



EDUCATIONAL ATTAINMENT IN ARIZONA COMPARED TO ALL STATES

November 2005

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and Manager of Research Initiatives, Office of the University Economist**

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PROSPERITY PROJECT**

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SUMMARY

The educational attainment in 2000 of the entire 25-or-older population in Arizona was similar to the national average and ranked in the middle of the states. Arizona compared less favorably to two sets of comparison states: “competitor” states defined by the Greater Phoenix Chamber of Commerce and “new economy” states identified by the Milken Institute.

In 1990, however, Arizona’s educational attainment had exceeded the national average. Arizona ranked among the bottom 10 states in the 1990-to-2000 gain in educational attainment.

Among both the entire population and those active in the labor force in 2000, the educational attainment of Arizona residents 55 or older exceeded that of their peers nationally. This was especially true of those 65 or older, whose attainment ranked among the top 10 in the nation. In contrast, the educational attainment of Arizonans younger than 45 was less than their national peers. Arizona ranked among the bottom 15 states among those 16-to-34 years old.

Considering only those between the ages of 25 and 64 active in the labor force, Arizona’s educational attainment in 2000 was a little less than the national average. This matched the state’s job quality, which also was somewhat below the U.S. average. Across the states, job quality was highly correlated with educational attainment measured by the percentage with at least a bachelor’s degree, but was not correlated with attainment measured by the share with at least a high school diploma. Thus, for most purposes, measuring attainment by the share with at least a bachelor’s degree is preferable to using the share with at least a high school diploma.

In addition to age, educational attainment in 2000 varied by migration status — defined by place of birth, place of residence in 1995, and place of residence in 2000. Focusing on those 25-to-64 years old with at least a bachelor’s degree who were active in the workforce in 2000, educational attainment was higher both nationally and in Arizona among those who had made a long-distance move (across either state or international borders) at least once than among those who lived in the same state in which they were born.

In each of nine categories defined by place of birth (same state, different state, foreign) and place of residence in 1995 (same state, different state, another country), Arizona’s educational attainment was considerably below the national average, with the largest differentials among immigrants. Arizona’s overall attainment was not as far below average as in each of the nine categories because interstate migrants — who have among the highest educational attainment — made up a disproportionately large share of the Arizona workforce.

Educational attainment also varied widely by race/ethnicity. However, cross tabulating three racial/ethnic categories by the nine categories defined by place of birth/place of residence in 1995 indicated that Arizona’s educational attainment was less than that of the national average in nearly all of the 27 categories. For example, though the educational attainment of non-Hispanic white interstate migrants was comparatively high relative to other categories, the attainment of these migrants to Arizona was considerably less than the average of non-Hispanic white interstate migrants nationally.

Arizona's overall educational attainment appears to be average, but is inflated by the high attainment of retired migrants to the state. Among the workforce, Arizona's attainment is below average, particularly among young adults. This deficiency, however, is not the result (at least solely) of Arizona's educational system. Instead, both interstate migrants and immigrants to Arizona who were educated outside Arizona have subpar educational attainment relative to their national peers, particularly among the young adult population. This below-average attainment is in line with the state's below-average job quality.

INTRODUCTION

The decennial census is the only state-level source of data on educational attainment that has acceptably low sampling error. The educational attainment data from the decennial census come from the long form of the census, answered by about one-in-six households. Accurate annual data for the nation are available from the Current Population Survey (CPS), but sampling error is very large by state in the CPS. The Census Bureau of the U.S. Department of Commerce conducts both the decennial census and the CPS.

The standard tables on educational attainment produced by the Census Bureau are for the entire population 25 or older. The Census Bureau selected age 25 since most people have completed their educations by that age. For example, the proportion enrolled in school in Arizona in 2000 was nearly 75 percent among those 16-to-19 years of age, 30 percent of those 20-to-24 years old, and 15 percent among those aged 25 to 29.

This report presents not only the traditional educational attainment data for the population 25 or older in 2000 but also the figures specific to those 25-to-64 years old who were active in the workforce. The latter data are more relevant for workforce analyses and economic development purposes since they exclude retirees and others not active in the labor force. (Those unemployed but actively seeking work at the time of the census are included in the workforce data.) The educational attainment figures of workforce participants between the ages of 25 and 64 are calculated from the Public Use Microdata Sample (PUMS), which provides detailed data for 5 percent of those counted in the decennial census.

