President and CEO
Arizona Community Foundation





ARIZONA DIRECTIONS 2014

As global competition for talent, industry and trade intensifies, education and economic development can no longer be viewed as separate systems. P-20 education is clearly the state's primary engine for economic growth, from early childhood learning to high school and other postsecondary pathways that align with good jobs in high-growth sectors. A critical mass of well-educated Arizonans can achieve individual prosperity while also boosting state revenues and attracting highly mobile capital and companies.

In order to fuel and fine tune the P-20 engine, educators and economic developers need to create a mutual, continuous feedback loop that enables each to understand the changing challenges, needs and outputs of the other. Case in point: Educators, parents and students will benefit from access to information on projected job demand, desired skills and workforce development opportunities. Ultimately, as the gap between education and economic reality shrinks, the transition from schooling to work will be less of a blind leap and more of a confident step forward.

This year, *Arizona Directions* assesses the health of both ends of the P-20 spectrum: early childcare and education and the high school /postsecondary-to-industry nexus. Both are viewed through the lens of Arizona's current competitive position and its trajectory through the broader economic landscape. How well does Arizona regulate, promote and ensure equitable access to quality early childcare and to programs that help children enter Kindergarten ready to learn? Does Arizona's production of graduates and skilled workers align with current and projected industry needs? In other words, are we setting our children up to succeed in the new global economy? At the same time, are we creating a talent pool that will help Arizona stand out as the place to start and grow a business?

Arizona Directions' data-driven approach enables Arizonans to step back and examine the evidence without the distraction of clashing political rhetoric. The report is designed to create a common reference point for civil discourse and post-partisan, collaborative approaches to improving Arizona's competitiveness. Still, the data are merely the kindling. Many minds are needed to stoke the fire and convert its energy into real-world results.

DATA-DRIVEN ACTION TARGETS

Arizona Directions strives to connect data to action. Each chapter of the report presents key indicators of the state's competitive standing and opportunities for redrawing its future trajectory. These metrics invite the reader to ask themselves:

- Is the status quo satisfactory, or do we need to change?
- If we attempt to 'move the needle,' what would success look like?
- What are the potential barriers to progress and how can they be anticipated and overcome?
- Who needs to come together to make positive change a reality?

While the answers to these questions will be different for each individual and stakeholder, the process of moving from knowledge to applied knowledge is critical to developing actionable strategies. Knowing how Arizona compares is not enough. Join us in the challenging process of using that knowledge to think about change at the individual, collective and policy level.

Below are potential targets for improving Arizona's standing in each of the three issue areas. How do you think we can leverage existing talent and resources to make this happen?

Early Childcare and Education

- Improve staff-to-child ratios to more closely match the National Association for the Education of Young Children (NAEYC) accreditation standards.
- Improve the availability and the amount of childcare subsidies for low-income families.
- Increase the number of children ages 3 to 4 who attend preschool prior to entering Kindergarten.
- Develop programs and policies that are sensitive to the unique needs of single-parent families.
- Boost child immunization rates through increased public education and access to regular well-child exams.

Global Competitiveness

- Diversify the State's economic base by growing the knowledge and manufacturing sectors.
- Invest in the research infrastructure and educational system to foster innovation and nurture talent.
- Increase investment in the State's road, rail and aviation infrastructure to facilitate the flow of people and goods.
- Grow the State's global trade footprint and leverage the shared border with Mexico to enhance economic ties.
- Reduce bottlenecks at Arizona's ports of entry.

Education / Industry Alignment

- Ensure that Arizona's K-12 students are prepared for a rigorous college or technical education.
- Increase the availability of career and technical education for those who choose not to pursue a 4 year degree.
- Form partnerships between educational institutions and business leaders to make sure student skills are matched to industry needs.
- Develop programs to encourage recent graduates from postsecondary institutions to begin and continue their careers in Arizona.





EARLY CHILDCARE

Early childcare and education have long been a critical issue for parents and educators. But more recently, quality early education has been embraced as a fundamental building block in the P-20 pipeline and statewide economic development efforts. Cultivating strong human capital truly begins with our youngest residents. Given Arizona's youthful demographics, the educational success of today's children will be a huge determinant of Arizona's future prosperity.

Children under the age of 5 comprise approximately 7% of Arizona's population, a share that exceeds the national average. How many of these children will be reading at grade level by third grade? How many will go on to earn their high school diploma and pursue post-secondary education? We know that these important milestones increase a child's odds of becoming a contributing member of society.

As First Things First asserts in an economic impact statement, "High school dropouts constitute 82% of the American prison population and are four times as likely to be unemployed, and apply for public assistance." And, research links quality early childcare and education to increased school readiness and improved chances of future academic success. This not only saves the state money on remediation in the K-12 system, it can also reduce spending on public safety and corrections and lead to higher state revenues from prosperous, working adults. Children who receive quality early education are also more likely to be screened for developmental delays, for which early identification and treatment can be highly cost-effective and successful.

Beyond the economic impact, the benefits of quality early education even extend to issues such as national security. Many of today's young adults lack the basic math, literacy and problem-solving skills to join the military. Mission: Readiness, a nonpartisan national security organization of senior retired military leaders, has made a commitment to expanding quality early education programs. According to the organization, "75 percent of 17- to 24-year-olds in the U.S. cannot serve in the military, primarily because they are too poorly educated, too overweight, or have a serious criminal record. Investing early in the upcoming generation is critical to securing our nation's future."





AND EDUCATION

Even more fundamentally, brain science shows that babies and young children need stimulation and enrichment to drive synapse formation and cognitive power. Neglect in early years can have lasting effects on cognitive abilities. We owe it to our children to maximize their potential during this critical developmental window when core social, emotional and intellectual capacities are established.

Early childhood well-being, childcare and preschool experiences are inextricably linked to future educational achievement. This chapter of *Arizona Directions* provides insight into Arizona's regulatory system for childcare facilities and presents key measures of quality and affordability, as well as contextual metrics such as the percentage of children in single-parent households and the share of children living in poverty.



MORRISON INSTITUTE POLL

In 2005, Arizona began phasing in all-day kindergarten for all Arizona school districts. However, in 2010 legislators cut the \$218 million in program funding to save money and help balance a state budget that was hard hit by the recession. According to a recent statewide Morrison Institute Poll, 75% of Arizonans either “strongly agree” or “agree” that Arizona should again fund all-day kindergarten for all Arizona school districts. Support was relatively high among both Democrats and Republicans, with 49% and 37% responding “strongly agree,” respectively. Only 4% of Arizonans strongly oppose reinstating all-day kindergarten.

Additionally, half of Arizonans (50%) identified “kindergarten through middle school” as the education level where they believe increased funding would be most effective in improving Arizona’s education system. “Early education and pre-kindergarten” and “high school” received equal support, roughly 18%. Only 4% indicated they “don’t support increased education funding.” Political affiliation impacted the numbers slightly, with 8% of Republicans opposed to increased education spending versus 4% of Democrats.

WHY SHOULD ARIZONA INVEST IN EARLY EDUCATION?

In fiscal year 2012, appropriations for education accounted for 50% of the Arizona State General Fund budget. Remediation and helping kids catch up to grade level costs time and money. Research shows that early education and early screening for developmental disabilities are a cost-effective way to improve school readiness and prevent children from falling far behind.



HOW CAN PARENTS IDENTIFY QUALITY CHILDCARE CENTERS?

In addition to state licensing and oversight, parents play a huge role in ensuring quality care for their children. However, the process of selecting a childcare center can be daunting and stressful. First Things First suggests that parents visit programs and ask the following questions:

- Do you have a parent handbook?
- What are the qualifications of the director and teachers? How long have they been working with children?
- How do you keep families informed about your program and their children's progress?
- What is your ratio of teachers to children and what is the maximum group size?
- How does the program deal with children with challenging behavior?

First Things First also provides a checklist of things that parents should look for during their visit. To learn more, visit QualityFirstAZ.com.

HOW WELL DOES ARIZONA REGULATE CHILDCARE CENTERS?

Child Care Aware of America's assessment of Arizona's regulatory environment identified the following strengths:

- Routine monitoring inspections and complaint inspections are unannounced
- Inspection and complaint reports are available online
- Childcare licensing staff are required to have a bachelor's degree in early childhood education or a related field
- Centers are required to have one first-aid and CPR-certified staff member on premises at all times
- Program activities must address all six developmental domains
- Health and safety standards address 10 of 10 basic standards

Child Care Aware of America also identified the following weaknesses:

- Child care inspections are only conducted once a year
- Center director education requirements do not meet Child Care Aware of America's recommended standard
- Lead teachers in centers are only required to have a high school diploma or GED before working with children
- Staff-to-child ratios are not in compliance with NAEYC accreditation standards



INFANT CHILDCARE IS COSTLY IN ARIZONA

2011 Ranking of Least-Affordable Childcare for an Infant in a Center (1=Highest; 51=Lowest)		
State	Average Annual Cost of Infant Care*	Rank (Based on Percentage of State Median Income for Two-Parent Family)
New York	\$14,009	1
Minnesota	\$13,579	2
Oregon [^]	\$11,079	3
Colorado	\$12,261	4
Hawaii	\$12,876	5
Kansas	\$11,023	5
California ^{^^}	\$11,823	7
Illinois	\$12,199	8
Massachusetts	\$14,980	9
Indiana	\$9,880	10
Wisconsin	\$10,775	10
Michigan	\$10,114	12
Washington	\$10,920	12
Rhode Island	\$11,830	14
New Hampshire ^{^^}	\$11,995	15
Maine	\$9,256	16
Nevada	\$9,413	16
North Carolina [^]	\$9,185	16
Pennsylvania [^]	\$10,504	16
Arizona	\$8,946	20

Source: Child Care Aware of America. Parents and the High Cost of Child Care, 2012 report.

[^] 2010 data, adjusted for inflation.

^{^^} 2009 data, adjusted for inflation.

HOW ARE WE DOING?

Arizona's infant childcare costs make it the 20th most expensive state in the nation, with an average annual cost of nearly \$9,000. That is roughly the same cost as full-time resident tuition at Arizona State University. Childcare costs decrease slightly for older children, but even center-based care for 4-year-olds in Arizona costs about \$6,000 per year. Based on the Arizona median income for a two-parent family, the cost of childcare would consume nearly 13% of its household income.

WHO IS IMPACTED THE MOST?

Child care affordability is especially critical for single parents. In Arizona, 40% of kids live in single-parent households. For a single-mother family, the median income in Arizona is only \$25,628, which means the cost of infant care would consume 34.8% of its income. The high cost of care can force low-income parents to settle for lesser quality childcare arrangements or make sacrifices in the quality of their housing, food, transportation and other basic needs.

WHAT ASSISTANCE IS AVAILABLE?

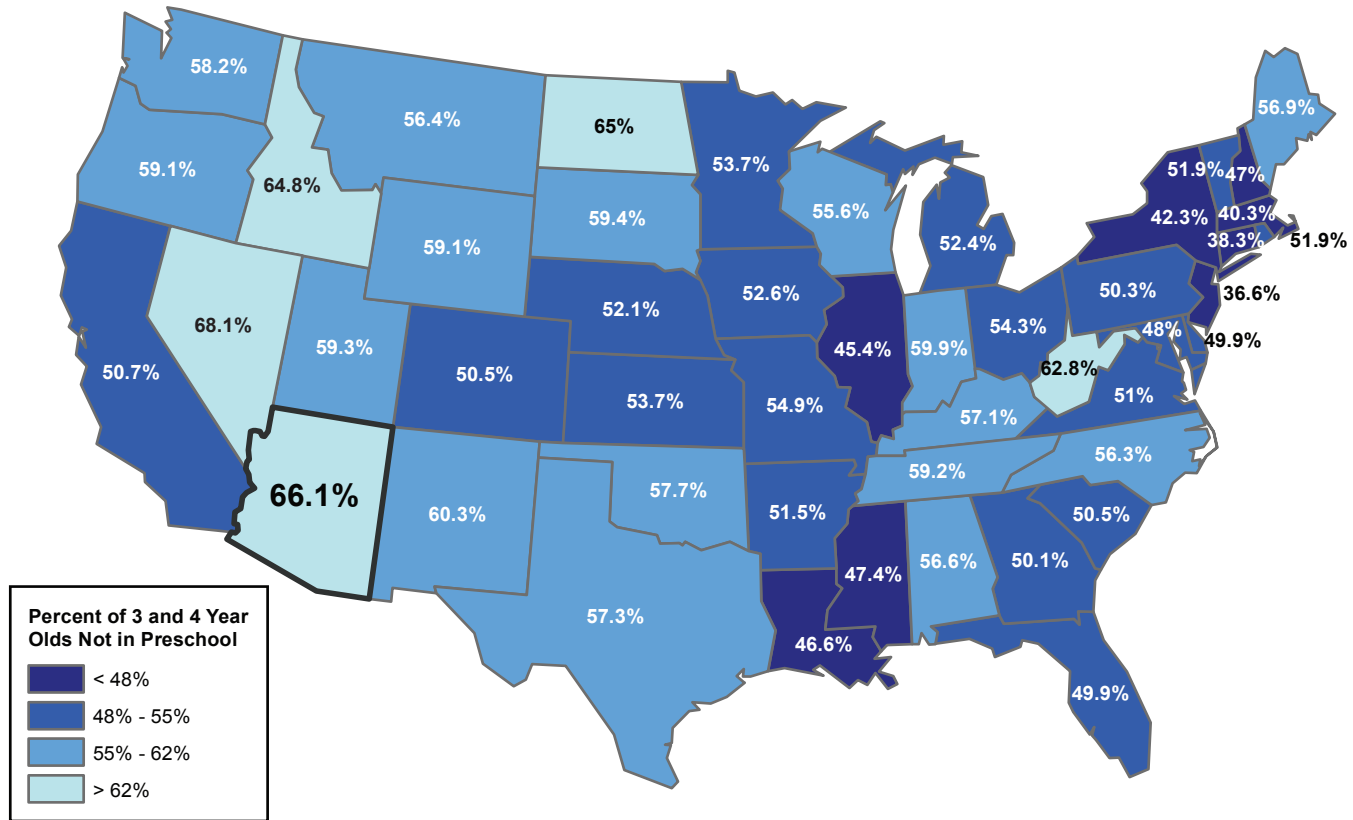
In Arizona, childcare assistance programs are administered by the Department of Economic Security's Child Care Administration. Assistance in paying for all or part of childcare costs is guaranteed to those enrolled in Temporary Assistance for Needy Families (TANF), employed and transitioning off of TANF, or within the Child Protective Services (CPS) system. When funding is available, assistance is offered to qualified families with incomes at or below 165% of the federal poverty level, which for a family of three is about \$32,000. Maximum reimbursement rates for fiscal year 2012 remained unchanged from the previous year and reflect the 75th percentile of the 2000 market rate survey.



