

Doubling Arizona's Economic Growth

The Potential Fiscal and Social Gains From Increasing Postsecondary Attainment



About This Report

The second in a series of non-partisan and evidence-based policy briefs and reports from College Success Arizona, this report provides state education leaders, legislators and government leaders—as well as business leaders and citizens—with essential information they need to advance the conversation around setting a strong statewide postsecondary education attainment goal for Arizona. Drawing on commissioned research from leading scholars in the fields of education policy and education economics, the report highlights the tremendous economic gains that Arizona stands to benefit from if it raises its postsecondary attainment rate, and provides potential pathways toward achieving the goal of higher attainment and greater prosperity in our state.

About The Findings

The findings and statistics in this report are based on a research study commissioned by College Success Arizona and conducted by Clive R. Belfield (City University of New York, Columbia University) and Russell W. Rumberger (University of California, Santa Barbara), leading scholars in the areas of education economics, education and the workforce, and education policy, among others. Their study is available in its entirety from College Success Arizona.

Arizona's economy is a model of innovation and potential. Across the state, entrepreneurs, technology start-ups and advanced industries are laying the groundwork for exceptional growth. However, Arizona's relatively low education levels indicate that our workforce will not be prepared to meet the needs of employers in an economy that increasingly relies on skilled workers. We have too many high school dropouts and too many adults without a postsecondary credential, meaning that businesses in Arizona often struggle to find the skilled workers they need.

Raising Arizona's education attainment across all levels will be key to our continued economic competitiveness. Research shows that education is one of the most important drivers of economic development and growth. In Arizona, the social and fiscal gains associated with simply increasing postsecondary attainment to meet national norms has the potential to, at a minimum, double our annual economic growth rate. These gains equate to \$660,000 per college graduate, an excellent return on investment, as most reforms designed to increase attainment will likely cost significantly less.

But just as increased attainment can lead to significant economic gains, a failure to raise education levels may result in economic stagnation and decline. In areas where educational attainment lags, economic growth is slower as a result of lower consumer spending and higher government expenditures on factors such as crime and health care. This creates an economic environment that is inhospitable to businesses and new investment. With low education levels, and without robust business investment creating high skill jobs, Arizona will be less attractive to highly educated and skilled workers, including those who earned their credentials at Arizona's postsecondary institutions. The resulting exodus of our state's top talent to other states will, in turn, make our economy less competitive.

Colorado is an excellent example of how high attainment can help to accelerate economic growth. Despite having a high school graduation rate similar to Arizona's, Colorado has a much higher postsecondary attainment rate because the state has an attractive business environment that draws educated, skilled workers from across the country and, importantly, from Arizona. If Arizona wants to compete with Colorado and the other states in our region, we need to take action to improve education outcomes in our state to ensure that we can both produce more workers who hold postsecondary credentials and attract educated workers.

As the data in this report clearly show, it is imperative for Arizona to invest in increasing its educational attainment rates. This starts with setting a strong attainment goal that enables us to measure our progress toward becoming a more highly educated and a more economically competitive state. Importantly, there is strong momentum in Arizona behind this idea. The Arizona Board of Regents recently revised its strategic goals to make increasing university-level attainment and statewide student success a "Top Four" priority. The revised goals include benchmarks for increased enrollment and degree completion rates, and, in response to Arizona workforce needs, greater degree production in high-demand fields.

Additionally, improving educational attainment among Latinos must figure centrally in any efforts to increase overall attainment in our state. Latinos will soon constitute the majority of the working-age adults in Arizona, but also drop out of high school at higher rates and complete postsecondary degree programs at lower rates than white students. Unless we enable more Latinos to graduate high school, enroll in postsecondary certificate or degree programs and complete those programs, Arizona will struggle to raise its overall attainment rate to a competitive level.

We are at a crucial juncture in the history of our state, and it is essential that we act decisively to increase postsecondary attainment. There is a huge cost associated with failing to act. Arizona will continue to incur the losses associated with low postsecondary attainment while missing out on the chance to seize tremendous gains that are well within our reach. But, by committing to policies that increase the number of Arizonan's who hold a postsecondary certificate or degree, we can ensure a stronger economy now, and for future generations.



Vince Roig
Chairman, Board of Directors
College Success Arizona



Rich Nickel
President and CEO
College Success Arizona

The Economic Benefits of Increasing Postsecondary Attainment in Arizona

Arizona stands at the threshold of tremendous opportunity that has the potential to provide the state with economic gains of more than \$7 billion every year. These gains—which correspond to one-fifth of the entire state budget—would more than double Arizona’s annual economic growth rate, and are achievable through modest increases in postsecondary attainment. Simply meeting the national average for postsecondary attainment—which many experts consider to be too low—or expanding our postsecondary education to respond to future labor market needs, would, by themselves, be enough to secure this exceptional economic growth for Arizona.

Closing postsecondary enrollment and attainment gaps between racial groups in Arizona represents another promising path to significant economic gain for the state. For example, if Arizona were to equalize college-going rates by race, most notably by increasing the number of Latinos enrolled in postsecondary institutions, the state would gain \$2.3 billion in social benefits over the lifetime of each graduating class. This total represents the full spectrum of social gains—including additional earnings, taxes paid, and decreased crime and health burdens. Arizona’s potential fiscal gains alone would amount to \$346 million at the state and local levels and \$707 million at the federal level.

Increasing Latino postsecondary attainment will be especially important to Arizona’s economic future. By 2020, Arizona’s Latino population will be three million. By 2030, it will be 4.3 million. Comparatively, the white population, projected to be 5.1 million by 2030, will exceed the Latino population only narrowly. Importantly, Latino youth already significantly exceed their white peers as a percentage of the total population.

KEY TERMS

Throughout this report, the economic gains associated with increased postsecondary attainment are expressed in terms of two perspectives: social gains and fiscal gains.

Social gains refer to the lifetime effects of factors impacted by postsecondary attainment, such as increased earnings; better health; reduced crime and welfare dependence; and improved economic competitiveness.

Fiscal gains reflect the lifetime effects of increased tax revenues and decreased government spending.



“Arizonans view educational quality at all levels as one of the most powerful forces for improving the economic prospects of individuals and communities across the state. It is clearer now more than ever that Arizona’s economic prosperity is inextricably tied to increasing the number of Arizonans—especially the number of Latino Arizonans—who hold a postsecondary degree or certificate.” **Lattie Coor—CEO, The Center for the Future of Arizona**



The widespread economic impact of increased postsecondary attainment is encapsulated in its effect on crime rates and related government spending. Increased attainment can substantially reduce rates of criminality and spending on corrections. If more students graduate from high school, and more graduate from college, then a state will see reduced crime and reduced rates of incarceration.

This is particularly salient in Arizona, which, according to the National Association of State Budget Officers, spends approximately \$1 billion annually on corrections. This expenditure represents a significantly higher proportion of total government spending than any other state government devotes to corrections.

By enacting policies geared toward increasing attainment, not only can we help to reverse this spending trend, we can also invest in strengthening the economy for all Arizonans.

Each new cohort of Arizona high school graduates will be predominantly Latino, and these graduates will have a powerful impact on Arizona's workforce.

Importantly, Latinos stand to make exceptional gains by acquiring a Bachelor's degree. Across all demographic groups, Bachelor's degree holders can expect to earn three times more income over a lifetime than individuals whose highest education credential is a high school diploma. But, for Latinos, the economic returns of a degree are even greater, to the extent that a Latino Bachelor's degree holder will earn 3.5 times more over his or her lifetime than an individual who holds only a high school diploma. This higher rate of return is especially important given Arizona's demographic realities.