Educational attainment can be measured in various ways, among the more common of which is (1) the percentage of the population with a high school diploma (or GED) or more education, and (2) the percentage with a bachelor's degree or more education. The Census Bureau does not produce a median or mean number of years of education.

Relative educational attainment varies substantially between the high school graduate and university graduate measures. By state in 2000, the correlation between the two measures was only a moderate 0.43 for the entire population 25 or older, and a low 0.22 for those between 25 and 64 years old who were active in the workforce. In some states the percentage of the population with at least a high school diploma was above the national average while the percentage with at least a bachelor's degree was below average (or vice versa).

Two basic trends impact educational attainment statistics. First, average educational attainment for people born in any given year rises rapidly until they reach the age of the early-to-mid-20s, then advances much more gradually. (For example, the average educational attainment of those born in 1965 was considerably higher in 1990 than 1980, but not much higher in 2000 than in 1990.) Second, average educational attainment climbed considerably with the year born through the mid-20th century, then much more gradually. (For example, the average educational attainment of those born in 1950 was much higher than the average of those born in 1900, but the average attainment of those born in 1970 was not much higher than that of those born in 1950.)

The PUMS also is the source of educational attainment data by other demographic characteristics than age. Educational attainment varies widely across such characteristics as place of birth. Thus,

differences in overall educational attainment across states result not only from differences in attainment in specific groups, but also from differing demographic mixes. For example, most racial/ethnic minority groups have lower educational attainment than non-Hispanic whites. State “A,” which has a high proportion of non-Hispanic whites, could have higher overall educational attainment than state “B,” which has a high proportion of minorities, even though state “B” has greater attainment than state “A” in each of the racial/ethnic groups.

Differences in educational attainment across states, even those with comparable demographics, do not necessarily indicate that one state is doing a better job of educating its children than another state. Given the nation’s high rates of interstate migration and immigration, many of the people living in a state in 2000 were educated in another state or country.

Though the focus of this report is on educational attainment in 2000, comparisons to 1990 also are provided. Since most of the figures for 2000 presented in this report are derived from time-consuming analyses of PUMS data, not as much detail is presented on the change in educational attainment between 1990 and 2000.

EDUCATIONAL ATTAINMENT OF THE ADULT POPULATION IN 2000: ARIZONA COMPARED TO THE NATION AND OTHER STATES

In this section, educational attainment statistics of the adult population (generally limited to those 25 or older) are presented as of 2000. The next section provides data specific to those between the ages of 25 and 64 who were active in the workforce. In each of these sections, data for Arizona are compared to the national average and in some cases to other states. Overall educational attainment figures are presented first, followed by statistics for specific subgroups, such as those 25-to-34 years old.

Overall Educational Attainment

Among those 25 or older, Arizona's overall educational attainment in 2000 was similar to the national average. The biggest difference from the national average was that a larger share of Arizonans had attended college while a larger share nationally had a high school diploma as their maximum attainment. However, a slightly lesser proportion of Arizonans had earned at least a four-year university degree.

Based on the percentage of the population with at least a high school diploma, the highest educational attainment in the United States in 2000 was found in the northern part of the country, particularly in the northern Plains and northwestern states and in New England. Compared to a national average of 80.4 percent, at least 86 percent of the 25-or-older population had earned at least a high school diploma in Alaska, Colorado, Iowa, Kansas, Minnesota, Montana, Nebraska, New Hampshire, Utah, Vermont, Washington, and Wyoming. The lowest attainments were in southern states ranging from West Virginia to Texas, particularly in Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Tennessee, Texas, and West Virginia. Arizona ranked 32nd, though its share of high school graduates of 81.0 percent was slightly greater than the national average.

The geographic pattern of educational attainment was different when measured by the percentage with at least a bachelor's degree. Most of the states with the highest achievement were located along the Atlantic Coast, from New Hampshire and Vermont south to Virginia (see Table 1). Colorado and Washington also were among the top 10. Again, southern states had the lowest attainments, but were joined by Nevada and Indiana. Arizona ranked tied for 25th, though its 23.5 percent university graduation rate was less than the national average of 24.4 percent.

