



## What Paradox? Educational Attainment in Colorado by Place of Birth

The Colorado Paradox is a coined phrase alluding to the difference in educational attainment for the state as a whole compared to educational attainment for those native (born) in Colorado vs those born outside of Colorado now calling Colorado home. The question is whether this difference in educational attainment is a “paradox” and Colorado specific or if it is more reflective of the nature of migration.

Using the Census Bureau 2013 ACS 1 year data of Colorado residents, native Coloradans have a lower share with a college degree than those born outside of the state. The charts below show educational attainment in Colorado by place of birth in both total (Chart 1.) and percentage terms (Chart 2.). In total terms (Chart 1.) there is an estimated 900,000 more non-natives than natives in the state. There are three times as many non-native residents with a college degree than natives in Colorado. Only thirty percent of the population over the age of 25 are native Coloradans.

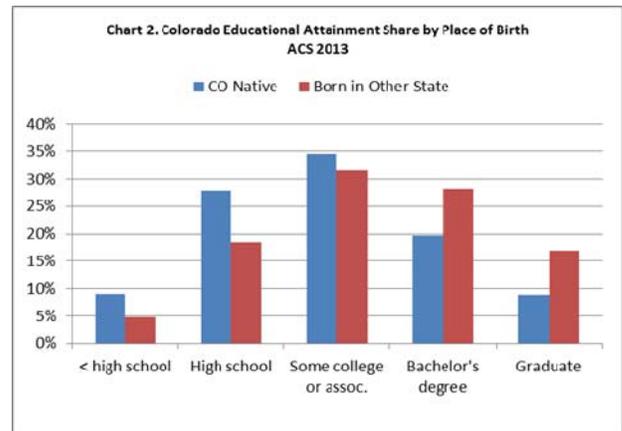
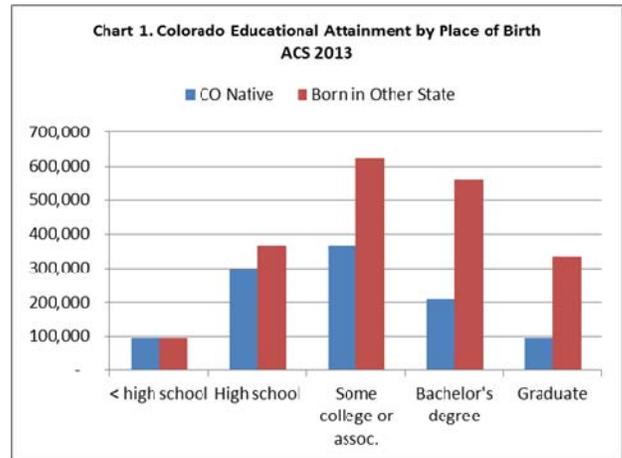


Chart 2. compares educational attainment as a percentage by place of birth. This allows a comparison due to size difference between the native and non-native population. Twenty-nine percent of the native population has a bachelor’s degree or more compared to the non-native population with forty-five percent bachelor’s plus. Again, this has been the information supporting the concept of the “Colorado Paradox”.

Tables 1 and 2 are the data behind Charts 1 and 2.

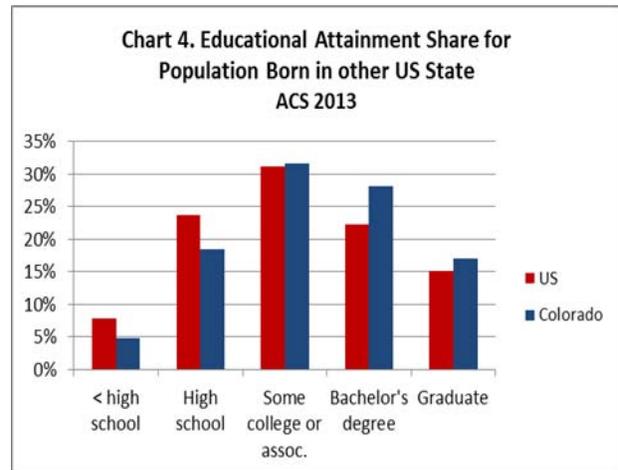
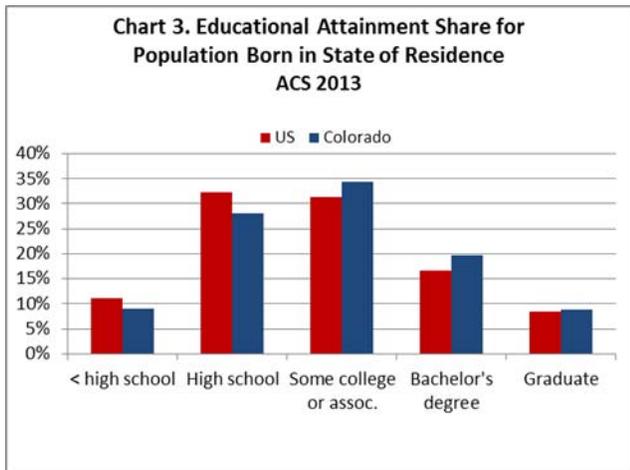
Colorado Educational Attainment by Place of Birth		
Table 1	CO Native	Born In Other State
< high school	95,734	94,831
High school	298,309	365,034
Some college or assoc.	387,175	625,086
Bachelor's degree	209,339	558,165
Graduate	94,747	335,943
<b>Total</b>	<b>1,065,304</b>	<b>1,979,059</b>