Economic Multiplier Gains and a More Attractive Business Environment

Arizona stands to benefit substantially from multiplier gains associated with increased postsecondary attainment. Multiplier gains refer to the broader benefits to the state that extend beyond individual earnings gains incurred as the result of increased attainment rates. These benefits include increased average earnings for workers, a broader workforce for employers and increased capital investment in the state, all of which would make Arizona a more attractive place for businesses to locate and invest.

A conservative estimate suggests that these multiplier gains would add more than six percent to the earnings gains for each individual. As such, for a college graduate who earns \$100,000 more than a college dropout, the multiplier gains would be an additional \$6,000.

Additionally, multiplier gains point to a powerful effect of increased postsecondary attainment: the creation of an economic and social environment that is attractive to businesses.

Arizona businesses already understand the importance of postsecondary education and are committed to improving education in our state. This is exemplified by the Arizona Chamber of Commerce's stated goal of helping "provide Arizona students with a world-class education system" in order to ensure that we have a high-skill workforce that meets the needs of businesses across the state.

MULTIPLIER GAINS OF A HIGH-SKILL WORKFORCE

Higher proportions of college-educated workers in the local area equates to:



EARNINGS GAINS

- ▶ Workers learn from skilled co-workers



EMPLOYMENT GAINS

- ▶ Bigger/wider pool of workforce with range of skills
- ▶ Better match of workers to jobs
- ▶ Increased demand for complex good & services



ECONOMIC GROWTH

- ▶ Increased capital investment to match workers skills
- ▶ More entrepreneurship & business formation
- ▶ Bigger & wider tax base
- ▶ Improved community services

Sources: Moretti, 2004; McMahon, 2006; Goldin and Katz, 2008; Abel et al., 2012; Sand, 2013; Winters, 2013; Monaco and Yamorik, 2013; Hoffman and Rex, 2015b.

Looking to the Examples of Arizona's Peer States

Many states across the country are pushing to increase postsecondary attainment among their working-age adults. In particular, five of Arizona's peer states—Colorado, Indiana, Kentucky, Tennessee and Texas, all of which have set strong statewide postsecondary education goals—have recognized the potential for increased attainment to be a powerful economic driver. In autumn of 2015, College Success Arizona published *Advancing the Economy Through Attainment: What Arizona Can Learn from States with Higher Education Attainment Goals*, which detailed research findings that demonstrate how setting a strong attainment goal has been a catalyst for increased attainment and improved indicators of these five states' capacity to increase their attainment rate even further in the coming years.

Were Arizona to achieve the current educational attainment rates in these peer states, the fiscal and social gains would be significant. For example, if Arizona were to match Kentucky's attainment rate, the social gains would be \$2.7 billion and the fiscal gains would amount to \$924 million per age cohort. If Arizona were to match Colorado's attainment rate, the social gains would reach \$12.1 billion and the fiscal gains would be \$4.5 billion per graduating cohort.

Arizona has great cause for optimism with regard to its economic future and the fiscal and social gains available to us if we decide to prioritize policies and programs that lead to increased postsecondary attainment. **Not only do the above estimates predict exceptional growth resulting from relatively moderate increases to Arizona's educational attainment, they are conservative estimates that likely understate the potential gains.** Our economic growth potential in this respect represents an outstanding opportunity that we cannot afford to let pass.

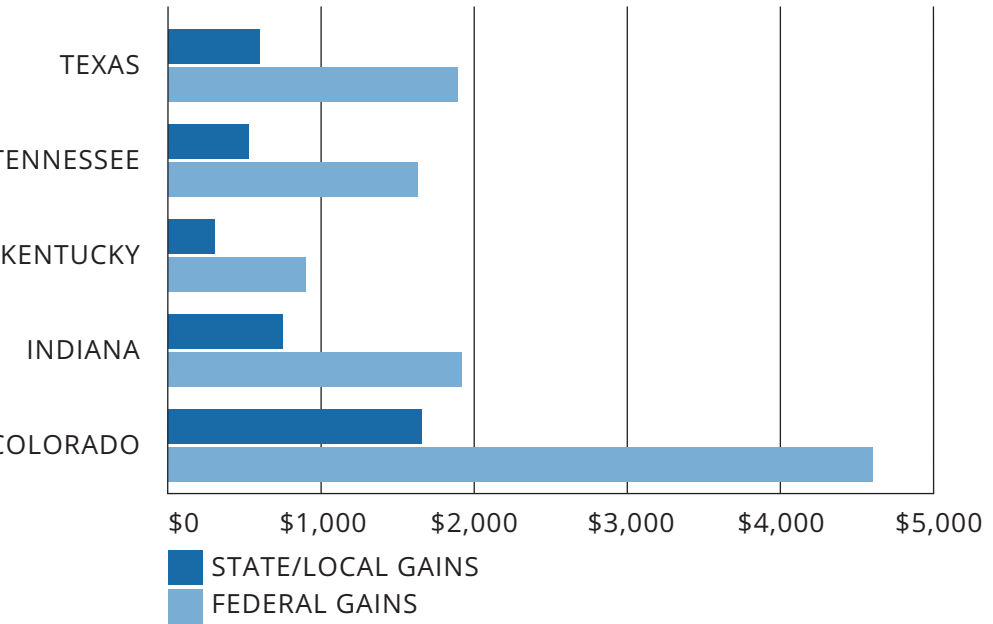


"Investment in education holds the potential to improve the lives of all Arizonans and dramatically strengthen the state's economy. Given Arizona's demographic shift, investments in policies and programs that empower more Latino youth to pursue and complete a college degree will have a tremendous impact on our economic well-being and contribute to a stronger, more educated workforce." **Paul J. Luna—President and CEO, Helios Education Foundation**

Overall, the gains linked to increased attainment translate to a social value of \$660,000 per college graduate in Arizona. This \$660,000 figure represents the total amount of money that the government could, theoretically, invest in each high school student in the state—to encourage him or her to complete college—and still at least break even. The vast majority of reforms would likely cost significantly less than this per-graduate value.

Encouragingly, across the state we are seeing an increased focus on programs and policies that have the potential to increase attainment rates. There is momentum behind efforts on the part of business and education leaders, policymakers, and statewide organizations to proactively address the issue of postsecondary attainment in our state. It is clear that increasing the number of Arizonans who hold a postsecondary degree or certificate is a major priority in our state. Arizona’s economic well-being and competitiveness depends on it.

FIGURE 1 **TAXPAYER GAINS TO ARIZONA FROM MATCHING COLLEGE ATTAINMENT IN PEER STATES** (PER COHORT \$ MILLIONS)



Arizona’s Economic Growth Potential

Arizona’s Gross State Product is \$290 billion and grows at a rate of 1-2 percent each year. By taking advantage of strategic opportunities to increase educational attainment in our state, we can, at a minimum, double our economic growth rate.

Equalize college-going rates

Equalizing college-going rates by race would lead to a four percent increase in economic activity annually, doubling our current economic growth rate



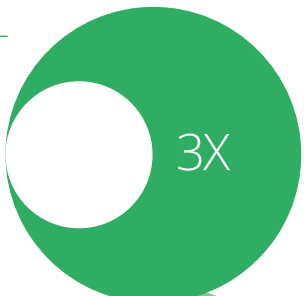
Meet national average for attainment

Meeting national average for attainment would lead to a 10 percent increase in economic activity annually, more than doubling our current economic growth rate



Meet future labor market needs

Meeting future labor market needs would lead to a 12 percent increase in economic activity annually, tripling our current economic growth rate



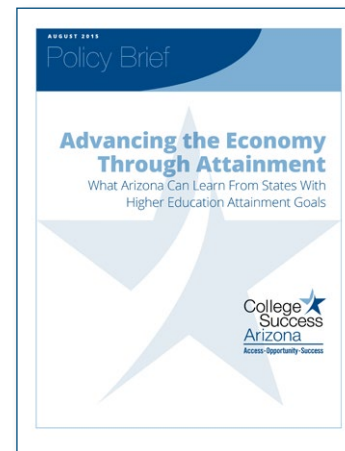
Meet peer state attainment rates

Meeting peer state attainment rates would lead to between four and 20 percent increases in economic activity annually, at a minimum doubling our current economic growth rate



Bachelor's degree holders can expect to earn three times more income over a lifetime than individuals whose highest education credential is a high school diploma. But, for Latinos, the economic returns of a degree are even greater, to the extent that a Latino Bachelor's degree holder will earn 3.5 times more over his or her lifetime than an individual who holds only a high school diploma.