Focusing on the small proportion of the population — just 8.9 percent nationally — who had earned at least a master's or professional (such as legal) degree, the leading states were similar to the list for those with at least a bachelor's degree. States in the South, as well as several in the northern Plains and northern Rocky Mountain regions, had the lowest percentages of residents with a graduate degree. Arizona's figure of 8.4 percent was a little less than the national average but ranked tied for 20th.

Several of the Plains and Great Lakes states that had among the higher attainments based on those earning at least a high school diploma had among the lower attainments based on the percentage with at least a bachelor's degree. In contrast, several northeastern states and California compared more favorably on university graduates than on high school graduates.

TABLE 1
EDUCATIONAL ATTAINMENT BY STATE IN 2000: POPULATION 25 OR OLDER
Ranked by 2000 Percentage of University Graduates

	High School Graduate	University Graduate
District of Columbia	77.8%	39.1%
Massachusetts	84.8	33.2
Colorado	86.9	32.7
Maryland	83.8	31.4
Connecticut	84.0	31.4
New Jersey	82.1	29.8
Virginia	81.5	29.5
Vermont	86.4	29.4
New Hampshire	87.4	28.7
Washington	87.1	27.7
Minnesota	87.9	27.4
New York	79.1	27.4
California	76.8	26.6
Hawaii	84.6	26.2
Utah	87.7	26.1
Illinois	81.4	26.1
Kansas	86.0	25.8
Rhode Island	78.0	25.6
Oregon	85.1	25.1
Delaware	82.6	25.0
Alaska	88.3	24.7
Montana	87.2	24.4
United States	80.4	24.4
Georgia	78.6	24.3
Nebraska	86.6	23.7
Arizona	81.0	23.5
New Mexico	78.9	23.5
Texas	75.7	23.2
Maine	85.4	22.9
North Carolina	78.1	22.5
Wisconsin	85.1	22.4
Pennsylvania	81.9	22.4
Florida	79.9	22.3
North Dakota	83.9	22.0
Wyoming	87.9	21.9
Michigan	83.4	21.8
Idaho	84.7	21.7
Missouri	81.3	21.6
South Dakota	84.6	21.5
Iowa	86.1	21.2
Ohio	83.0	21.1
South Carolina	76.3	20.4
Oklahoma	80.6	20.3
Tennessee	75.9	19.6
Indiana	82.1	19.4
Alabama	75.3	19.0
Louisiana	74.8	18.7
Nevada	80.7	18.2
Kentucky	74.1	17.1
Mississippi	72.9	16.9
Arkansas	75.3	16.7
West Virginia	75.2	14.8

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

Special Tabulations

The Census Bureau made various special tabulations related to educational attainment in 2000 by state. These were based on the one-in-six respondents who were sent the long-form version of the census.

Six Measures of Educational Attainment in 2000

A broad measure of educational attainment by state in 2000 was constructed from six measures readily available from the Census Bureau:

- The proportion of those 16-to-19 years old who were not high school graduates and who were not enrolled in school. This is in large part a measure of educational attainment of people who grew up in a state, but also is affected by young interstate migrants and increasingly by young immigrants.
- The proportion of those 18-to-24 years old who were enrolled in college. Partially a measure of educational attainment of people who grew up in the state, it also is affected by young workforce migrants (increasingly immigrants) and by people migrating to attend college.
- The percentage of those 25 or older with less than a ninth-grade education. This is a measure of minimal educational attainment.
- The percentage of those 25 or older who had graduated from high school. In the economy of the 21st century, this also could be construed to be a measure of minimal educational attainment.
- The percentage of those 25 or older who had earned a bachelor's degree.
- The percentage of those 25-to-34 years old who had earned a bachelor's degree. This measure of educational attainment is more reflective of the workforce and of residents who grew up in the state than that of the entire 25-or-older group.

Averaging the state ranks on the six measures, all of the states with the best educational attainment are in the northern part of the country, especially in the Northeast and northern Plains. All of the states with the worst educational attainment are in the southern part of the country, especially in the deep South and Southwest.