Colorado Educational Attainment Share by Place of Birth		
Table 2	CO Native	Born In Other State
< high school	9%	5%
High school	28%	18%
Some college or assoc.	34%	32%
Bachelor's degree	20%	28%
Graduate	9%	17%
<b>Total</b>	<b>100%</b>	<b>100%</b>

Without further analysis the initial findings would point to Colorado in-migrating a higher educated population and potentially not educating the Colorado born. However, it is important to consider how Colorado compares to the US as a whole in terms of educational attainment and migration/mobility theory that may be influencing migration.

Colorado in-migrates a significant number of people to the state and has had an average net in-migration of 38,000 since 1970 with much larger numbers moving in and out. The average in migration from 1990 through 2010 was 158,000 annually and average out migration of 120,000 annually. There is a significant amount of churn within the state. Colorado is the 8<sup>th</sup> least native state in the US (including DC) with a native population of 43% which falls to 30% for the population 25 or older.

Due to the amount of migration, it is important to compare Colorado’s native and non-native educational attainment to the national average. In comparing Colorado natives to the national average of those who were born in their state of residence, Colorado natives have a higher share of bachelor’s degree or more compared to the national average 29% vs. 25% (shown in Chart 3.)



In comparing educational attainment for those not residing in the state they were born, Colorado also compares favorably. Forty-five percent of the non-native population in Colorado have a bachelor’s degree or higher compared to 37% for the US average (Shown below in Chart 4).

Due to the large numbers migrating in and out of Colorado, it is helpful to know the educational attainment of Colorado natives living in other states. The total number of native Coloradans living in another state was estimated to be 895,000 in 2013. Using the 2013 ACS 1-year PUMS, the percentage of Colorado natives living in other states with a bachelor’s or higher was calculated to be 37% which is the same share for the US average for those not living in state of birth. Interesting, there is a larger number of Colorado natives with a bachelor’s degree living out of state compared to in state (330,000 vs 300,000). Some may question why educating our own should be a priority if 52% of Colorado natives with a college degree live in another state. A practical response is that if they are not well educated, they are more likely to stay. Sixty percent of Colorado natives with a high school or less live in state (390,000 of 650,000). Retaining 48% (300,000 of 630,000) of the population with a bachelor’s degree may be worth the investment.

The additional educational attainment data or analysis does not necessarily contradict the concept that Colorado natives living in state do have a lower share with a bachelor's plus than non-natives living in state (29% vs 45%) however, on average this holds true for the US as a whole. Additionally, Colorado natives living in state have a higher share with a college degree compared to the US average of those born

<b>Summary of Bachelor's Degree or Higher by Place of Birth</b>	
Colorado Native Living In State	29%
Colorado Native Living Out of State	37%
Non Native Living In Colorado	45%
Not Living In State of Birth US	37%
Living In State of Birth US	25%
US Total regardless of place of birth	29%
Colorado Total regardless of place of birth	38%
Source: ACS 2013 and ACS 2013 Pums	

in their state of residence (29% vs. 25%). Of the estimated 895,000 Colorado natives 25+ living in other states, those with a college degree have a comparable share to the US average for those not living in the state they were born (37% vs 37%).

The data indicates a correlation between higher levels of educational attainment and geographic mobility since non-native population share of bachelor's plus is higher than native born be it for the US as a whole or Colorado (US 37% vs 25% and for Colorado 45% vs 29%). Although not the purpose of this paper, research shows that college attendance increases the probability of a long distance move. Similarly, research shows the positive relationship between income and geographic mobility. There is also significant data and research showing the positive relationship between higher levels of educational attainment and higher incomes. Therefore it is understandable that higher educational attainment can lead to higher geographic mobility. The US is a mobile society and on average 20% of the population moves each year.