In August, 2015, College Success Arizona released *Advancing the Economy Through Attainment: What Arizona Can Learn From States With Higher Education Attainment Goals*, the first brief in a series of non-partisan, evidence-based policy briefs and reports to help state leaders and policymakers better understand the value of increasing the postsecondary attainment rate in Arizona. The research and data presented in the report demonstrate the benefits of setting a statewide attainment goal, as well as the broader advantages of increasing attainment rates statewide.



"Arizona's public university system is crucial to the state's economic success and increasingly, to individual success. ABOR is committed to increasing attainment statewide, especially for underrepresented students, in recognition of the value that higher education brings to individuals, society and our economic future. A great next step is for Arizona to set a statewide attainment goal to spark postsecondary education ambitions for everyone who lives here." **Eileen Klein—President, Arizona Board of Regents**

Opportunities for Arizona to Improve Its Economy Through Attainment

Despite the economic opportunity for Arizona, the state nonetheless faces difficult realities—with respect to its current attainment rate and the broader status of education—that threaten to impair our future economic growth. According to U.S. Census data, Arizona’s postsecondary attainment rate was only 36 percent in 2013.

Moreover, the current postsecondary attainment rate in Arizona is well below projected workforce needs. The Georgetown University Center on Education and the Workforce estimates that, by 2020, 68 percent of all jobs in Arizona will require some form of postsecondary education, such as a high value certificate, an Associate’s or Bachelor’s degree, or a graduate or professional degree. Job growth will be strongest for occupations in fields that require a degree—such as education (+19 percent) and healthcare (+33 percent) occupations—and 30 percent of Arizona jobs will require at least a Bachelor’s degree.

Notably, the cited attainment rate for Arizona excludes postsecondary certificates. Certificates—such as those that credential Emergency Medical Technicians or computer and information services workers—represent an important dimension of any state’s overall attainment rate, but they are not counted in the Census dataset. This means that Arizona’s attainment rate is likely higher than what the Census reports. However, even a higher attainment rate inclusive of certificates would still fall short of the national average, which would also be higher if postsecondary certificates were counted there.

Annually, Arizona spends:

\$10 billion
on health care

\$ 1 billion
on corrections

\$290 million
on welfare

Increased postsecondary attainment can significantly reduce these drains on the state budget.



“A long-term commitment to support, improve and foster a more significant focus on education in Arizona is key to our state’s ongoing prosperity. I urge Arizona businesses to help fund college and university scholarships, which have seen financial support plummet in recent years. Helping to raise Arizona’s college graduation rate is a small investment in our state’s continued economic success.”

Jim Lundy—CEO, Alliance Bank of Arizona

Of the adults in Arizona that have completed a postsecondary degree program, 32 percent hold at least a Bachelor's degree, compared to the national rate of 36 percent. Worryingly, this gap is increasing.

Arizona's Education Outcomes Are Hampering Postsecondary Attainment and Restraining the Economy

Numerous factors contribute to a state's postsecondary attainment rate. These include population related factors, such as the net effect of population shifts and changing demographic patterns. Other factors are inherent to the state's education systems, such as certificate and degree awards by postsecondary institutions, the capacity of the K-12 pipeline to ensure that high school graduates are college-ready, and a widespread college-going culture.

At the postsecondary level, low college enrollment and low college completion in Arizona are especially problematic. Despite the fact that 60 percent of the entire adult population in Arizona has, at some point, enrolled in a postsecondary institution, nearly half of these adults have not completed their degree programs. Of the adults in Arizona who have completed a degree program, 32 percent hold at least a Bachelor's degree, compared to the national rate of 36 percent.

Worryingly, this gap is increasing. Whereas the average increase for Bachelor's degree attainment nationally was 3.2 percent over the past decade, the Bachelor's degree attainment rate in Arizona increased by only 2.8 percent over the same time period. This 0.4 percentage point difference means that Arizona trails the national average, in terms of bachelor's degree attainment, by 12.5 percent each year that these rates remain constant.

Additionally, a number of factors in Arizona's secondary education system negatively impact the state's postsecondary attainment rate. As discussed in College Success Arizona's report *Advancing the Economy Through Attainment*, key indicators illuminate aspects of Arizona's secondary education system that affect its postsecondary attainment rate. According to many of these indicators, Arizona performs below the national average. For example, the state's high school graduation rate for the 2012-2013 was six percentage points lower than the national average (75 percent vs. 81 percent). Across the entire population of Arizona residents aged 25 and over, 14 percent are designated as high school dropouts.

Arizona's AP and SAT/ACT participation rates—which reflect the percentages of high school students in the state who participate in education opportunities that indicate an increased likelihood of future enrollment at postsecondary institution—are both significantly lower than the national average. During the 2011-12 school year, 17 percent of Arizona high school students enrolled in at least one AP course, compared to the 19 percent national average. In the same school year, only 30 percent of Arizona's 11th- and 12th-grade students took the SAT or ACT, an important step on the path towards postsecondary enrollment. By contrast, the national average for SAT/ACT participation rate was 43 percent in 2011-12.

Overall, the gains linked to increased postsecondary attainment translate to a social value of \$660,000 per college graduate in Arizona. This \$660,000 figure represents the total amount of money that the government could, theoretically, invest in each high school student in the state—to encourage him or her to complete college—and still at least break even. The vast majority of reforms would likely cost significantly less than this per-graduate value.

The Strategic Opportunities From Which Arizona Can Benefit

Although these challenges facing Arizona's education systems may seem daunting, even modest improvements to the state's educational attainment rate would, encouragingly, lead to comparatively large economic gains for the state every year. In this respect, there is a broad range of strategic opportunities that Arizona policymakers could pursue. In particular, this report details four such opportunities that represent feasible benchmarks for increasing our state's economic growth by raising postsecondary attainment rates. These opportunities demonstrate a range of potential economic outcomes that would result from different enrollment and attainment benchmarks; but, notably, each requires that Arizona ensure that more students graduate from high school and enroll at a postsecondary institution.

By reaching just one of these benchmark opportunities, Arizona is more than capable of transforming strategic opportunity into significant economic gains for our state. Moreover, the investments—in terms of taxpayer expenditures related to increased postsecondary enrollment and degree completion—likely to be required of Arizona to realize these opportunities would be dwarfed by the resulting social and fiscal gains from which we would benefit every year.

OPPORTUNITY ONE

Equalizing college-going rates by race

Minority students enroll in and complete postsecondary education programs at much lower rates than do white students in Arizona. This gap is particularly significant for Latino students. Importantly, the state would benefit tremendously if more Latinos enrolled at postsecondary institutions, even if their attainment rate remained constant, as it would mean that more Latinos overall hold a degree.

OPPORTUNITY TWO

Increasing Arizona's postsecondary attainment rate to meet future labor market needs for educated workers

To reach this benchmark for the number of workers in the state with a postsecondary education, Arizona would need to significantly reduce the number of high school dropouts, to produce more high school graduates who are eligible to enroll in a postsecondary institution, as well as increase postsecondary enrollment and completion rates.