Arizona was close to the national average on each measure of the 25-or-older population but compared less favorably on each measure related to youths and young adults. The better performance on the 25-or-older measures was due to the high attainment of retirees who migrate to Arizona (discussed in the subsection "By Age"). Arizona ranked 12th worst on the overall average of the six measures. Nevada was the only state with a higher proportion of those 16-to-19 years old not in school who had not earned a high school diploma. Arizona had the seventh-lowest percentage of those 18-to-24 years old enrolled in college. Arizona's best rank was 25th on the percentage of those 25 or older with a bachelor's degree; it ranked in the 30s on the other measures (see Table 2).

Relative to the competitor states (California, Colorado, Florida, Georgia, Nevada, New Mexico, Oregon, Texas, Utah, and Washington) designated by the Greater Phoenix Chamber of Commerce, Arizona ranked as high as the middle only on the proportion of those 25 or older with a high school diploma. Arizona ranked at, or second to, the bottom on each measure relative

TABLE 2
SIX MEASURES OF EDUCATIONAL ATTAINMENT IN 2000

	Arizona	U.S.	51 States	Arizona Rank	
				11 Com- petitors	11 New Economy
Age 16-19 not enrolled & not high school graduate	14.8%	9.8%	50	10	11
Age 18-24 enrolled in college	29.2	34.0	45	7	11
Age 25+ with less than a 9th-grade education	7.8	7.5	37	8	10
Age 25+ high school graduate	81.0	80.4	32	5	10
Age 25+ university graduate	23.5	24.4	25	7	11
Age 25-34 university graduate	22.9	27.5	38	9	11

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

to the new economy states (California, Colorado, Connecticut, Massachusetts, Maryland, Minnesota, New Jersey, Utah, Virginia, and Washington) identified by the Milken Institute.

Young, Single, College Educated

Another special tabulation produced by the Census Bureau was the migration flows between 1995 and 2000 of young (age 25 to 39), single, college-educated people (YSCE). This group is particularly mobile and presumably includes many knowledge-economy workers. A substantial proportion of this group moved between states or came to the United States from another country between 1995 and 2000, ranging from 62 percent in the District of Columbia to 20 percent in Michigan and Ohio. Arizona ranked seventh with 40 percent of the 2000 population in this group having moved to Arizona between 1995 and 2000. Most of the states with the highest percentages were in the West, including Arizona's neighbors of Nevada and Colorado, which had higher percentages. Great Lakes and southern states had the lowest percentages.

Looking only at domestic migration among the 50 states and District of Columbia, only 18 states received a net inflow of YSCE between 1995 and 2000. California by far had the largest number at more than 73,000, followed by other western states and states in the South Atlantic region. Arizona ranked seventh with YSCE domestic net in-migration of more than 9,000. Pennsylvania had the largest net outflow at nearly -30,000. Other states with large net out-migration were located in the South, Great Lakes, and Northeast regions.

Taking into consideration the number of YSCE present in 1995, the net domestic migration rate of YSCE was by far highest in Nevada at 282 per 1,000. All of the states with the highest figures were located in the West or South Atlantic regions. Arizona ranked fourth with a rate of 110, exceeded by Colorado and Georgia as well as Nevada. The highly populous state of California ranked seventh. North Dakota had the most sizable negative rate at -282. Other states with large negative rates were scattered across the country, but particularly were located in the Plains.

Another way of measuring the flow of YSCE is to calculate the net number of domestic YSCE migrants as a percentage of the total 1995 population. Once again, western and South Atlantic states topped the list, with Colorado ranking first and Arizona sixth. The states with the largest negative rates mostly were located in the Plains or Northeast.

The results on all of these measures are similar, with the top-ranked states on net domestic in-migration of YSCE generally being the fastest-growing states, and most of the bottom-ranked states experiencing little growth, including overall domestic net out-migration. Thus, a more telling way of assessing the success of a state in attracting this talented group is to examine its YSCE net interstate migration relative to its overall net interstate migration.

California stands out as having received the largest net inflow of YSCE despite having the second largest net out-migration overall. Four other states had net inflows of YSCE but overall net outflows: Illinois, Maryland, Alaska, and the District of Columbia. Thirteen states had a net inflow overall and of YSCE. Among these 13 states, the YSCE share was highest in Washington at 15 percent; six other states had a higher percentage than Arizona's 3 percent. Thus, while one of just 18 states with a net inflow of YSCE, Arizona's net in-migration of YSCE was small compared to its overall net in-migration.