Colorado in-migrates a significant number of people and on average those migrants have a higher educational attainment than the US average for those not living in the state they were born (45% vs 37%). Attracting a migrant with a higher than US average educational attainment for those not living in the state they were born bodes well for Colorado both in terms the economic impact as well as for its ability to attract the best and brightest.

How does Colorado compare to the states with which it is most competitive? The chart below illustrates that Colorado has a higher share of its population with a bachelor's degree or higher by place of birth also compared to the states it is most economically competitive with. The only exception is for the foreign born population where both Georgia and the US average have a higher share with a bachelor's degree or higher.

<b>Share of the Population 25+ with a Bachelor's Degree or Higher by Place of Birth.</b>									
	US	CO	CA	TX	OR	AZ	UT	GA	
Born In State of Residence	25%	29%	29%	24%	25%	20%	28%	20%	
Born In Other State In US	37%	45%	43%	38%	36%	32%	38%	38%	
Foreign Born	28%	26%	26%	22%	26%	19%	28%	28%	
Total Population	29%	38%	32%	27%	31%	27%	31%	28%	
Source: American Community Survey, 2013									

Colorado's educational attainment compares favorably to the US average as well as to peer states. Although Colorado non-natives have a higher educational attainment compared to natives, it is not necessarily unusual nor a "Paradox". However, there is room for educational attainment improvement, and segmenting the population with the lowest levels of education attainment concern could be helpful.

## The Three Lowest Levels of Educational Attainment

Understanding the three lowest levels of educational attainment could help prioritize where Colorado could focus efforts in order to improve educational attainment and maintain and improve its competitive advantage into the future.

At the lower levels of educational attainment Colorado also compares well. This may be obvious as it is the reciprocal of higher educational attainment – more people at the higher end results in fewer people at the lower end. The share of Colorado’s population 25+ without a high school degree is 9%, below the U S average of 13% and all but one of the peer states listed below.

### Share of Educational Attainment Compared to the US and Peer States.

	US	Colorado	Arizona	Georgia	Oregon	Utah
Less than HS	13%	9%	14%	15%	10%	8%
High School	28%	22%	25%	29%	24%	23%
Some College or associate's degree	29%	31%	34%	29%	35%	37%

Source: ACS 2013

Nine percent of Colorado’s population 25+ is estimated to be 332,000 people. The median weekly wage difference between a person without a high school degree and with a high school degree is \$180 according to the Bureau of Labor Statistics or an annual equivalent of \$9,360. If everyone with less than a high school degree were to complete a high school equivalent, a potential of \$3.1 billion could be earned in the state. An additional **\$9,360** per year could move a household of 3 from “in poverty” to 150% of poverty and put them on the path for additional educational opportunities.

The largest share of the population without a high school degree is foreign born, 42% (almost 140,000 people). The remaining 58% is almost divided equally among Colorado natives and those born in another state. The number of native Coloradans without a high school degree is estimated in 2013 to be 95,000. In order to improve the educational attainment for those without a high school degree, it is important to understand that this group is a mix of about 29% natives who did not complete high school, 29% non-natives from another state and 42% foreign born.

The Colorado population 25+ with high school degree as their highest level of education is estimated to be 760,000 or 22% of the population. This is also a lower share than the US average and lower than peer states. The largest share of this group, 48%, are born in another state. Eighty-eight thousand or almost 12% are estimated to be foreign born. Despite place of birth, this group is large and a significant market for adult education opportunities. The income differential between a high school degree and associates degree is estimated by the Bureau of Labor Statistics to be **\$125** per week or **\$6,500** per year. If the entire population with a high school degree were to increase their educational attainment to an associate’s degree and earn \$6,500 more per year, there would be \$4.9 billion more in earnings in Colorado annually.

The population 25+ with some college or associates degree is Colorado's largest educational attainment group of 1.09 million or 31% of the population. Colorado natives do have a larger share in this group than the US average (34% vs 31%). People born outside of the state are an estimated 370,000 or 57% of this group. Due to its size, it is helpful to subdivide those with or without an associate's degree. Those with an associate degrees are estimated at 300,000 people (26% of this cohort).

The potential earnings benefit to complete a bachelor's degree after an associates is very significant, estimated at **\$330** per week or **\$17,000** per year (according to the Bureau of Labor Statistics).