OPPORTUNITY THREE

Increasing Arizona's postsecondary attainment rate to meet the national average

Similarly, raising the attainment rate to meet the national average would require Arizona to reduce its high school dropout rate by eight percentage points and increase completion rates for Associate's and Bachelor's degrees.

OPPORTUNITY FOUR

Achieving the same educational attainment rates as peer states

For Arizona to match the attainment rates of peer states, it is critical that the state increase the high school graduation rate to ensure that more students are able to enroll at postsecondary institutions. Whereas Indiana, Kentucky, Tennessee and Texas all have high school graduation rates greater than 85 percent, Arizona's high school graduation rate is 75 percent.

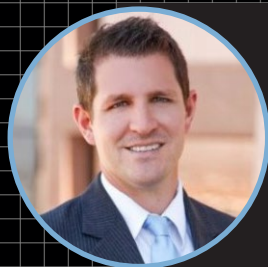
Notably, the model used by Belfield and Rumberger is predicated on changes to the distribution of educational attainment within a single cohort of 87,505 students. Consequently, the baseline postsecondary attainment rate for the model is 28 percent, not the 36 percent attainment rate in Arizona in 2013. The chart on the right simulates the necessary changes to the distribution of educational attainment, within the model cohort, to achieve the attainment benchmarks for each of the four opportunities modeled. For an overview of the study methodology, see page 23.

By equalizing college-going rates by race, Arizona could benefit from a four percent increase in economic activity, with a total gain of more than \$2.3 billion per graduating cohort. In total, the social gains for this opportunity represent seven percent of annual government spending. **This is equivalent to annual state spending on health care cost containment alone.** The fiscal gains, which accrue to Arizona taxpayers, would be substantial, at \$346 million for state and local gains and \$707 at the federal level.

Achieving postsecondary attainment rates that meet Arizona’s future labor market needs (68 percent of jobs will require some form of postsecondary education)—the strategic opportunity that would require the most ambitious policies and education reforms—would position the state to benefit from social gains exceeding \$7.5 billion. These potential social gains are equivalent to 12 percent economic growth. The fiscal gains would amount to nearly \$2.9 billion combined state/local and federal gains.

FIGURE 2 **EDUCATIONAL ATTAINMENT TO MEET GOALS FOR ARIZONA**

	HS Dropout	HS Graduate	Some College	AA Degree	BA Plus
Current Arizona Baseline	23%	27%	23%	9%	19%
OPPORTUNITY 1 Equal college-going rates by race	23%	16%	29%	10%	22%
OPPORTUNITY 2 Meet future labor market needs	10%	32%	24%	8%	26%
OPPORTUNITY 3 Attainment equal to national average	15%	31%	17%	10%	28%
OPPORTUNITY 4 Achieving the same educational attainment rates as peer states					
Colorado	10%	23%	26%	9%	32%
Indiana	13%	35%	21%	8%	23%
Kentucky	17%	34%	21%	7%	22%
Tennessee	16%	33%	21%	6%	24%
Texas	19%	25%	23%	6%	27%



“Increased educational attainment will undoubtedly lead to an increase in economic growth and enhance our ability to attract the types of companies who will further our economic sustainability. Further education reforms will allow us to take advantage of economic opportunities before us, ensuring the prosperity of all Arizonans.”

Chris Camacho—President and CEO, Greater Phoenix Economic Council

The Importance of Increasing Latino Attainment

Within the context of the strategic opportunities for Arizona, policymakers will need to pay careful attention to the needs of the state's Latinos. As discussed, if Arizona were to equalize college-going rates by race, the state would see economic growth of four percent, compared to the 1-2 percent annual growth rate for the Arizona Gross State Product. In this context, underrepresentation in the college-going population and the low postsecondary attainment rate for Latinos in Arizona are areas of particular concern for Arizona. Currently, fewer than 40 percent of Latino adults in Arizona have attended a postsecondary institution. Furthermore, only 16 percent of Latino men, and 17 percent of Latino women, hold either an Associate's or Bachelor's degree. Only one in every 10 Latino adults in Arizona holds a Bachelor's degree, in contrast to the statewide ratio of one in every four adults that holds a Bachelor's degree.

These low postsecondary enrollment and attainment rates for Latinos are exacerbated by a number of factors. In particular, the high school dropout rate for Latinos is quite high; Latino men and women alike drop out of high school at rates that are more than double the statewide average. High school completion, or the lack thereof, has significant consequences for postsecondary enrollment. Without graduating from high school, students are unable to attend a postsecondary degree or certificate program.

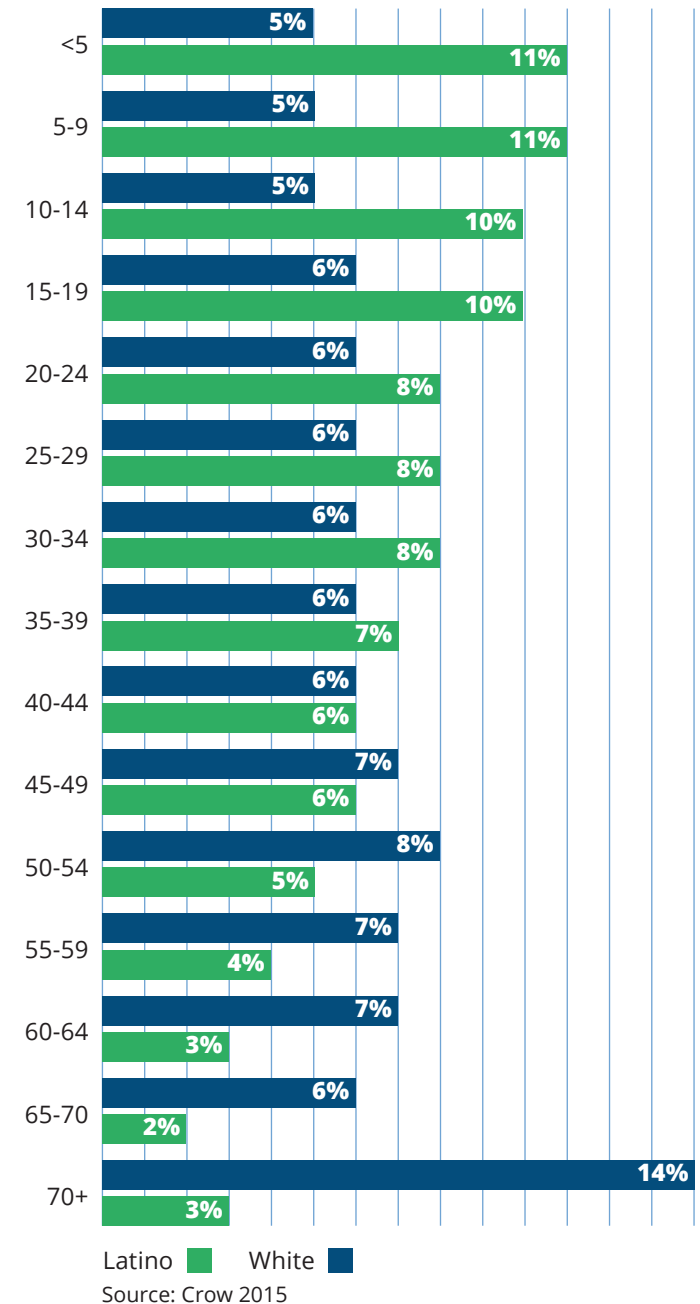
In addition to graduating at a lower rate than other students in Arizona, the Latino students in Arizona who do graduate high school and enroll at a postsecondary institution disproportionately enroll at two-year colleges rather than four-year colleges that award Bachelor's degrees. The postsecondary enrollment data for the 2013-14 Arizona high school cohort exemplify these enrollment disparities. Of the 24,200 Latino students in the cohort, only 10,570 (43 percent) enrolled in a two- or four-year college. Moreover, of those 10,570 students, 60 percent enrolled at a two-year institution. By comparison, only 40 percent of the white students—from the most recent cohort and who are attending college—are enrolled at two-year institutions.