INCREASING PRESCHOOL PARTICIPATION COULD BOOST SCHOOL READINESS

Arizona has the 2nd highest percentage of 3- to 4-year-old children who are not enrolled in preschool. The national average is 54%, compared to 66% of children in Arizona. Research has demonstrated that participation in preschool can improve school readiness, with high-risk kids receiving the greatest benefits. There are a number of reasons that parents may not opt to enroll their children in preschool, including the high cost of center-based childcare, lack of transportation, limited knowledge of available preschool programs, safety concerns and a preference for family or in-home care.

PERCENTAGE OF CHILDREN AGES 3 TO 4 NOT ENROLLED IN PRESCHOOL



Source: Kids Count Data Center; Population Reference Bureau, analysis of data from the U.S. Census Bureau, 2009-2011 American Community Survey.



ARIZONA'S PRESCHOOL STAFF-TO-CHILD RATIOS EXCEED NATIONAL BENCHMARKS

In Arizona, center-based childcare is regulated by the Department of Health Services, which establishes staff-to-child ratios for various age groups. Arizona's ratios are far greater than benchmarks set by the National Association for the Education of Young Children (NAEYC). For instance, Arizona's ratio for 4-year-olds is 1:15 compared to 1:10 for NAEYC. Research suggests that low ratios promote better health outcomes and higher-quality interactions. For instance, low ratios have been shown to reduce the transmission of infectious disease and reduce risk of injuries (such as from climbing on furniture) that can occur due to poor supervision. Additionally, low ratios have been shown to reduce caregiver stress, which in turn reduces risk of child abuse. And low ratios promote more positive verbal interaction between children and caregivers.



STAFF-TO-CHILD RATIOS FOR 4-YEAR-OLDS

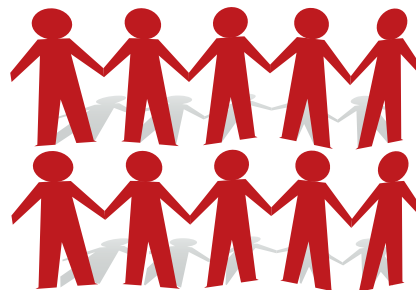
ARIZONA

1:15



NATIONAL BENCHMARK

1:10



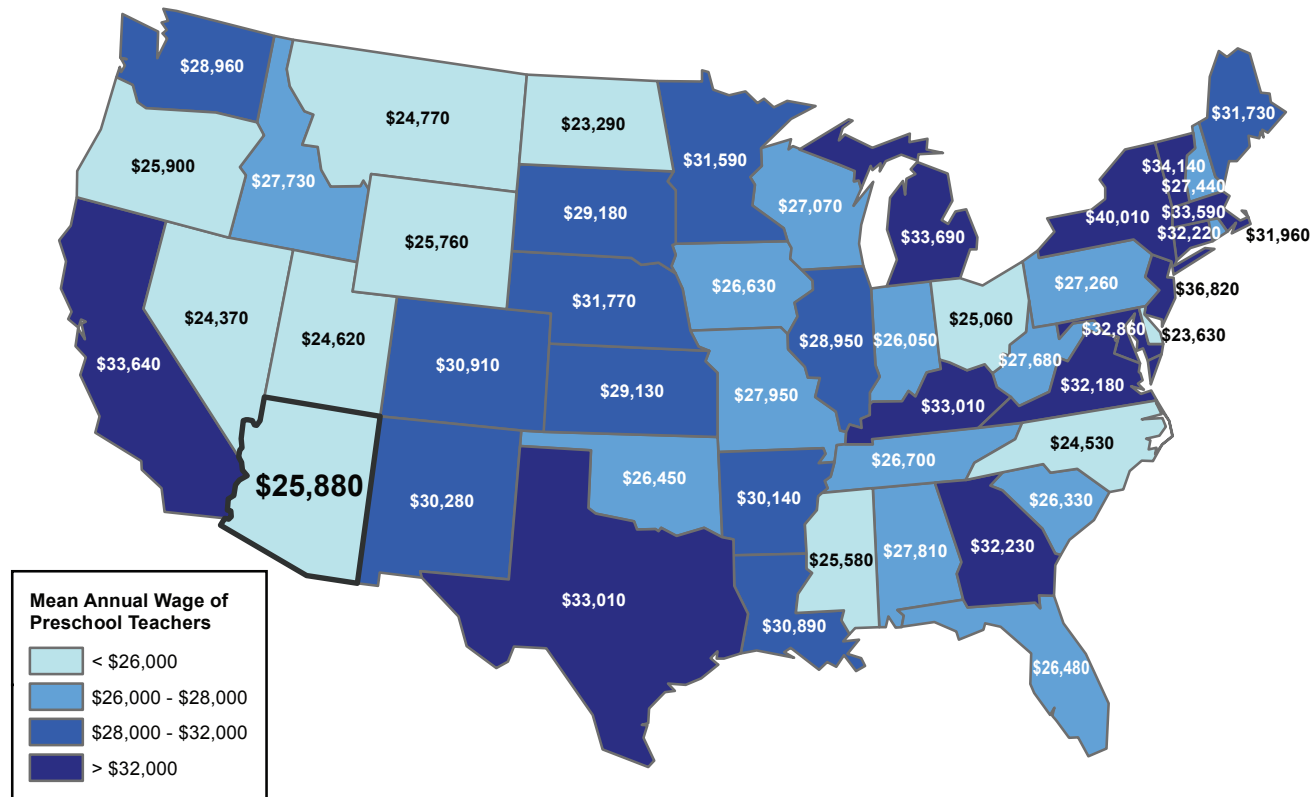
“ACHIEVEMENT GAPS BEGIN BEFORE KINDERGARTEN; IF WE WANT ARIZONA'S KIDS TO MEET OUR HIGH ACADEMIC EXPECTATIONS, INVESTMENT IN THEIR EDUCATION SHOULD BEGIN AT BIRTH. PARENTS NEED CHOICES WHEN IT COMES TO HIGH-QUALITY CHILD CARE AND PRESCHOOL FOR THEIR CHILDREN. EVERYONE BENEFITS WHEN CHILDREN ARRIVE AT SCHOOL PREPARED TO SUCCEED.”

*Sam Leyvas
Interim Chief Executive Officer
First Things First*

ARIZONA PRESCHOOL TEACHER PAY IS AMONG LOWEST IN THE NATION

While low wages for childcare professionals is not a problem unique to Arizona, we fare worse than most states in terms of annual mean wage for preschool teachers. In May 2012, the average mean wage was \$25,880, according to the Bureau of Labor Statistics. As a point of comparison, the federal poverty level for a family of four is \$23,550. Low wages make it difficult to attract and retain talented workers, and research shows that children benefit from continuity in their caregivers. Additionally, higher levels of educational attainment among childcare teachers are linked to higher-quality instruction. In Arizona, lead teachers in childcare centers are only required to have a high school diploma or GED.

ANNUAL MEAN WAGE OF PRESCHOOL TEACHERS, EXCEPT SPECIAL EDUCATION



Source: U.S. Bureau of Labor Statistics, Occupational Employment and Wages, May 2012



CHILDREN 5 AND YOUNGER ARE THE MOST LIKELY TO LIVE IN POVERTY

Nearly one in three of Arizona's youngest children (birth through age 5) are living in poverty. Nationally, Arizona is tied for 37th on this critical measure of childhood well-being. Poverty places children at heightened risk for food insecurity, untreated medical and dental conditions, heightened family stress, and other challenges that can impede cognitive development. Young children in low socioeconomic households tend to hear fewer spoken words and have less exposure to books in the home. According to one study, socioeconomic differences in exposure to language accounted for a huge gap in the observed cumulative vocabulary of children by age 3: about 1,100 words for children in professional families versus roughly 500 words for children from welfare families.¹



CHILDREN IN POVERTY BY AGE GROUP

Location	Age group	Data Type	2007	2008	2009	2010	2011
Arizona	0 to 5	Number	132,000	138,000	160,000	148,000	158,000
		Percent	23%	23%	26%	27%	30%
	6 to 17	Number	199,000	211,000	238,000	244,000	277,000
		Percent	19%	20%	22%	23%	26%
Total	Number	331,000	349,000	398,000	392,000	435,000	
	Percent	20%	21%	23%	24%	27%	

Source: Kids Count Data Center; Population Reference Bureau, analysis of data from the U.S. Census Bureau, 2007 through 2011 American Community Survey.

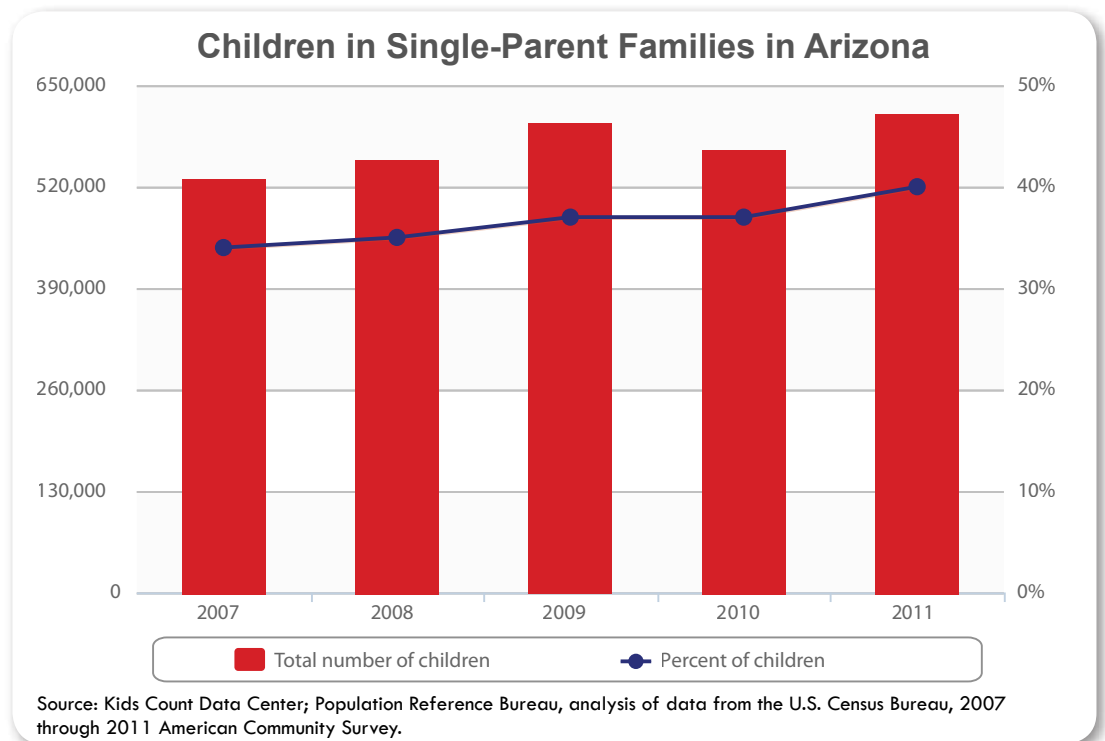
**CULTIVATING
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¹ Betty Hart and Todd R. Risley, *Meaningful Differences in the Everyday Experience of Young American Children*, 1995 (4th printing, January 2003).