	Less than HS	High School	Some College or associate's degree
<b>Total</b>	<b>9.5%</b>	<b>21.7%</b>	<b>31.1%</b>
<b>Born in State of Residence</b>	<b>28.8%</b>	<b>39.2%</b>	<b>33.5%</b>
<b>Born in Other State</b>	<b>28.5%</b>	<b>48.0%</b>	<b>57.2%</b>
<b>Native outside of US</b>	<b>1.0%</b>	<b>1.3%</b>	<b>1.7%</b>
<b>Foreign Born</b>	<b>41.8%</b>	<b>11.8%</b>	<b>7.5%</b>

Source: ACS 2013

The remaining 800,000 or 74% are split between those with less than one year of college (about 220,000 or 20%) and those with a year or more but no degree (580,000 or 53%). The potential earnings benefit for those with some college but no degree to complete an associate's degree is estimated at \$50 per week or **\$2,500** per year by the Bureau of Labor Statistics. The completion of the associate's degree may not seem like it provides the economic value compared to other degree attainments especially if potential costs are considered. However, if an associate's degree is viewed as a step in the completion of a bachelor's degree, the benefit/cost swings more in favor of the degree. The potential earnings differential between some college, no degree and a bachelor's degree is estimated at \$380 per week or almost \$20,000 per year. If the population with some college, no degree were to complete a bachelor's degree, there could be an estimated increase of \$16 billion in earnings in the state.

<b>Current Education Level</b>	<b>Colorado Residents</b>	<b>Potential Degree Attainment</b>	<b>Annual Earnings Improvement \$ per person</b>
<b>Less than high school graduate</b>	<b>332,384</b>	<b>High School</b>	<b>9,380</b>
<b>High school graduate</b>	<b>761,103</b>	<b>Associate</b>	<b>6,500</b>
<b>Some college no degree</b>	<b>808,426</b>	<b>Associate</b>	<b>2,500</b>
<b>Some college, no degree</b>	<b>808,426</b>	<b>Bachelor's</b>	<b>20,000</b>
<b>Associate's Degree</b>	<b>284,041</b>	<b>Bachelor's</b>	<b>17,000</b>

Source: Wage data - Bureau of Labor Statistics, Education - ACS 2013

The population with some college, no degree is a difficult to define and understand group. Many could have certificates and be highly employed and others could have started and had to drop out for a myriad of reasons. This paper and data is unable to segment those differences but highlights a need for more research in understanding this large segment of the population.

Although it is unrealistic to assume that the entire population with less than a college degree would be able to make one degree attainment improvement, it is interesting to consider the potential earnings and related spending that could take place. If every Colorado resident with less than a college degree were to complete one additional degree (and secure a job) the potential increased earnings in the state could range between 14 and 30 billion dollars.

## Summary

The “Colorado Paradox” as coined is really not a paradox. The belief has been that Colorado’s high proportion of its population with a college degree is due to its migrants and that the state does not educate its own. What this paper shows using Census Bureau data is that for the US average and for many of Colorado’s peer states, the college degree share of the population is lower for the population born in the state of residence compared to those born in another state. This data along with additional research points to the correlation between higher educational attainment and the probability of a long distance move. Additionally, when looking at Colorado’s numbers, the share of Colorado’s population with a college degree is higher for the total population, both Colorado natives and non-natives, than the national average for those same cuts and compared to peer states. The share of bachelor’s degrees or higher for native Coloradans who currently live in another state is also comparable to the US average, and higher than many peer states. What is notable is Colorado’s ability to in migrate a population with a significantly higher educational attainment than the US average and compared to peer states.

Although Colorado’s educational attainment may not be a “paradox”, educational attainment remains a priority for the state at all levels. This paper does not address the potential supply or demand of an educated workforce which has been a focus for the state and many organizations. Although Colorado has a lower share of its population at the lowest levels of educational attainment compared to the US average and among peer states, they are significant in numbers. Colorado residents at the lowest levels of educational attainment are a mix of foreign born, native Coloradans, and those born in a different state and all groups require a variety of support systems to improve their educational attainment. Significant earnings and therefore spending improvements are one of many benefits for improving educational attainment for people at the lowest levels of educational attainment.

This paper is the result of research that had been done for the Colorado Talent Pipeline Report— a joint project between The Colorado Workforce Development Council, Department of Higher Education, Department of Education, Department of Labor and Employment and the Office of Economic Development and International Trade <https://www.colorado.gov/pacific/cwdc/colorado-talent-pipeline-report> . Researching this paper has prompted additional areas for research and evaluation. Some of the areas include: understanding the characteristics, employment, and constraints for the population with some college no degree, forecast of educational attainment, migration characteristics, and labor force participation by educational attainment by place of birth.