Eighteen states suffered net out-migration overall and of YSCE, with the YSCE share of the overall net outflow ranging from 1 to 64 percent. Fifteen states experienced a net outflow of YSCE despite receiving an overall net inflow. All but one (Utah) of these 15 states was located in the eastern half of the country.

By Age

As a result of (1) educational attainment rising with age and (2) those born in the middle and latter parts of the 20th century having much higher attainments than those born earlier, educational attainment in both the nation and Arizona in 2000 was highest among those 50-to-54 years old (as measured both by percentage with at least a high school diploma and percentage with at least a bachelor's degree). Those 65 or older had lower attainments than those 25-to-29 years of age. Age variations in educational attainment in 2000 are provided in Table 3.

Relative to the nation, Arizona's educational attainment was below average in the younger age groups, particularly among those 20-to-34 years old. This was offset by above-average figures in the older age groups, especially 65 or older.

Southern states — particularly Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Tennessee, and West Virginia — had below-average educational attainment in all age groups, whether measured by high school graduates, university graduates, or graduate degrees. Southwestern states (Arizona, California, Nevada, New Mexico, and Texas) had low educational attainment among younger age groups when measured by the percentage of high school graduates. The northern Plains/Rocky Mountain states had subpar attainment, especially among retirees, when measured by graduate degrees and to a lesser extent by university graduates. Yet many of the same Plains and Rocky Mountain states were among the national leaders on the share with a high school diploma in all age groups. The New England and Middle Atlantic states were the leaders on the percentages with bachelor's and graduate degrees, though some of these states dropped off the leader list in the 65-or-older age group, replaced by southwestern states.

Arizona's educational attainment (as measured both by share with a bachelor's degree and share with a graduate degree) among the younger age groups was considerably below that of most of the competitor states. Arizona ranked next-to-last or last among the new economy states in most

TABLE 3
EDUCATIONAL ATTAINMENT IN 2000 BY AGE: POPULATION 16 OR OLDER

Age	<=8th grade	9th-12th	HS Grad	Some College	Bach Degree	Grad Degree	>=HS Grad	>=Bach Degree
16-19	7%	65%	16%	13%	0%	0%	29%	0%
20-24	7	19	28	39	7	0	74	7
25-34	7	14	23	33	17	5	78	22
35-44	7	11	24	35	15	8	82	23
45-54	7	8	21	37	16	11	85	27
55-64	8	10	26	32	13	10	81	23
65-74	11	13	29	27	12	9	77	21
75+	14	15	30	24	10	7	71	17
TOTAL 16+	8	16	24	32	13	7	76	20
Difference from National Average:								
16-19	2	1	0	-2	0	0	-2	0
20-24	3	5	-2	-2	-3	-1	-8	-4
25-34	2	3	-4	2	-2	-2	-6	-4
35-44	2	0	-6	4	-1	0	-3	-2
45-54	2	-1	-7	7	0	0	-1	0
55-64	0	-3	-6	8	1	0	3	1
65-74	-3	-4	-4	8	3	2	8	5
75+	-7	-4	-1	8	2	2	11	4
TOTAL 16+	1	0	-5	5	0	0	0	0

Source: Calculated from the 2000 PUMS, U.S. Census Bureau.

age groups. However, Arizona ranked above the middle in the retirement age group (see Table 4).

The variation in educational attainment by state resulted both from state-by-state differences in educational attainment of people who grow up and remain in a state and from migration flows. Migrants tend to be more highly educated than people who do not make an interstate move (as discussed in the “By Place of Birth and By Place of Residence in 1995” subsection), but popular states for young migrants differ from desirable destinations for older migrants.

Several states along the northern and central Atlantic Coast, especially Massachusetts, had stronger relative educational attainment among young adults than retirees. These states generally had strong attainment among natives, net in-migration of educated young workers, and net out-migration of educated retirees. In contrast, much of the West had stronger relative educational attainment among retirees than young adults, largely due to strong net in-migration of educated retirees and either poor educational attainment of natives and/or strong in-migration of relatively uneducated young people. Thus, the educational attainment in these western states when analyzed by the standard 25-or-older measure is overstated as it applies to labor force participants.