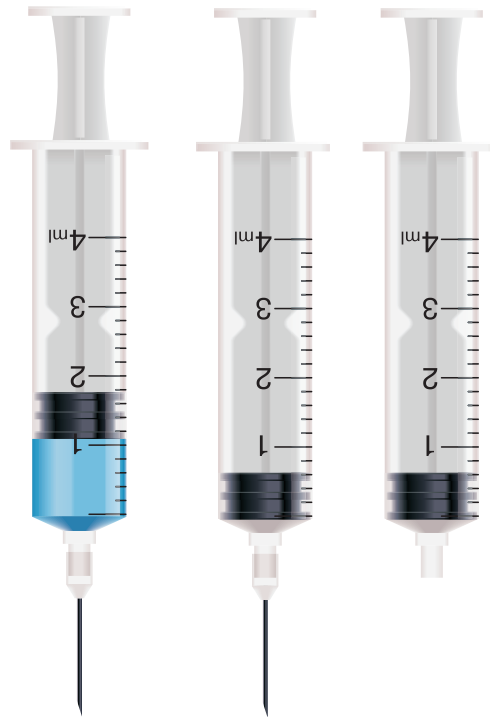
POLICIES MUST BE RESPONSIVE TO REAL-LIFE FAMILY CONFIGURATIONS

Only five states have more single-parent households than Arizona. The rise in this living arrangement demands government policies that accommodate different family structures and circumstances. For the 40% of Arizona children who live with a single parent, this could range from greater access to mentors and quality afterschool programs to more opportunities for busy parents to engage with teachers and school counselors at non-traditional times or via email. Since data show that single-parent households typically have more limited economic resources, government and nonprofit services must be sensitive to the cost burdens many single parents face. For instance, a 2012 study by Child Care Aware of America found that the annual cost of center-based infant care averaged 34.8% of the state median income for a single mother in Arizona.



PERCENT OF ARIZONA 2-YEAR-OLDS WHO WERE IMMUNIZED

2007
75%



2011
64%

Source: Kids Count Data Center; Centers for Disease Control and Prevention, National, State, and Urban Area Vaccination Levels Among Children Aged 19-35 Months, 2007-2011.

LOW IMMUNIZATION RATES PUT CHILDREN AND COMMUNITIES AT RISK

In 2011, Arizona ranked 45th nationally for the number of 2-year-olds who were immunized. This metric is important for two reasons. First, it provides one indication of whether children are receiving regular well-child check-ups, a good sign that children have access to preventative health care. Well-child visits often include screenings for developmental delays and thus can lead to early, more effective interventions. Secondly, while immunizations have come under increased scrutiny in recent years, the American Academy of Pediatrics and the Centers for Disease Control are joined by many other health experts in stressing the safety and importance of vaccinations for individual and community disease prevention. According to the American Academy of Pediatrics, high rates of vaccination in a community are especially important for vulnerable populations, such as children who cannot be vaccinated because they are too young, too sick or do not respond to vaccines.



AT STAKE: ARIZONA'S

We live in a world where local and state economies are linked to the global economy. Arizona's future prosperity will in large part depend on its global competitiveness. Greater economic integration with the global marketplace brings both great opportunities and challenges to Arizona.

In today's global economy, companies, financial capital and highly-skilled talent are mobile and will seek locations where they have the greatest opportunity to prosper. This means states that provide the best talent pool, the necessary infrastructure to ship to their customers and a receptive business and cultural climate will win out over others.

As trade barriers continue to fall, the world has increasingly become Arizona's marketplace. Given the economic slowdown in the U.S. and fierce domestic competition, Arizona companies must take advantage of opportunities in global markets. With the growing purchasing power of their middle classes, foreign markets are critical to Arizona's future growth. And Arizona's location as a border state gives it a natural competitive advantage when it comes to trading with Mexico, our largest foreign trading partner by far.

Yet, Arizona is not alone in wanting to exploit the opportunities afforded by global integration. In addition to foreign competition, Arizona faces competition from a group of neighboring states, most of which are actively trying to increase their global competitiveness and trade links, especially with Mexico. For example, Utah, Nevada, and New Mexico have begun concerted, statewide efforts to cultivate and enhance trade ties with Mexico. Texas and California continue to take advantage of their heavyweight status along the Mexican border. For example, Texas is marketing its ports of entry as an alternative to Arizona's border gateways. A soon-to-be opened highway from Mazatlán to Durango in central Mexico will cross the Sierra Madre mountain range. This could make Texas a viable transportation port of entry for goods from Mexico's Pacific coast and western region. New Mexico is developing an intermodal port of entry that incorporates surface, rail and airport facilities. All of these actions could divert trade that traditionally enters the U.S. through Arizona.

As this report shows, Arizona does reasonably well along several measures of competitiveness relative to its neighbors and comparison states. However, the data clearly indicate it needs to do better. For example, despite its geographic proximity and longstanding trade links with Mexico, exports to Mexico have grown only 6% over the last five years while Texas and California's exports grew 52% and 29%, respectively. Another area where Arizona is playing catch-up is human capital: educational attainment lags the nation and many of its comparison states. The question of why Arizona is not more competitive along these (and other) dimensions needs to be addressed.





GLOBAL COMPETITIVENESS

Arizona needs to adapt to an increasingly competitive economic environment. Arizona's prosperity and quality of life depend on its ability to distinguish itself in the global marketplace as a place where talent is nurtured, innovation thrives and businesses can succeed. With innovation a key driver of long-term productivity and economic growth, our state's ability to develop, attract and retain top talent will determine its long-term competitiveness. Arizona's future prospects depend on the state making a sustained and concerted effort to raise its competitiveness in a global economy. Arizona's future is at stake and business as usual is not an option.



MORRISON INSTITUTE POLL

In a statewide Morrison Institute poll, a majority of respondents, 59.8%, felt that Arizona's ability to compete internationally was "critically important" to its future. This response was consistent among Democrats and Republicans alike, with 65.6% of Democrats and 58.5% of Republicans selecting this response. The percentage was 56.1% among Independents.

When asked to choose which strategies would most improve Arizona's global competitiveness, 31.4% of the respondents surveyed selected "increasing exports to countries such as Mexico," 27.4% selected "promoting foreign language instruction in schools," and 20.4% selected "promoting the state's tourism and hospitality industries."

The vast majority of Arizonans polled, 81.2%, believe that the availability of a skilled workforce is "important" or "very important" in attracting new businesses to the state. And 59.8% of those surveyed indicated the quality of the state's public education system was "very important" in attracting new businesses.

WHAT FACTORS AFFECT A STATE'S COMPETITIVENESS?

Many interrelated factors drive a state's competitiveness. Foremost among them is a diversified economic base that is resilient enough to withstand downturns and nimble enough to take advantage of global opportunities. Ease of doing business and quality of the infrastructure are important factors. Employers list access to a skilled talent pool at the top of the list in survey after survey. A competitive state provides a business-friendly environment that fosters innovation and whose companies have access to capital and a skilled workforce.



WHAT CAN ARIZONA DO TO IMPROVE ITS GLOBAL PROFILE?

Arizona and the states that comprise the Southwest should work together to leverage the potential of the region as a whole to become a commercial, financial and logistics hub. Arizona should fully realize the benefits of growing economic and cultural ties with Mexico, its largest trading partner. With more companies near-shoring their production facilities to Mexico, Arizona should use its location as a border state as a calling card internationally and regionally.

Our state can become known as an international center for innovation by investing in its universities and research infrastructure. Talent attracts talent and surveys consistently indicate the presence of a skilled talent pool is a company's top consideration in relocating. If Arizona is going to be a player on a global scale, its policymakers and educators will need to muster the political and public support to improve the quality, depth and breadth of its education systems. Finally, Arizona needs to send a clear message that it is a state open for business by having a regulatory environment that welcomes global talent and capital.



WHAT ARE THE THREATS TO ARIZONA'S COMPETITIVENESS?

The state's roads, rails and airports require maintenance and their capacity needs to be increased. Time is money and bottlenecks at the ports of entry on the border with Mexico threaten Arizona's competitive advantage as an entry point to the Western U.S. and Canadian markets for Mexican goods. Other border states, particularly Texas, are actively recruiting Arizona importers and exporters by touting the shorter wait times at their ports of entry. Arizona's principal port of entry with Mexico, Mariposa in Nogales, will be a state-of-the-art facility in 2014. Additional improvements are needed along the border but lack a funding stream.

While Arizona's tax and regulatory climate is rated above average, the state needs to improve educational attainment in K-12 education and in the post-secondary educational system. The quality of the state's K-12 and post-secondary education has a significant impact on Arizona's competitiveness, particularly its ability to attract and grow knowledge-based and high-tech companies. Currently, Arizona lags the national average in educational attainment. Cuts in public support for K-12 and higher education reduce our ability to nurture our existing talent and future workforce. These cuts also hurt the state's ability to attract outside talent and investment. This ultimately hampers not only the caliber, but also the pace of innovation that takes places in our state's companies, research institutes and universities.

ARIZONA NEEDS A MORE DIVERSIFIED ECONOMY

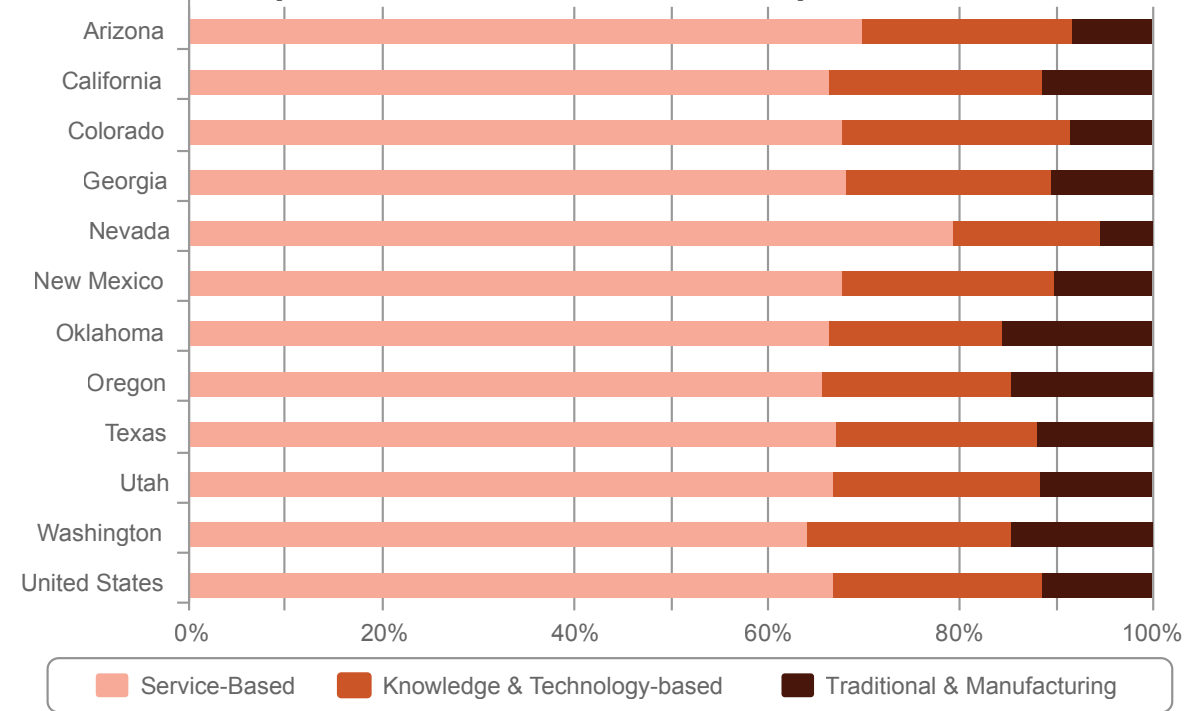
WHY IS THIS IMPORTANT?

States with a more diverse economic base are able to withstand cyclical downturns better than states whose economy is more weighted in one particular sector. Lack of diversification leaves states more vulnerable to industry-level shocks, such as a reduction in defense spending. States with a more diversified economy are also able to recover faster from an economic downturn.

HOW ARE WE DOING?

Arizona's economy is more dependent on the service sector than all of the comparison states, except Nevada. This is partly due to a high dependence on the real estate and construction sector in Arizona and the gaming and tourism sector in Nevada. In comparison, the economy of states like Oregon, Texas, Utah and Washington showed more resilience during the downturn and started recovering faster than states with less diversified economies such as Arizona and Nevada.