Currently, Latinos constitute the majority of Arizona's high school students, such that there are approximately twice as many Latino high school students in the state as there are white high school students. Each new cohort of high school graduates will be predominantly Latino, and these graduates will have a powerful impact on Arizona's workforce; labor projections indicate that Latinos will also soon make up the majority of Arizona's working-age population.

As early as 2010, 66 percent of Latinos in Arizona were under the age of 35. By comparison, only 39 percent of white Arizonans were younger than 35, and 14 percent were at least 70 years old.

The opportunity for Arizona to substantially increase Latino postsecondary enrollment and attainment represents a valuable pathway for our state to increase the prosperity of this important population group while at the same time securing substantial economic growth that will benefit all Arizonans.

FIGURE 3 **AGE DISTRIBUTION OF AZ RESIDENTS BY ETHNICITY, (BY PERCENT, 2010)**



Transforming Economic Opportunity Into Real Economic Gain

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he unmistakable economic opportunity that increasing attainment holds for Arizona, in combination with the momentum behind the movement to increase attainment in the state, suggests the potential of a bright economic future for Arizona. By addressing key factors in our state's K-12 and higher education systems that negatively impact postsecondary enrollment and completion, Arizona can reap economic benefits that will propel competitiveness and prosperity in our state for years to come.

These benefits are within reach, and there is growing evidence that education reforms can significantly contribute to greater postsecondary success for all students. Moreover, the economic benefits that come from increasing attainment statewide would far outweigh the costs of implementing these reforms.

A key first step that Arizona can take in this regard is to set a strong state-supported postsecondary attainment goal. Setting a strong attainment goal will be a guiding impetus for Arizona and will help us to reap the economic benefits that come from increased postsecondary attainment rates. A statewide attainment goal also signals to key stakeholders that the state takes seriously the crucial importance of attainment, as well as the very real economic value of reforming educational inequities and creating policies and programs that increase postsecondary attainment in Arizona.

A key first step that Arizona can take is to set a strong state-supported postsecondary attainment goal.



"Latinos are transforming Arizona's economy. The well-being of our state depends on the contributions of all Arizonans. But given the rapid growth of the state's Latino community—slated to be Arizona's majority population in one generation—to guarantee that our economy remains strong, we must empower Latino youth to succeed. A great economy begins with a great education."

Gonzalo de la Melena—President and CEO, Arizona Hispanic Chamber of Commerce

Ways Arizona Can Increase Postsecondary Attainment

Given the exceptional return on investment that each of the strategic opportunities articulated above represents—and with the potential to, at a minimum, double our annual economic growth rate—Arizona should be ambitious in its design of policies and programs that lead to higher postsecondary attainment rates statewide.

There are many approaches that Arizona can take to increase postsecondary attainment and reap the economic benefits. Broadly considered, these approaches can be thought of according to their impact on three dimensions of K-12 and higher education as they relate to attainment:



Improving the K-12 pipeline to increase number of college-ready high school graduates



Increasing access to postsecondary education for all students



Increasing rates of postsecondary persistence and completion



“College and career-readiness means more than graduating from high school eligible to enroll at a community college or university. It means that students possess the foundational knowledge and abilities to succeed in college, to earn a certificate and/or degree, and to enter the workforce and become competent 21st century employees. To grow the Arizona economy, we need to help all students make it to college and attain their goals, and become career-ready in the process.”

Dr. Maria Harper-Marinick—Executive Vice Chancellor and Provost, Maricopa Community Colleges

Improve the K-12 pipeline. The high school dropout rate in Arizona is a significant drag on the state's postsecondary attainment rate. Because so many Arizona students drop out, they are not eligible to attend college, meaning the pool of college-ready students is significantly reduced. Key reasons for this include inconsistent school quality in Arizona, state/local K-12 per-student spending levels that are among the lowest in the country and persistent achievement gaps between minority students and their white counterparts. Addressing these key issues would likely improve the high school graduation rate and create more college-ready students. To do so, Arizona will need to enact reforms all along the PK-12 spectrum that ensure quality preschool learning, better elementary education strategies and high school reform.

Moreover, other specific reforms—such as those that lead to smaller class sizes, expand the number of higher quality teachers, support students at risk of dropping out and encourage the implementation of dual enrollment programs—have been shown to improve school quality, student achievement and college readiness.

Enact Policies That Increase Access to Postsecondary Education. By creating new pathways, and strengthening existing ones, Arizona can markedly improve access to postsecondary education for all students. Many students, particularly those who are the first in their families to go to college, do not have sufficient information on how to apply and get in to college, or how to choose the best college for their needs.

Fortunately there are concrete steps that have been shown to increase access. For example, research indicates that pre-college counseling can have a powerful impact, helping students enroll and persist in college. Another proven approach is to simplify the college application process.

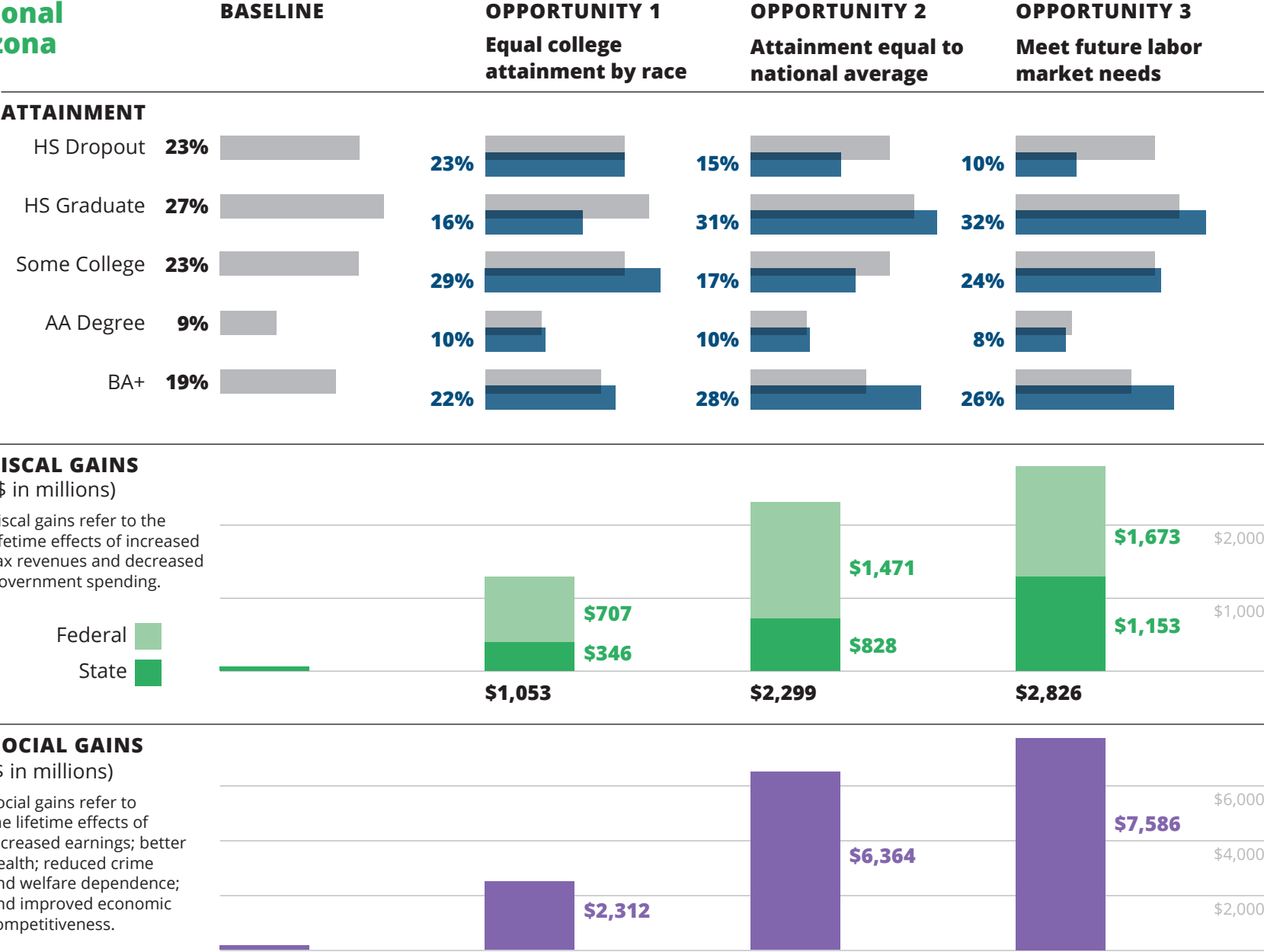
Address attainment gaps between majority and minority populations. There are substantial economic benefits that Arizona stands to gain by implementing reforms that specifically seek to reduce attainment gaps between races, with a particular focus on Latino students. In addition to the economic benefits, reducing attainment gaps also contributes significantly to creating a college-going culture for all Arizonans.