Industrial Composition for the U.S. and Comparison States in 2013



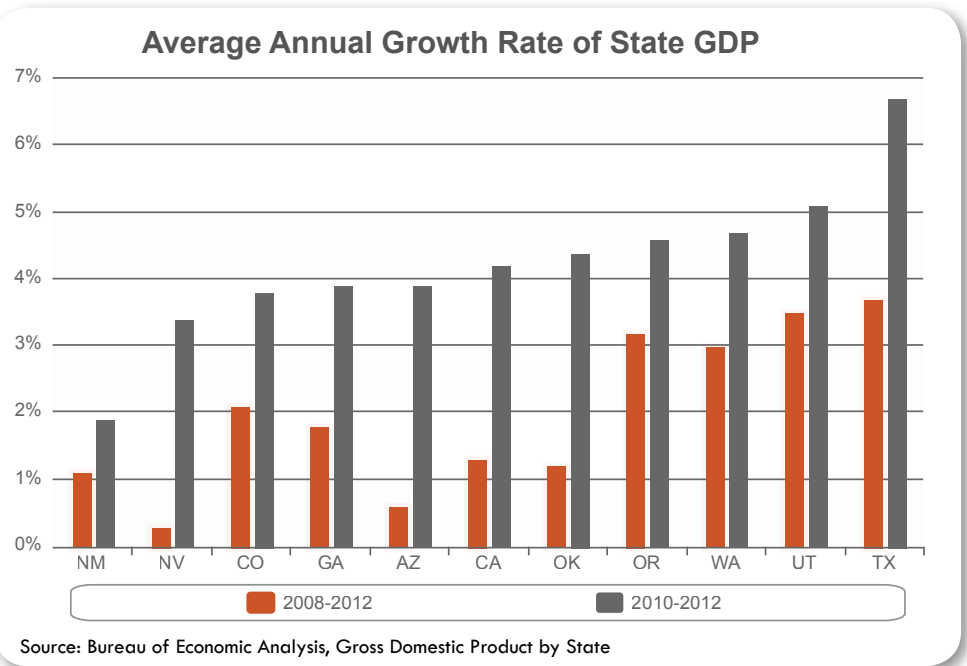
Source: EMSI, Morrison Institute analysis

WHAT CAN WE DO TO IMPROVE OUR COMPETITIVENESS?

We need a welcoming business and cultural climate that rewards investments and fosters innovation. We need to grow our global trade as well as realize the full potential of having Mexico as a neighbor. We need to ensure that existing companies and companies looking to locate in our state have access to top-notch talent both now and in the future to develop products and services that have global appeal. We can invest in our most important asset, our people, by giving them the ability to acquire and develop the knowledge and skills that drive innovation. This requires increasing rather than decreasing investment in our K-12 and post-secondary education systems. Finally, we need to make sure our transportation and border infrastructure is not only up-to-date but has the capacity to accommodate future growth.

ARIZONA IS IN THE MIDDLE OF THE PACK FOR GDP GROWTH BETWEEN 2010-2012 BUT LAGS COMPARISON STATES FOR GDP GROWTH BETWEEN 2008-2012

Arizona's GDP grew at a solid rate of 3.88% between 2010 and 2012. However, the average annual growth rate of its GDP was only 0.55% from 2008 to 2012, with only Nevada faring worse among comparison states, with a 0.30% growth rate. Arizona and Nevada were more severely affected by the economic downturn than other states. In comparison, states like Oregon, Texas, Utah and Washington have not only recovered more quickly than Arizona from the economic downturn but their GDP grew at a robust rate of more than 3% since 2008 and at an even higher rate since 2010.



Location	Change in Value of Exports 2008-2012	Location	Change in Value of Imports 2008-2012
UT	87%	UT	76%
NV	68%	OK	47%
WA	39%	NV	36%
TX	38%	GA	28%
GA	31%	AZ	25%
OK	30%	CO	22%
CA	12%	TX	15%
NM	7%	CA	8%
CO	6%	NM	2%
OR	-5%	OR	-2%
AZ	-7%	WA	-2%

Source: U.S. Department of Commerce, International Trade Administration

ARIZONA'S EXPORT FOOTPRINT HAS DECREASED SIGNIFICANTLY SINCE 2008

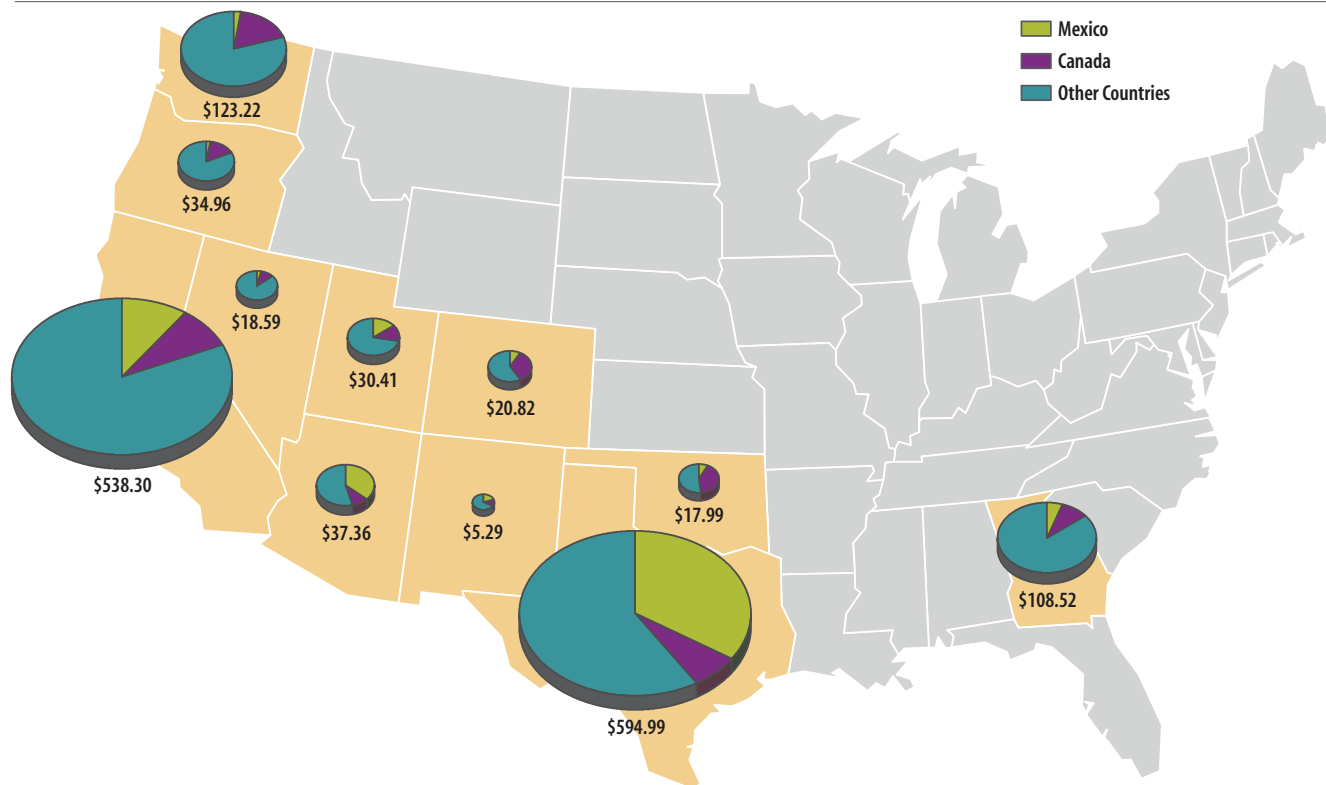
The change in the value of exports and imports over the last five years is one measure of how well Arizona is competing globally relative to other states. As the table to the left indicates, over the last five years, Arizona's export footprint has contracted by 7% while all of the comparison states, except for Oregon, have grown their exports. This raises the question of why the international market for Arizona products and services has shrunk. It is not a question of geography, since land-locked states like Nevada, New Mexico and Colorado have all increased their exports during the same time period.



MEXICO ACCOUNTS FOR A THIRD OF ARIZONA'S INTERNATIONAL TRADE

Mexico is our largest trading partner and accounts for one third of our entire exports. In 2012, Arizona traded \$13 billion worth of goods and services with Mexico. Since 2008, Arizona exports to Mexico grew by 6% while imports grew by 27%. Most of the goods traded between Arizona and Mexico are transported via trucks and originate from states like Sonora and Sinaloa in western Mexico. A modern four-lane highway linking the western port city of Mazatlán to Durango in central Mexico is scheduled to open in 2014. It will connect Mexico's western coast to the freight arteries that lead to Texas and has the potential to divert the trade that would otherwise flow through Arizona, affecting an important sector of Arizona's economy that depends on trade from Mexico.

Total International Trade 2012
Imports and Exports, In Billions

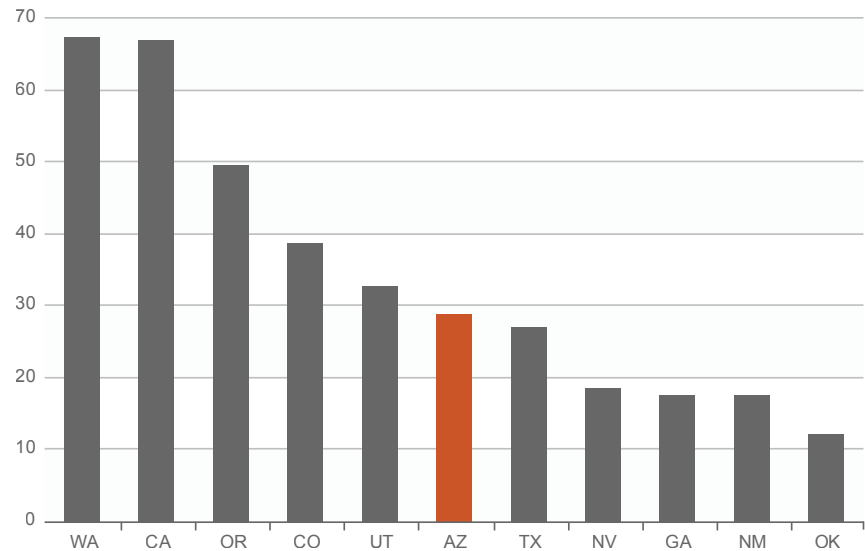


Source: U.S. Department of Commerce, International Trade Administration

ARIZONA LEADS SEVERAL PEER STATES IN PATENTS BUT LAGS SOME SMALLER STATES

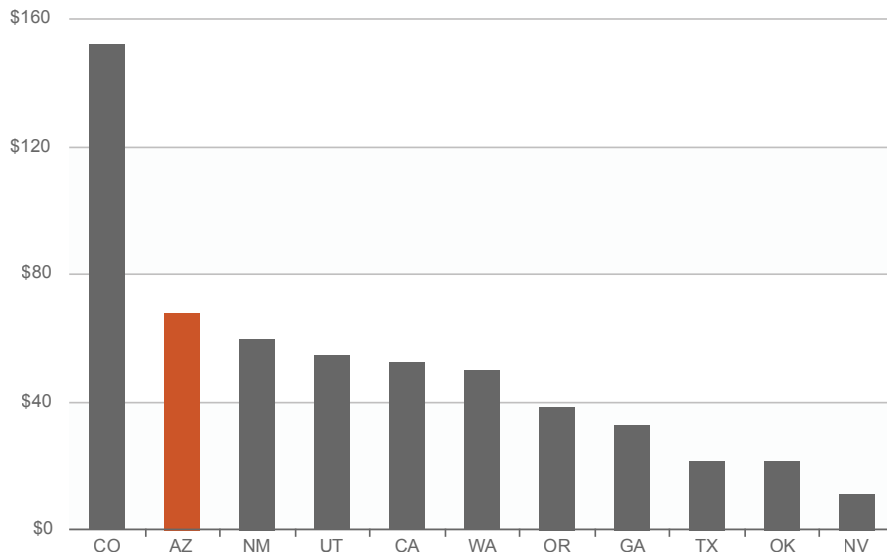
The number of patents issued is a measure of innovative activity and is a widely used indicator of the inventive and innovative performance of a state. Patents are important because they are the result of investments of human and financial resources to create competitive advantage. They allow firms and individuals to capture the benefits of their innovation efforts. Benchmarked against its comparison states, Arizona comes in the middle of the pack, alongside Utah and Texas. Yet, the outsized performance of California, which is expected given its traditional strength in this area, but also of Washington and Oregon, indicates that Arizona has room to increase its performance in this area.