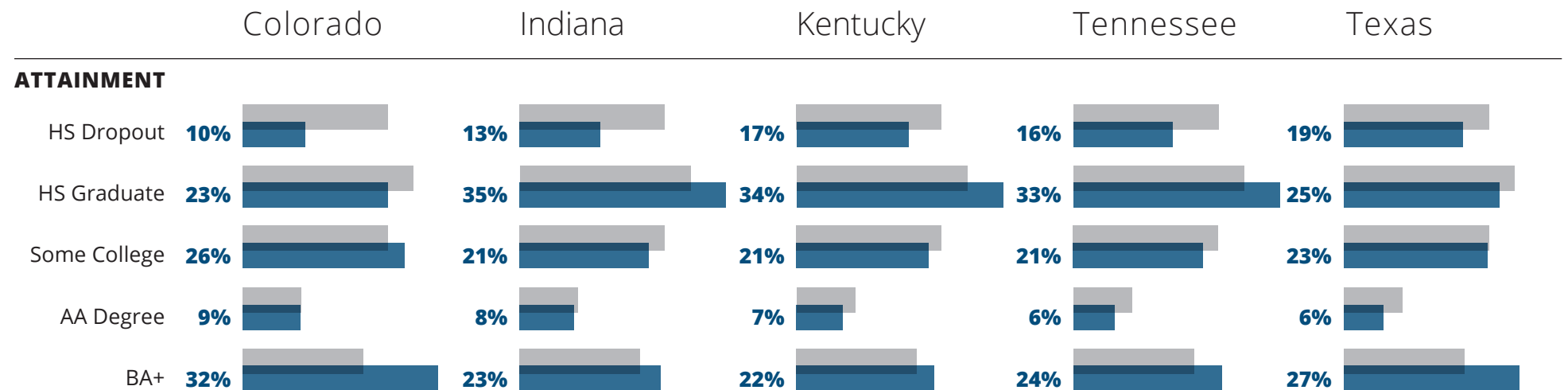
Support policies and programs that help postsecondary students persist to completion. Many Arizonans have some college education, but have not completed a certificate or degree program. Arizona could significantly increase its attainment rate by providing supports and programs that help more students persist to completion of their programs of study. A substantial body of research has found that counseling and mentoring services, as well as other supports such as academic planning and advising, can lead to significantly higher completion rates. These supports can be especially valuable for students who are the first in their families to go to college.

Make college more affordable for all students. For many students, it is difficult to afford a college education without financial aid. Effective financial aid is sufficient to meet costs, flexible, and timely. Too often low-income students do not claim or receive effective financial aid. Latino students, in particular, receive the least amount of financial aid of any population group. In Arizona, Latino students are often those also living in poverty. Implementing a state-financed financial aid program that is narrowly targeted to raise postsecondary awareness, incentivize low-income students to perform well in high school, and then apply to and attend a state college or university would be a game-changer in encouraging access and success for all Arizonans.

The Economic Benefits of Increasing Educational Attainment in Arizona

The clear economic benefits of increasing educational attainment in Arizona are demonstrated in the charts that follow. Based on a commonly used cohort model of economic impact, the charts show the fiscal and social gains associated with equalizing college-going rates by race, meeting the national average for attainment, meeting future labor market needs and meeting the attainment rates in five peer states.



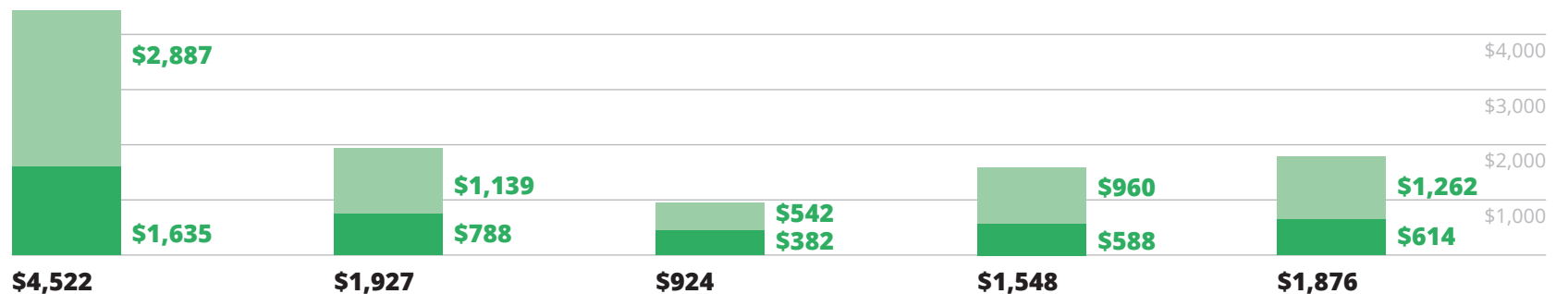


FISCAL GAINS

(\$ in millions)

Fiscal gains refer to the lifetime effects of increased tax revenues and decreased government spending.

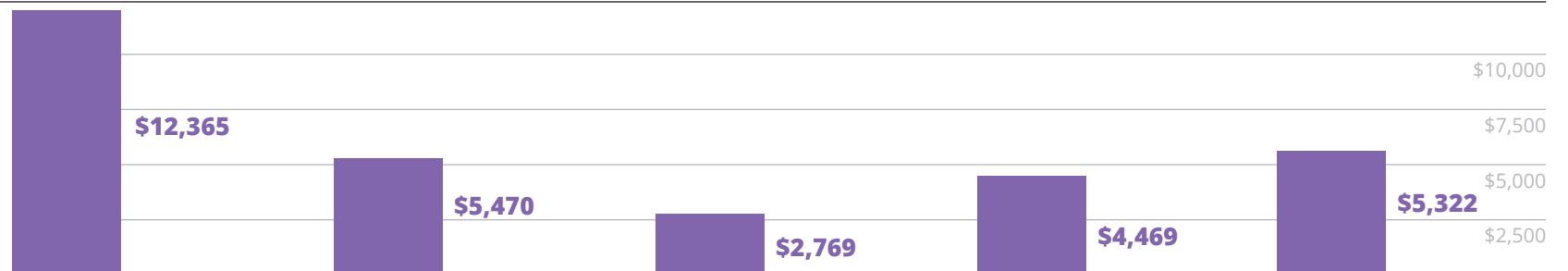
Federal
State



SOCIAL GAINS

(\$ in millions)

Social gains refer to the lifetime effects of increased earnings; better health; reduced crime and welfare dependence; and improved economic competitiveness.