Average Annual Patents (per 100k pop) from 2008 to 2012



Source: U.S. Patent Office, U.S. Census, Morrison Institute Calculations

National Science Foundation Funding in 2012 per \$100,000 of State GDP



Source: National Science Foundation, Morrison Institute calculations

ARIZONA SHINES AS A RECIPIENT OF NATIONAL SCIENCE FOUNDATION GRANTS

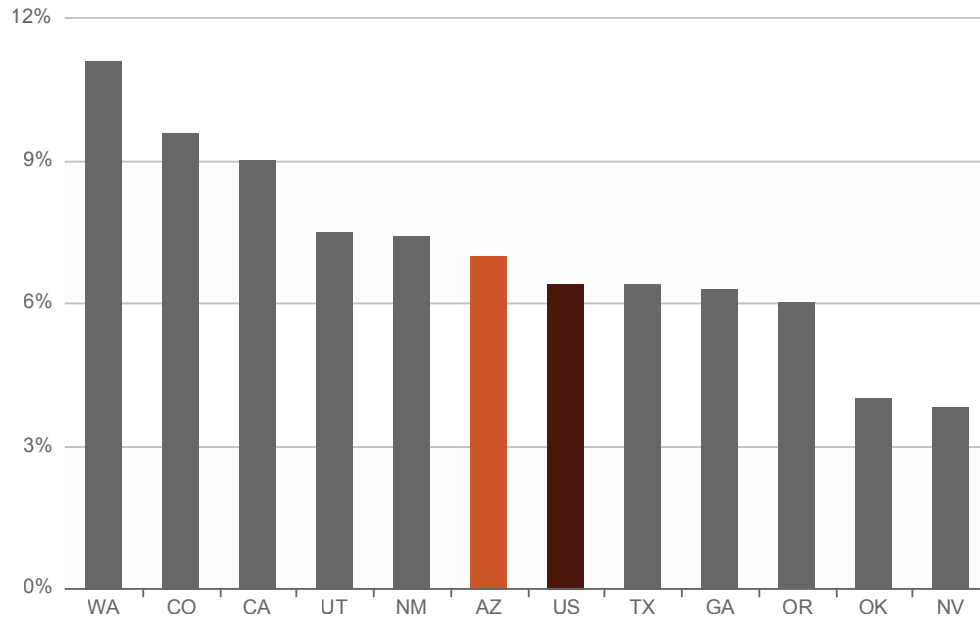
A significant portion of research in universities is funded by the National Science Foundation (NSF), including research that can lead to major scientific breakthroughs and technological innovation. When measured as the ratio of NSF funding per \$100,000 of state GDP, Arizona shines among comparison states, with only Colorado doing better. Based on this indicator, the state is a leader for NSF funding per \$100,000 of state GDP, ranking fourth in the nation.



ARIZONA IS IN THE MIDDLE OF THE PACK FOR HIGH TECH EMPLOYMENT

The presence of a talent pool in the high tech sector is associated with a higher likelihood of innovation and knowledge creation. In this measure, Arizona has a higher proportion of high tech employment than the U.S. average and is in the middle of the pack among comparison states. Having a higher percentage of the workforce in high tech is a comparative advantage in attracting knowledge-based companies. A higher concentration is also attractive to prospective employees because it improves their likelihood of finding similar jobs in the region in the case of a restructuring or layoff.

Proportion of High Tech Employment Within Non-Farm, Private Sector Workforce in 2011

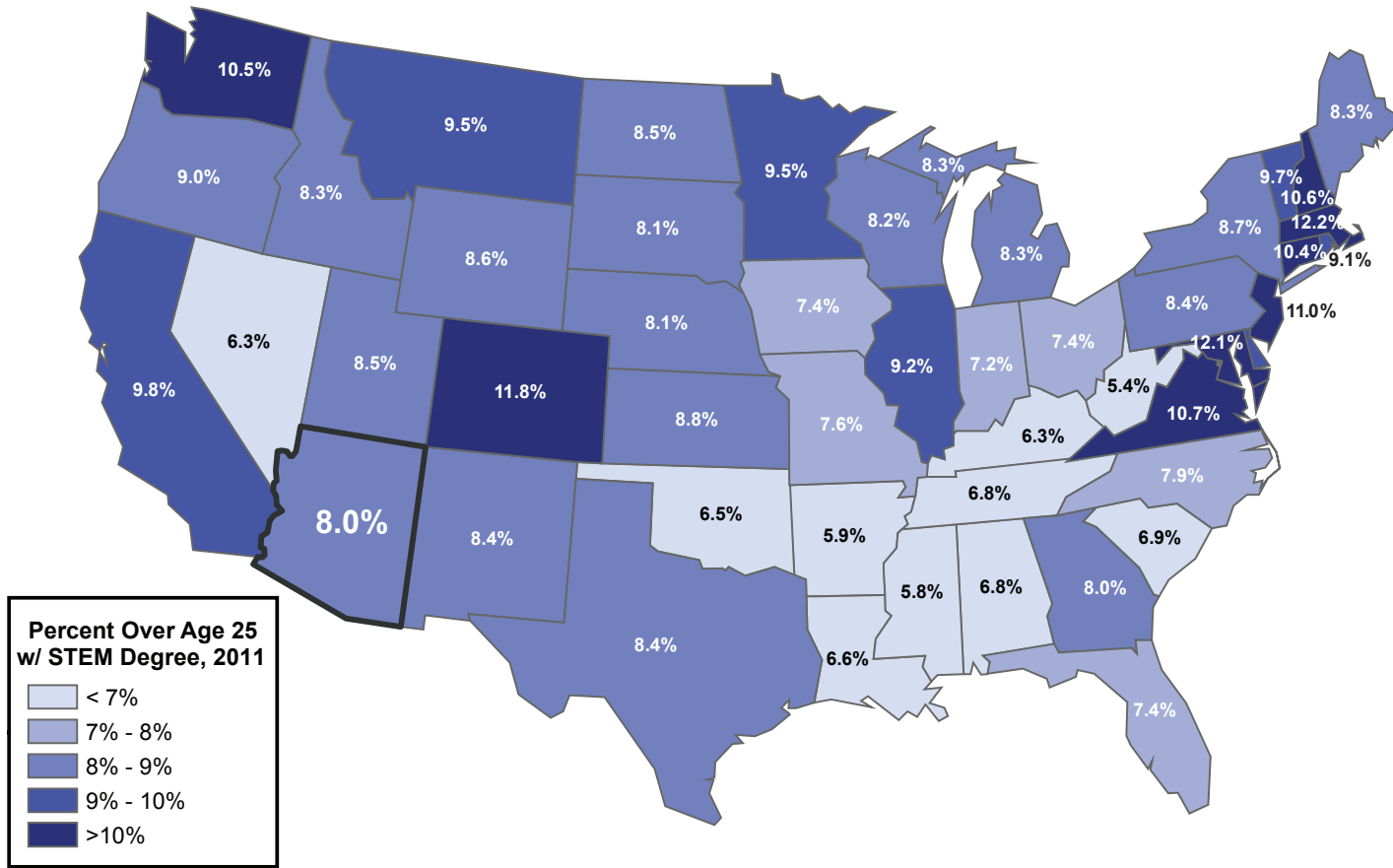


Source: Calculated from U.S. Department of Commerce, Census Bureau



ARIZONA IS IN THE MIDDLE OF THE PACK WHEN IT COMES TO THE PROPORTION OF ITS WORKFORCE WITH STEM DEGREES

Jobs in knowledge- and innovation-based sectors pay higher salaries on average and total employment in these areas is expected to grow faster than for the service and traditional manufacturing sectors. Employers in knowledge- and innovation-based fields usually require a degree in a STEM (science, technology, engineering and math) field. With 8% of its workforce holding a bachelor's degree in a STEM field, Arizona lags California, Colorado, Oregon and Washington and is slightly behind states such as Texas, Utah, and New Mexico. Increasing the number of STEM degree holders will improve Arizona's ability to attract companies in the knowledge sector.



Source: U.S. Census

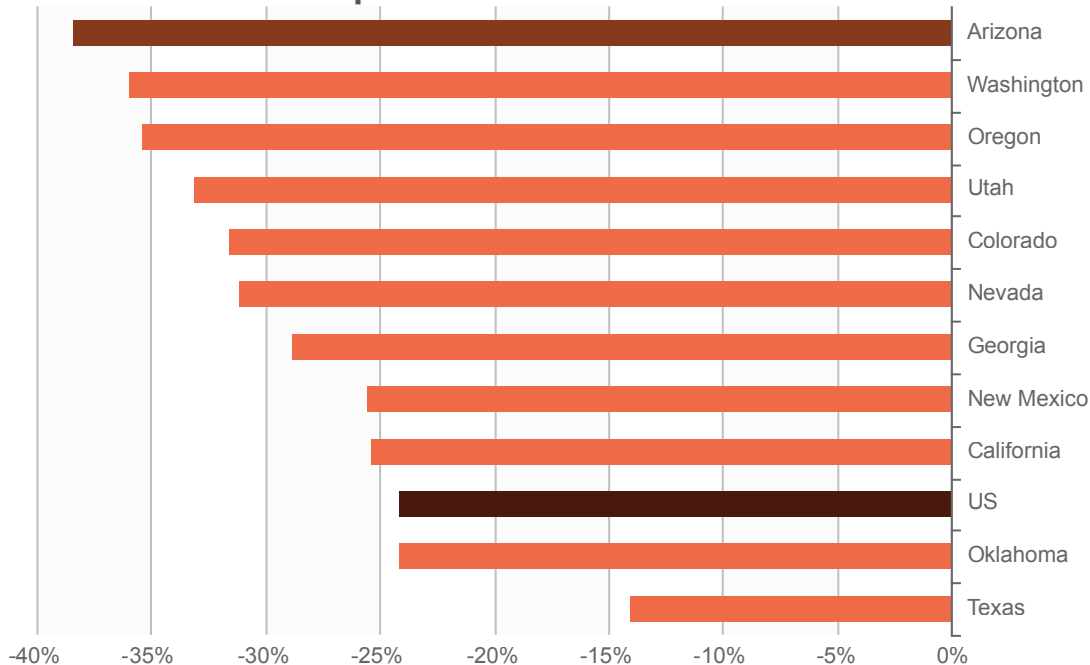


ARIZONA LEADS IN PERCENTAGE CUTS IN STATE SPENDING FOR HIGHER EDUCATION PER STUDENT SINCE 2008

While all states have cut appropriations for higher education in the last five years, Arizona's appropriations have been reduced by 38%. Cuts in state spending for higher education negatively affect both the quality and the cost of education as institutions are forced to increase tuition, expand class size and cut the resources needed to compete in the global market for academic talent. Besides the impact on students, the funding cuts also have an impact on universities' ability to support ground-breaking research that can lead to innovative technologies and scientific discoveries.



Percentage Cuts in State Spending for Higher Education per Student Since 2008



Source: State Higher Education Executive Officers Association

ARIZONA'S PROSPERITY AND QUALITY OF LIFE DEPEND ON ITS ABILITY TO DISTINGUISH ITSELF IN THE GLOBAL MARKETPLACE AS A PLACE WHERE TALENT IS NURTURED, INNOVATION THRIVES AND BUSINESSES SUCCEED.



EDUCATION /

Businesses need to hire workers that have skills that will allow them to do their jobs efficiently. In a modern economy, that means workers with specialized skills that are usually acquired through years of education and training. Businesses looking to set up shop in Arizona need to be assured that when they get here they will have a ready supply of qualified workers. The high-wage jobs that will make life better for all Arizonans are closely tied to the education and training of our workforce.

Cities and economic development groups across the state spend considerable time and energy trying to lure employers from other states and from around the world. If a major software publisher or a maker of sophisticated medical instruments considers moving to Arizona, they will need to know that they can hire sufficiently skilled workers in the area. If we can't provide the workers, they won't consider moving to Arizona, no matter how glorious our sunsets or how favorable our tax structure.

An enterprising young engineer might start a high-tech company in the proverbial garage after graduating from ASU, but when the company takes off and she needs to hire additional engineers, programmers, and skilled assemblers, she'll need to find them locally or the company will need to relocate to an area with a more skilled workforce.

If workforce training is an important business issue for firms in Arizona, it's a matter of putting food on the table for the workers of the state. A strong back and a willingness to work simply aren't enough to ensure access to the American dream of home ownership and a stable income. An eight dollar an hour job in fast food or retail may be enough to sustain a young person in a modest lifestyle for a short time, but aspirations to have a spouse, family, or home ownership will be unrealistic at that salary. Making the leap from bare subsistence to the American dream will require training and education to qualify for a job that pays a better wage.

Today's universities, community colleges, and trade schools are the factories we rely on to churn out the workers for tomorrow. But nobody knows exactly what sort of education will be needed for the jobs of the future. A mad rush to create programs tied to a specific industry may lead to disaster if that industry vanishes in the face of new technology. A better strategy is to teach skills that are applicable to a broad range of potential occupations and give students a background that will allow them to quickly adapt to whatever the state's industrial future holds. It's a safe bet that the high-paying jobs of the future will require the ability to work in a technology-driven world; a world that is constantly evolving, where skills need to be continually updated. The key to success will not be just knowledge, but the ability to learn.



INDUSTRY ALIGNMENT

Policy makers and economic development professionals lament Arizona's low levels of college education. They look longingly at states like Colorado, which is attracting good jobs with a highly-educated population. But a look at history reveals a troubling trend for our state. From 1960 through the 1980s, Arizona's percentage of college-educated workers was actually greater than the national average, but since then the state has slipped dramatically. Nationally, 28.2% of people over 25 years old now have at least a bachelor's degree. In Arizona, 26.4% have their bachelor's. Not surprisingly, the state's economic position has deteriorated along with our educational attainment, with personal income also declining relative to the nation. With educational attainment closely tied to a state's economic health, workforce education and training is something that deserves attention.



MORRISON INSTITUTE POLL

Arizonans overwhelmingly support the idea of business and education interests working together, with 91% saying that it is important for employers to partner with local schools to provide career learning opportunities.

Similarly, 77% of survey respondents felt that a quality education system is important in attracting new businesses to Arizona, while 81% felt that the availability of a skilled workforce is important to business attraction.

However, a majority (52%) also feel that our public schools do not prepare students well to pursue specific career paths. Nearly three-quarters of those who held that opinion also felt that Arizona does not spend enough money on its public school system.

Overall, 64% of respondents said that Arizona's school systems are underfunded, with 17.4% stating that about the right amount is spent on education and 7.6% feeling the system is overfunded.

WHAT HAPPENS IF WE IGNORE THIS ISSUE?

- Tax dollars are wasted on educational programs that don't lead to employment.
- Existing employers will look to move their operations to areas with a better labor market.
- New employers will choose other states to set up shop.
- Wages for all Arizonans decline as the state's economy contracts.
- The next generation won't be able to find meaningful employment in the state, and will start their careers elsewhere.



CAN WE REALLY ANTICIPATE THE SKILLS NEEDED FOR TOMORROW'S JOBS?

Twenty years ago, it would have been difficult to predict that the nascent Internet would revolutionize commerce, and ten years ago smart phones were unheard of.

Although we can't predict the exact course of our future education needs, we can make some solid general assumptions:

- The demand for legacy jobs such as telegraph operators and typewriter repair is likely to be low.
- Most well-paying jobs in the future will require a high degree of technical skill.
- More importantly, these jobs will require workers to constantly adapt to a changing technical environment.
- Training and the flexibility to adapt to changes in the workforce will be essential to stable employment.

WON'T MARKET FORCES SOLVE THIS PROBLEM FOR US?

Although the market for labor will address some of these issues, it won't address them all, and it won't address them in a timely manner.

- Education and job skills take years to acquire, but business needs workers immediately. A startup software company which stimulates the demand for programmers can't wait four years for a construction worker to get a degree in Computer Science. The workers need to be ready when the jobs are.
- Similarly, demographic trends such as the aging of the baby boomers and the emerging Latino market will play out over years.
- A reasonable response of 'the market' to an unsuitable labor force is to move to another state. The market doesn't particularly care what happens to the state of Arizona. We do.



TRAINING OUR WORKFORCE FOR THE JOBS OF TOMORROW

WHY IS THIS IMPORTANT?

This chart represents the expected job openings broken down by occupation and educational requirements for entering that field. Over 1.2 million jobs are estimated to be available over the next 10 years. Of these openings, 20% are in occupations that generally require a bachelor's degree, 22% will require an Associate's degree, other post-secondary certification, or long-term on-the-job training, and the remaining 58% are for occupations only requiring short-to-moderate term training.

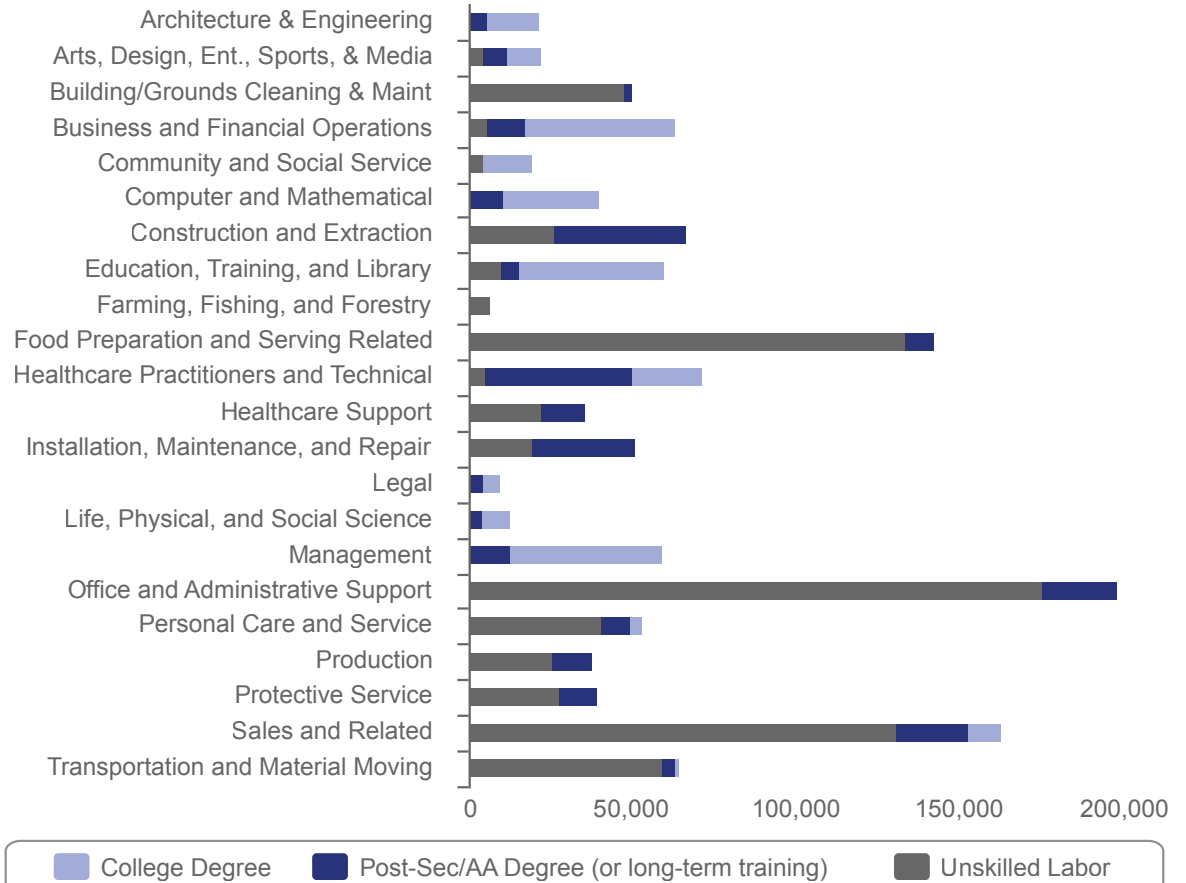
HOW ARE WE DOING?

The percentage of unskilled, skilled, and highly educated labor that will be required in Arizona mirror the national projection, as do the estimates for increased demand for trained healthcare, education, and computer professionals. Arizona's challenge is to make sure that the educational system from preschool all the way through university studies is capable of preparing people to fill these positions.

CAN WE IMPROVE?

Arizona's high schools, community colleges, and universities need to tailor their programs to ensure that they can meet the demand for degrees and other credentials needed for the coming years. As the state refines its position on encouraging new industries to improve Arizona's economic competitiveness, the educational institutions need to update their education and training opportunities to meet the new priorities and ensure a smooth transition from the classroom to the workplace.

Forecasted Job Openings in Arizona, 2013 - 2023

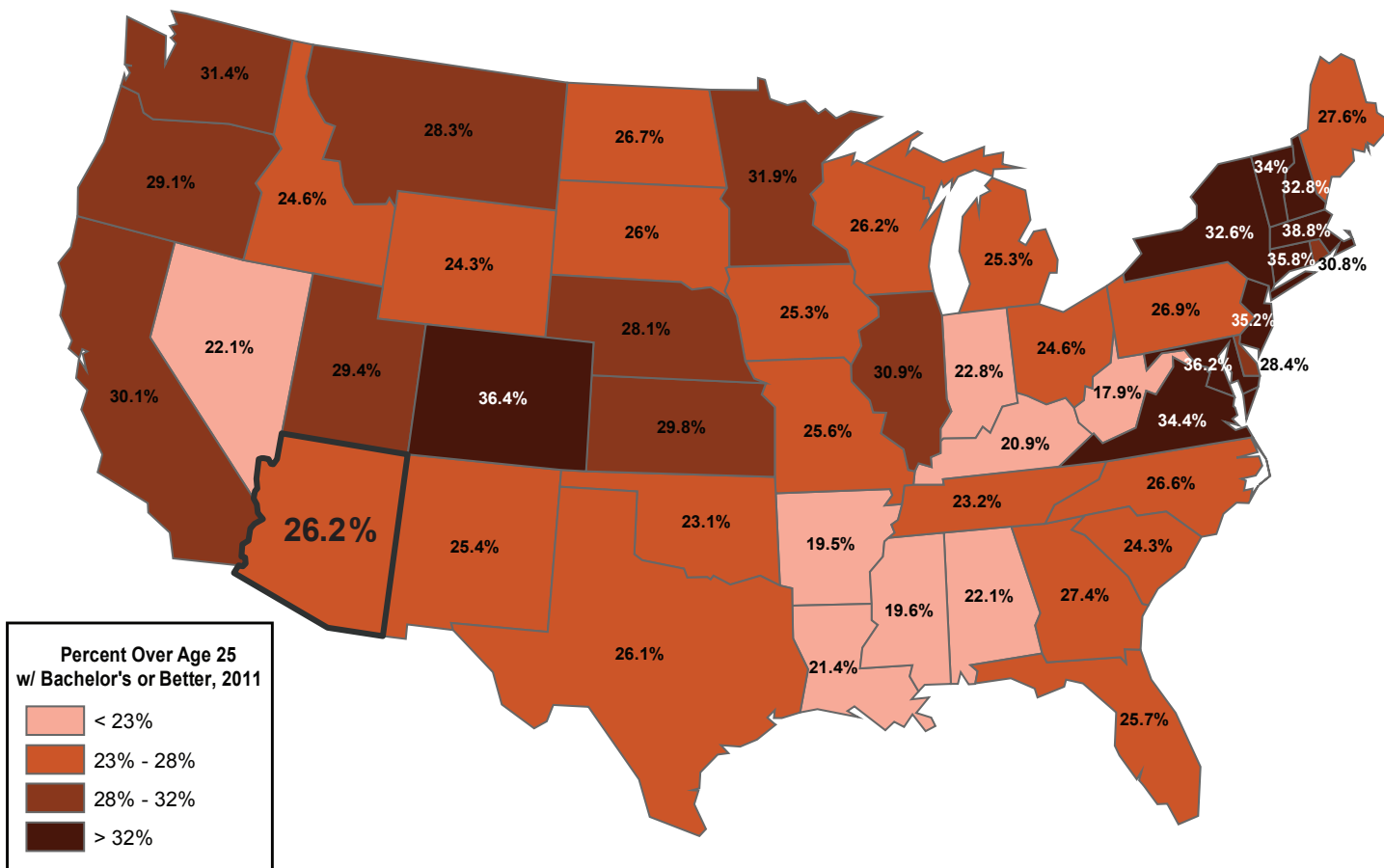


Source: EMSI



ARIZONA LAGS NATIONAL AVERAGE IN EDUCATIONAL ATTAINMENT

Nationwide, 28% of the population age 25 and over has a Bachelor's degree or better. In Arizona the figure is 26%, below the national average and far below our neighbor states of California, Utah, and Colorado. The economic well-being of all citizens is enhanced when the educated portion of a population increases. The educated segment of the workforce is more highly paid, and their wages are passed around the community, which helps everyone. Additionally, areas with a higher percentage of educated people are better able to withstand economic disruptions because their workforce is more adaptive to changing conditions. An educated workforce is critical to economic growth and relief from boom-and-bust cycles.