Key Findings

As the data in this report clearly demonstrate, Arizona cannot afford to let pass the opportunity to increase statewide postsecondary attainment. The potential economic gains are simply too great.

Setting a strong statewide postsecondary attainment goal is a crucial first step toward realizing these strategic opportunities to increase attainment in our state.

Setting a strong attainment goal will galvanize efforts to increase attainment and catalyze the creation of policies and programs that provide the essential supports that improve the K-12 pipeline, reduce the high school dropout rate, and increase college enrollment and completion for all students.

If Arizona equalizes college-going rates by race—which will require substantially increasing Latino college enrollment and completion—we would produce gains of \$2.3 billion.

Given Arizona's demographic realities, and that Latino students will constitute the majority of each graduating high school cohort for the foreseeable future, we cannot ignore the needs of these students. Arizona must address the Latino attainment gap in order to remain economically competitive in the years to come.

If Arizona increases postsecondary attainment to meet future workforce needs, or to equal the national average, then we will gain up to \$7.4 billion.

This gain would more than double Arizona's annual economic growth rate, and is equivalent to one-fifth of the overall state budget. This growth has the potential to profoundly improve Arizona's economic competitiveness.

If Arizona increases educational attainment to match attainment rates in peer states, then we stand to gain between \$2.7 billion (match Kentucky) and \$12.1 billion (match Colorado).

These states, all of which have set strong postsecondary attainment goals, have recognized the power of attainment to drive economic growth and enacted policies that support increased college enrollment and completion, as well as stronger K-12 pipelines.

Methodology

Belfield and Rumberger’s study follows a conventional approach—used in many other studies—to model the economic impact of increased educational attainment. The models included in the study account for five common educational outcomes for high school students:

- ▶ **Dropping out of high school**
- ▶ **Graduating from high school**
- ▶ **Attending a postsecondary institution**
- ▶ **Completing an Associate’s degree**
- ▶ **Completing a Bachelor’s degree (or higher)**

Each model calculates the average economic consequences—measured in terms of social gains/losses and in terms of fiscal (taxpayer) gains/losses—of each of the five outcomes over an average working lifetime (from age 18 to 65). Notably, these models do not include the costs of effective reforms or interventions; rather, the calculations demonstrate average losses when students do not enroll in college and acquire a degree.

The figures cited are stated in present values at age 18, and all figures are in 2015 dollars (weighted to Arizona prices). Consequently, all of the cited figures “are comparable and are equivalent to a lump-sum deposit received now for each Arizona high school student and across the school cohort at age 18” (Belfield and Rumberger, 2015).

Estimating the Fiscal and Social Impacts of Attainment

The fiscal impacts of educational attainment reflect the lifetime effects of increased tax revenues and decreased government spending. These include state and local tax revenues, as well as federal tax dollars that are spent in Arizona. These revenues are modeled based on estimated income gains associated with postsecondary attainment. Estimates for federal taxes represent the average of three calculations, including one from National Bureau of Economic Research’s TAXSIM9 program, another based on after-tax federal income tax payments, and the third that relies on flat marginal tax rates. State and local tax revenue estimates are calculated similarly, using 2009-2014 data from the Current Population Survey (CPS).

In addition to state and federal tax revenues, the economic models in this study also account for five additional social impacts: health status, criminal activity, welfare reliance, college costs, and tax distortions. These impacts are summarized below.

Health Status: At the state level, Arizona spends more than \$10 billion annually on health care. Research indicates that individuals who are college-educated report having better health than individuals who hold only a high school diploma. In addition to individual value of better health, the government benefits significantly as well, spending less on Medicare and Social Security Disability Income (SSDI).

Criminal activity: Arizona spends approximately \$1 billion every year on corrections alone, in addition to significant expenditures for crime prevention. Higher average levels of education—especially greater high school graduation rates—reduce the rates of criminality, and incarceration statewide. Greater educational attainment also lowers crime prevention costs, as well as other social costs of crime such as costs to victims, lower property values and insurance costs.

Welfare reliance: Total public assistance in Arizona amounts to more than \$290 million. Greater educational attainment—again, especially with respect to higher high school graduation rates, and inclusive of college graduates—is linked with decreased reliance on welfare programs. More than 96 percent of Temporary Assistance for Needy Families (TANF) recipients do not have any college education. Similarly, more than 98 percent of housing assistance recipients do not have any college education.

College costs: Increased rates of college enrollment necessitate greater public expenditure. The taxpayer cost of college is measured as the use of public funds to subsidize higher education in Arizona.

Tax distortions: Government spending impacts economic behavior; taxes distort behavior toward untaxed activities. A conservative estimate of this distortion—known as the marginal excess tax burden (METB)—is 13 percent. Each government dollar spent has a total social cost of \$1.13, meaning that for each government dollar saved an additional METB of 13 percent is also saved.

Notably, the economic impacts cited in this report likely underestimate the social and fiscal gains associated with increased attainment. Conservative estimates are applied for earnings and taxes, and certain benefits—such as reduced family burdens or the reduced cost of student remediation—have not been counted.

For a full description of the methodology behind this report, please refer to:

Belfield, C.R. and Rumberger, R.W. 2015. *The Economic Returns to Expanding College Participation in Arizona*. College Success Arizona.



FIGURE 4 **TOTAL ECONOMIC GAINS FOR ARIZONA FROM MEETING ATTAINMENT GOALS**

	Gains Per Age Cohort Over Lifetime (\$ millions)		
	OPPORTUNITY 1 Equal college-going rates by race	OPPORTUNITY 2 Meet future labor market needs	OPPORTUNITY 3 Attainment at national average
Social	\$2,312	\$7,402	\$6,252
Fiscal State/Local	\$346	\$1,153	\$838
Fiscal Federal	\$707	\$1,673	\$1,471

Notes: 2015 dollars adjusted for Arizona prices. Cohort is 87,505 students.

FIGURE 5 **TOTAL FISCAL GAINS FOR ARIZONA FROM MEETING ATTAINMENT GOALS**

	Fiscal Gains Per Age Cohort Over Lifetime (\$ millions)		
	OPPORTUNITY 1 Equal college-going rates by race	OPPORTUNITY 2 Meet future labor market needs	OPPORTUNITY 3 Attainment equal to national average
State-level fiscal gains			
Tax gains	\$329	\$790	\$648
Government savings	\$153	\$562	\$391
(College costs)	\$(136)	\$(199)	\$(211)
Total Benefit	\$346	\$1,153	\$828
Federal fiscal gains			
Tax gains	\$452	\$1,008	\$1,001
Government savings	\$270	\$686	\$494
(College costs)	\$(15)	\$(22)	\$(23)
Total Benefit	\$707	\$1,673	\$1,471

Notes: Lifetime amounts reported in present values at age 18 (discount rate =3.5%). 2015 dollars adjusted for Arizona prices.

FIGURE 6 **TOTAL SOCIAL GAINS FOR ARIZONA FROM MEETING ATTAINMENT GOALS**

	Social Gains Per Age Cohort Over Lifetime (\$ millions)		
	OPPORTUNITY 1 Equal college-going rates by race	OPPORTUNITY 2 Meet future labor market needs	OPPORTUNITY 3 Attainment equal to national average
Earnings gains	\$2,108	\$5,725	\$5,180
Government savings	\$623	\$2,426	\$1,769
(College costs)	\$(419)	\$(566)	\$(585)
Total Benefit	\$2,312	\$7,586	\$6,364
Gain: Percent of baseline total	4%	12%	10%

Notes: Lifetime amounts reported in present values at age 18 (discount rate =3.5%). 2015 dollars adjusted for Arizona prices. Cohort is 87,505 students.