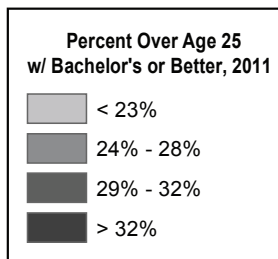
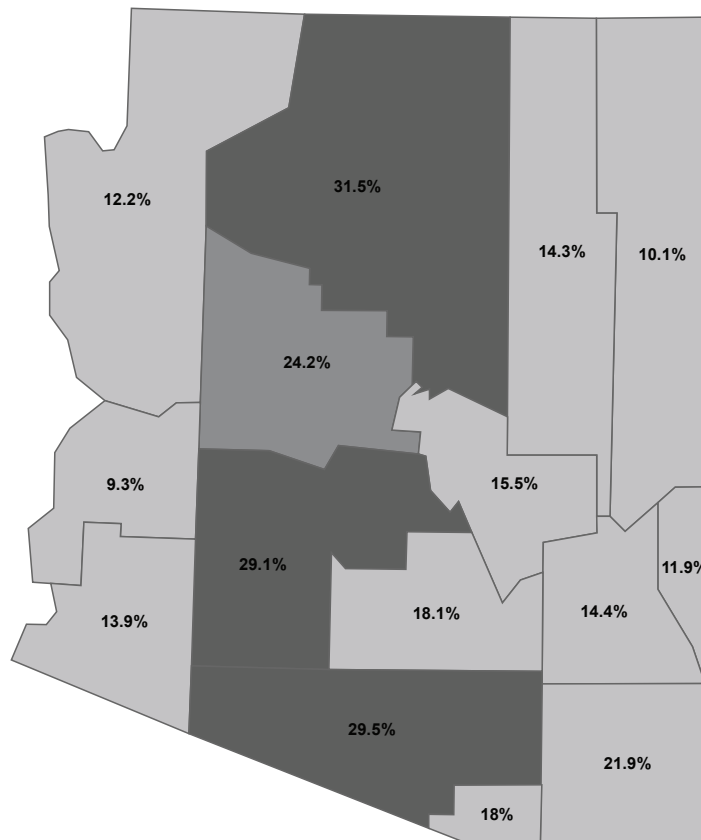


Source: Census Bureau



AT THE COUNTY LEVEL, A MIXED PICTURE EMERGES

The good news is that educational attainment in the population centers of Maricopa and Pinal Counties is slightly above the national average, and Coconino County is even higher. The bad news is that the rest of the state lags far behind. Rural areas of Arizona have educational attainment rates that are far below the national average. While a Bachelor's degree may not be a necessity for a farmer in Yuma County or a mine worker in Morenci, these areas will find it difficult to expand their business base without an educated workforce, leaving them vulnerable to economic disruptions due to fluctuating prices for produce and copper.

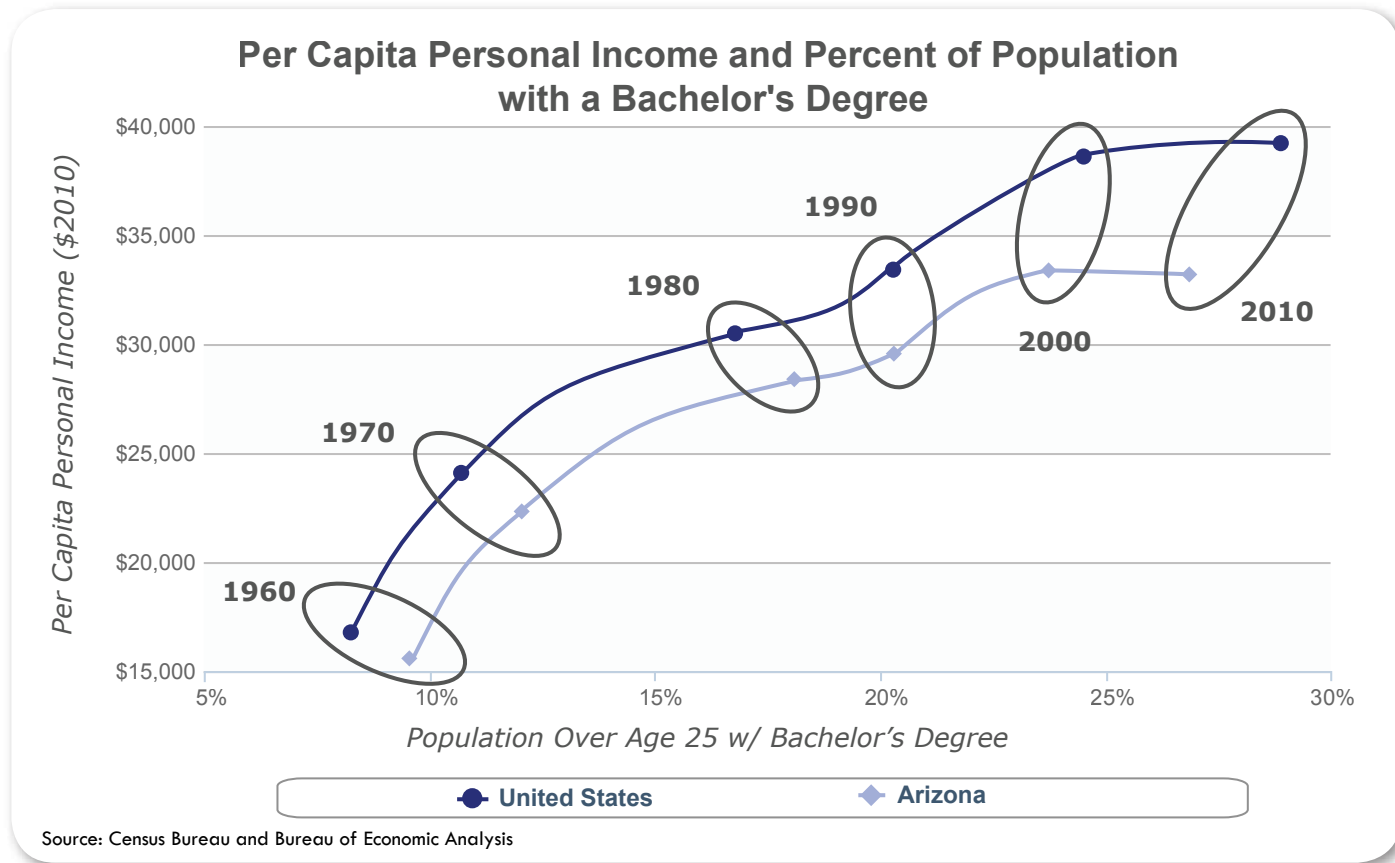


Source: Census Bureau



IN EDUCATION AND INCOME, ARIZONA IS FALLING BEHIND THE NATION

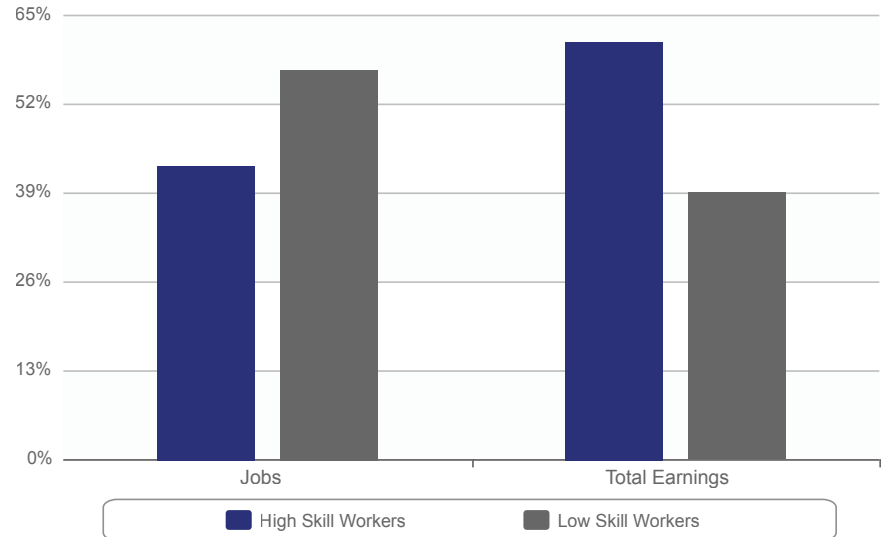
The good news is that since 1960, both real personal income and educational attainment have increased dramatically, both nationally and in Arizona. The bad news is that relative to the nation, Arizona is slipping. From 1960 to 1980, Arizona had a higher percentage of college graduates than the national average and incomes were rising compared to the nation. Since then, our educational attainment relative to the nation has dropped dramatically and there has been a corresponding slip in our personal income. Is this the trajectory of a state that is rising to the challenges of a modern, globally competitive economy?



HIGHLY SKILLED WORKERS POWER OUR ECONOMY

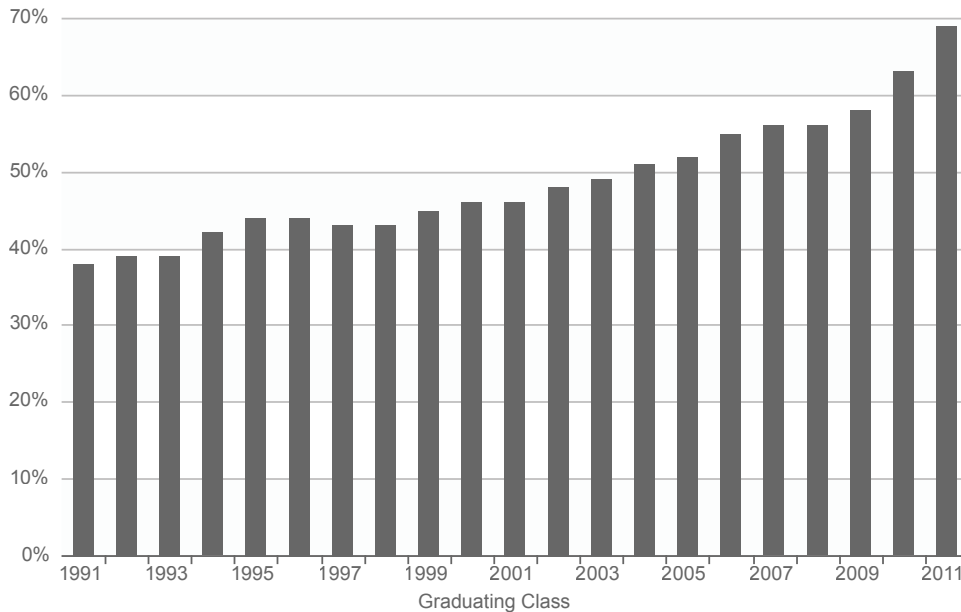
Although skilled workers comprise just 43% of Arizona's total workforce, they bring in over 60% of the total wages. Since employee wages largely drive the vitality of a region's economy, we can see that although skilled workers are less than half the workforce, they provide well over half of the economic activity in the state. Put another way, the average skilled worker earns more than double what his unskilled neighbor makes, so an engineering firm with 10 workers benefits the overall economy more than a shoe store that employs 20 unskilled people.

Jobs and Total Earnings for Arizona Workforce by Skill Level in 2011



Source: EMSI

Percent of ASU, UofA, and NAU Graduates in Arizona's 2012 Workforce



Source: Arizona Board of Regents

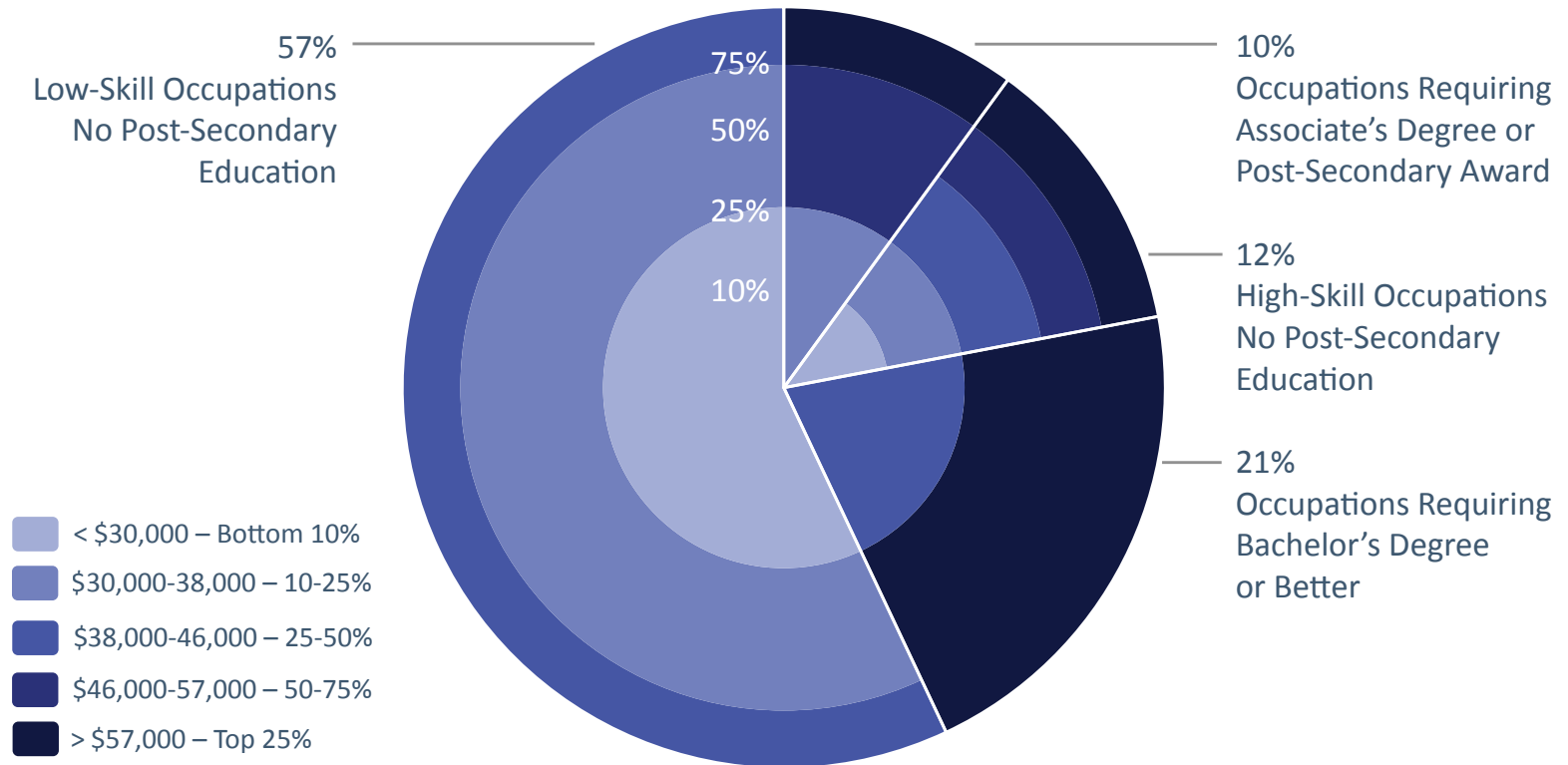
HOW DO WE RETAIN THE SKILLED GRADUATES COMING OUT OF OUR UNIVERSITIES?