FIGURE 7 **TOTAL GAINS FOR ARIZONA FROM MATCHING ATTAINMENT OF PEER STATES**

	Gains Per Age Cohort Over Lifetime (\$ millions)				
	Colorado	Indiana	Kentucky	Tennessee	Texas
Social gains	\$12,365	\$5,470	\$2,769	\$4,469	\$5,322
% of baseline	20%	9%	4%	7%	9%
Fiscal gains					
State-local	\$1,635	\$788	\$382	\$588	\$614
Federal	\$2,887	\$1,139	\$542	\$960	\$1,262
Total	\$4,522	\$1,927	\$924	\$1,548	\$1,876

Notes: Lifetime amounts reported in present values at age 18 (discount rate =3.5%). 2015 dollars adjusted for Arizona prices. Cohort is 87,505 students.

FIGURE 8 **EDUCATIONAL ATTAINMENT IN ARIZONA: PERSONS AGED 25+**

	State-wide		Latino Population	
	Male	Female	Male	Female
High school dropout	15%	14%	36%	34%
High school graduate	24%	25%	27%	27%
Some college, no degree	25%	27%	21%	21%
Associate degree	8%	9%	6%	6%
Bachelor's degree +	28%	26%	10%	11%
Total Population	2,057,222	2,153,972	504,445	514,096

Source: U.S. Census (2013).

FIGURE 9 **COLLEGE PROGRESSION: HIGH SCHOOL CLASS 2013-14**

	High School Class	Two-Year College		Four-Year College	
		Enrollees	%	Enrollees	%
White	30,260	6,930	23%	10,160	34%
Hispanic	24,200	6,580	27%	3,990	16%
Other	9,470	1,880	20%	2,760	29%
Total	63,930	15,390	24%	16,910	26%

Source: Presentation, Klein, July 30 2015. AZ Dept. of Education. Rounded to nearest ten.

FIGURE 10 **PREDICTED INDIVIDUAL LIFETIME EARNINGS AND TAX PAYMENTS**

	HS Dropout	HS Graduate	Some College	AA Degree	BA Plus
Earnings					
White	\$460,710	\$680,510	\$805,880	\$1,019,990	\$1,316,710
Hispanic	\$305,710	\$562,870	\$677,730	\$792,710	\$1,054,900
Other	\$162,510	\$347,640	\$468,700	\$481,480	\$971,950
Average	\$309,640	\$530,340	\$650,770	\$764,730	\$1,114,520
Taxes Paid					
White	\$138,250	\$193,980	\$237,880	\$301,720	\$405,950
Hispanic	\$87,230	\$159,740	\$212,060	\$248,560	\$326,080
Other	\$64,310	\$127,840	\$157,740	\$165,430	\$314,680
Average	\$96,600	\$160,520	\$202,560	\$238,570	\$348,900

Notes: Lifetime amounts reported in present values at age 18 (discount rate =3.5%). 2015 dollars adjusted for Arizona prices. Rounded to nearest \$10. Earnings: adjusted for productivity growth, unemployment rates, differential fringe benefits, and alpha factor. Earnings data from CPS 2009-2014, N=15,130 persons. Taxes: includes federal income taxes, state/local property taxes, state income taxes, state/local sales tax. Tax data from CPS earnings data, from taxfoundation.org/article/arizonas-state-and-local-tax-burden-1977-2010; NBER Taxsim; taxadmin.org/fta/rate/12taxbur.html; Tax Foundation Special Report No. 158, "Federal Tax Burdens and Spending by State," and U.S. Census Bureau's Consolidated Federal Funds Report for 2005. Calculations pooled from separate analysis by race/gender.

FIGURE 11 **SOCIAL GAINS FROM MEETING ATTAINMENT GOALS**

	Social Gains Per Age Cohort Over Lifetime (\$ millions)							
	OPPORTUNITY 1 Equal college- going rates by race	OPPORTUNITY 2 Meet future labor market needs	OPPORTUNITY 3 Attainment equal to national average	ATTAINMENT EQUAL TO PEER STATES				
				CO	IN	KY	TN	TX
Earnings	\$2,108	\$5,725	\$5,180	\$10,239	\$4,087	\$2,032	\$3,488	\$4,651
(College Costs)	\$(419)	\$(566)	\$(585)	\$(1,113)	\$(270)	\$(95)	\$(275)	\$(547)
Health Savings	\$163	\$532	\$372	\$707	\$347	\$165	\$252	\$251
Crime Savings	\$212	\$1,280	\$848	\$1,446	\$881	\$459	\$640	\$474
Welfare Savings	\$22	\$28	\$23	\$43	\$13	\$4	\$11	\$17
Spillover Gains	\$124	\$352	\$312	\$621	\$252	\$127	\$216	\$284
Tax distortions	\$102	\$234	\$214	\$422	\$160	\$77	\$137	\$192
Total	\$2,312	\$7,586	\$6,364	\$12,365	\$5,470	\$2,769	\$4,469	\$5,322

Notes: Amounts are weighted by race/gender composition for each goal.

FIGURE 12 **STATE/LOCAL TAXPAYER GAINS FROM MEETING ATTAINMENT GOALS**

	State/Local Taxpayer Gains Per Age Cohort Over Lifetime (\$ millions)							
	OPPORTUNITY 1 Equal college- going rates by race	OPPORTUNITY 2 Meet future labor market needs	OPPORTUNITY 3 Attainment equal to national average	ATTAINMENT EQUAL TO PEER STATES				
				CO	IN	KY	TN	TX
Taxes	\$329	\$790	\$648	\$1,303	\$513	\$239	\$414	\$557
(College Costs)	\$(136)	\$(199)	\$(211)	\$(387)	\$(98)	\$(40)	\$(104)	\$(197)
Health Fiscal	\$39	\$89	\$56	\$124	\$53	\$21	\$38	\$41
Crime Fiscal	\$63	\$377	\$250	\$426	\$259	\$135	\$189	\$140
Welfare Fiscal	\$21	\$26	\$21	\$41	\$12	\$4	\$10	\$16
Tax distortion effects	\$30	\$70	\$64	\$127	\$48	\$23	\$41	\$57
Total	\$345	\$1,154	\$828	\$1,635	\$788	\$382	\$588	\$614

Notes: Amounts are weighted by race/gender composition for each goal.

FIGURE 13 **FEDERAL TAXPAYER GAINS FROM MEETING ATTAINMENT GOALS**

	Federal Taxpayer Gains Per Age Cohort Over Lifetime (\$ millions)							
	OPPORTUNITY 1 Equal college- going rates by race	OPPORTUNITY 2 Meet future labor market needs	OPPORTUNITY 3 Attainment equal to national average	ATTAINMENT EQUAL TO PEER STATES				
				CO	IN	KY	TN	TX
Taxes	\$452	\$1,008	\$1,001	\$1,943	\$715	\$350	\$640	\$917
(College Costs)	\$(15)	\$(22)	\$(23)	\$(43)	\$(11)	\$(4)	\$(12)	\$(22)
Health Fiscal	\$126	\$333	\$208	\$447	\$207	\$89	\$148	\$146
Crime Fiscal	\$21	\$124	\$82	\$140	\$85	\$44	\$62	\$46
Welfare Fiscal	\$53	\$66	\$54	\$104	\$31	\$10	\$26	\$41
Tax distortion effects	\$71	\$164	\$150	\$295	\$112	\$54	\$96	\$134
Total	\$707	\$1,673	\$1,471	\$2,887	\$1,139	\$542	\$960	\$1,262

Notes: Amounts are weighted by race/gender composition for each goal.

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About College Success Arizona

College Success Arizona is working to create a significant increase in the postsecondary attainment rate of students in Arizona, particularly for those who otherwise would not be able to attend or graduate. By doing so, we believe that we will improve the quality of life not just for those individuals and their families but also for the state as a whole.

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