One year after graduation, almost 70% of the graduates from Arizona's three universities are employed in the state and contributing to our economy. The remaining 30% are presumably working elsewhere or still looking for a job. Over time, the percent of graduates remaining in the Arizona workforce gradually declines. This is to be expected as people leave the workforce to start families or take a better job in another state. But Arizona has made an investment in each graduate from our universities, and it makes sense to optimize the return on that investment. We need to ensure that our graduates have continuing opportunities for them in addition to that first job after graduation.

WITHOUT TRAINING AND SKILLS, HIGHER INCOME IS OUT OF REACH

Median earnings (salaries, benefits, and proprietor's income) for Arizona workers were approximately \$46,000 in 2012. Fifty-seven percent of Arizona's workforce is in occupations that require little or no training to enter the field, and the vast majority of them earn less than the median. This likely puts the American dream, of decent housing and the occasional new car, out of reach. Income distribution is heavily skewed toward occupations requiring increasing levels of training and education. For those striving for a better future, making an investment in education is a good bet.

Earnings by Educational Expectations for the Arizona Workforce

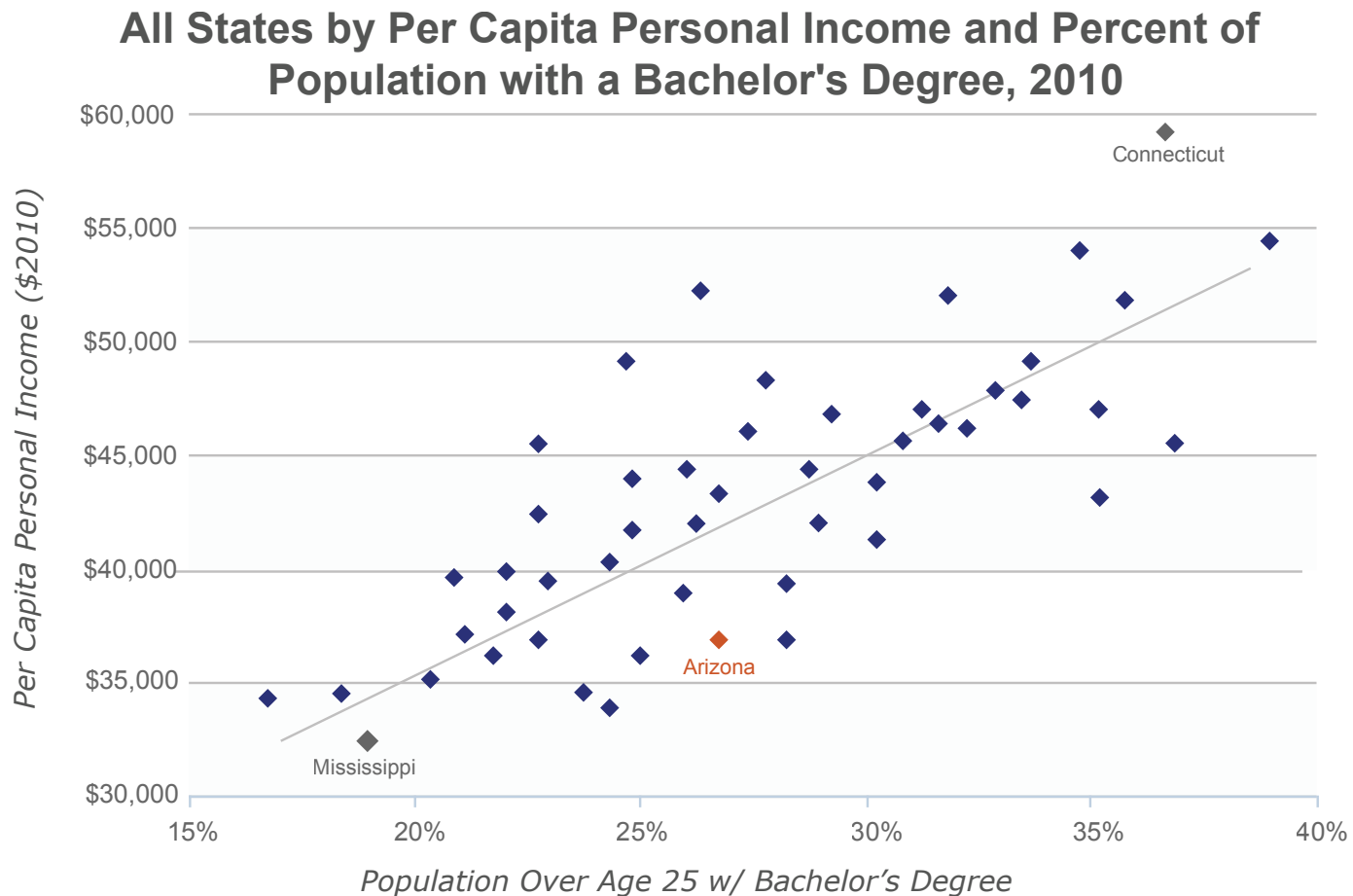


Source: EMSI, 2012



EDUCATIONAL ATTAINMENT IS CORRELATED WITH ECONOMIC WELL-BEING

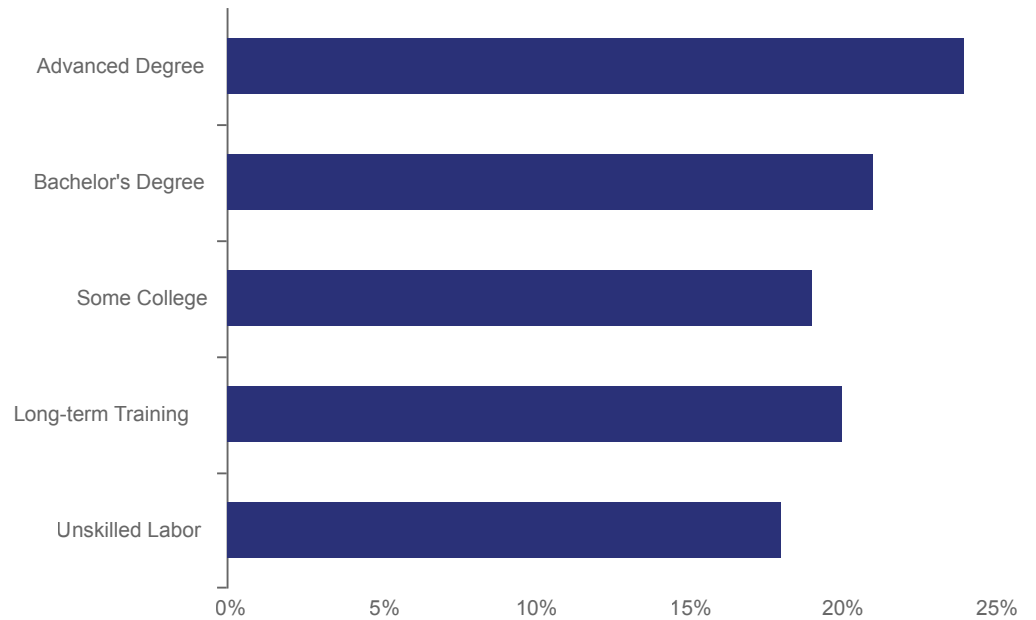
The overall economic well-being of a state's population is best measured by per capita personal income. This chart shows that states with a better educated workforce tend to have higher personal income. Importantly, this benefit doesn't just apply to those with college degrees: a skilled workforce helps the unskilled as well by increasing the demand for labor and raising overall wages. Educating the workforce has spillovers that are distributed among everyone in the state, young and old, in or out of the workforce. Educating more of our workforce enhances our overall economy, so the entire state benefits.



Source: Census Bureau and Bureau of Economic Analysis



Educational Attainment for Current Arizona Workforce Over Age 55



Source: EMSI, 2012

THE BOOMERS WILL SOON BE RETIRING

By 2023, 19% of our current workforce will be over age 65 and likely to be retired, so even if we expect no economic growth over the next 10 years, we need to find over half a million workers to fill the vacancies left by retiring baby boomers. As the chart shows, those vacancies are skewed toward the upper end of the education-and-training spectrum. Twenty-four percent of workers in occupations requiring advanced degrees, including doctors, attorneys, and professionals with master's degrees, will have left the workforce by then. Will we be ready with skilled replacements to fill their shoes?

ARIZONA DIRECTIONS

We hope that the metrics presented in this report help incite Arizona's competitive spirit and lead our state to an improved position in the New Economy. But competition is about far more than outperforming our peer states and nations. At its best, competition can drive Arizona to think beyond our current benchmarks and create a whole new scale for measuring positive change. From early education through high school and post-secondary learning, Arizona has the opportunity to maximize the advantage of its youthful demographics and generate the deep reserves of human capital that will undoubtedly serve as our state's most valuable resource.

The good news is that this is not an insurmountable challenge. Arizona can increase the accessibility and quality of early childhood education and is already making strides in that direction through First Things First and other efforts. Similarly, Arizona is working to provide high school students with a more rigorous core curriculum, the ability to "move on when ready," diverse career and technical education options, and encouragement to transition into post-secondary pathways that best align with their career objectives – and with the state's workforce needs. Positive momentum already exists. But grounding these efforts in Arizona's broader economic development efforts encourages vitally needed coordination across both the full P-20 spectrum and statewide planning. Please join us and our fellow Arizonans in making data-driven initiatives central to trans-sector discussion, planning and action.

POLL METHODOLOGY

The Morrison Institute Poll, conducted between September 5 and 11, 2013, is based on 605 interviews with registered voters statewide. Interviewing was conducted in both English and Spanish by professional interviewers of the Behavior Research Center on either a voter's landline or cell phone. Where necessary, figures for age, sex, race and political party were weighted to bring them into line with their actual proportion in the population. In a sample of this size, one can say with a 95% certainty that the results have a statistical precision of plus or minus 3.98 percentage points of what they would have been had the entire voter population been surveyed.

OUR ADVISORY COMMITTEE

Morrison Institute gratefully acknowledges the expertise and leadership of our *Arizona Directions* advisory committee members:

Larry Aldrich

Arizona Business Coalition on Health

Janet Holston

Arizona State University Foundation

Michael McGinnis

Salt River Project

Andrea Whitsett

Arizona Indicators Project Manager

Roc Arnett

East Valley Partnership

Paul Luna

Helios Education Foundation

Gonzalo de la Melena

Arizona Hispanic Chamber of
Commerce

Steve Zabalski

St. Vincent de Paul

Thomas Franz

Greater Phoenix Leadership

Clint Mabie

Community Foundation for
Southern Arizona

Michael Ryan

Ryan Media Consultants

Tracy Bame

Freeport-McMoRan Copper
& Gold Foundation

Sharon Harper

The Plaza Companies



ASU Morrison Institute
for Public Policy

ARIZONA STATE UNIVERSITY

Morrison Institute for Public Policy | 411 North Central Avenue, Suite 900 Phoenix, AZ 85004 | Phone: 602-496-0900

MorrisonInstitute.asu.edu