Arizona is a prime example, with high educational attainment among retirees relative to the national average, whether measured by the percentage of high school graduates, university graduates, or graduate degrees (see Chart 1). In contrast, Arizona had among the lowest percentages with a high school diploma in the young-adult age groups of 18 to 24 and 25 to 34

TABLE 4
EDUCATIONAL ATTAINMENT IN 2000 BY AGE: POPULATION 18 OR OLDER

Age and Degree	Arizona	U.S.	51 States	Arizona Rank	
				11 Com- petitors	11 New Economy
At Least a Bachelor's Degree:					
18-24	5.7%	7.8%	40	8	10
25-34	22.9	27.5	38t	9	11
35-44	23.8	25.9	29	8	11
45-64	26.5	26.4	23	7	11
65+	19.1	15.4	9	5	5
TOTAL 25+	23.5	24.4	25t	7	11
Graduate or Professional Degree:					
25-34	5.5	7.2	32t	8	10
35-44	7.7	8.7	24t	8t	11
45-64	11.2	11.4	21t	7	10
65+	7.9	6.4	10t	4	5
TOTAL 25+	8.4	8.9	20t	6	9

t: tie

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

CHART 1
EDUCATIONAL ATTAINMENT IN ARIZONA IN 2000 RELATIVE TO NATIONAL AVERAGE BY AGE GROUP: POPULATION 18 OR OLDER



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

and also was below average based on those with bachelor's and graduate degrees. This poor performance partially resulted from the low educational attainment of children educated in Arizona, but the strong net in-migration of young, poorly educated people, especially from Mexico and Central America, also contributed.

By Labor Force Participation and Age

Educational attainment was considerably higher among workforce participants than those not active in the labor force in every age group in 2000. In Arizona among those 25 or older, 86 percent of workforce participants had a high school diploma, compared to only 72 percent of those not working. The proportion with at least a four-year university degree was 27 percent of those in the workforce but only 16 percent of those not working.

The differentials between those in and not in the labor force were similar in Arizona to the national average. Overall, however, Arizona's educational attainment among workforce participants was slightly less than the national average, as seen in Table 5.

Among those in the workforce, educational attainment among those less than 45 years old was lower in Arizona than the national average. In particular, Arizona was well behind the national average among those 20-to-34 years old. This age group formed a larger share of the workforce in Arizona than nationally. In contrast, attainment was higher in Arizona among those 55 or

TABLE 5
EDUCATIONAL ATTAINMENT IN 2000 BY AGE:
LABOR FORCE PARTICIPANTS 16 OR OLDER

Age	<=8th grade	9th-12th	HS Grad	Some College	Bach Degree	Grad Degree	>=HS Grad	>=Bach Degree
16-19	6%	56%	22%	17%	0%	0%	39%	0%
20-24	6	16	28	42	8	1	78	8
25-34	5	11	23	35	19	6	83	25
35-44	5	9	23	37	17	9	86	26
45-54	5	6	20	38	18	13	89	31
55-64	6	8	24	34	16	13	87	29
65-74	8	10	24	31	16	13	83	29
75+	9	13	27	28	12	11	78	23
TOTAL 16+	5	13	23	36	16	8	82	24
Difference from National Average:								
16-19	2	1	0	-2	0	0	-2	0
20-24	2	4	-3	0	-3	0	-6	-3
25-34	2	2	-3	3	-2	-2	-4	-4
35-44	2	0	-7	5	-1	0	-2	-1
45-54	2	-1	-7	6	0	0	0	0
55-64	1	-2	-7	8	2	0	3	2
65-74	-1	-3	-7	8	3	1	5	4
75+	-4	-2	-2	7	0	0	6	1
TOTAL 16+	1	1	-5	5	0	-1	-2	-1

Source: Calculated from the 2000 PUMS, U.S. Census Bureau.

older, but this age group made up a smaller share of the workforce in Arizona than nationally. Moreover, those 55 or older accounted for only 14 percent of the entire Arizona workforce compared to those 20-to-34 years old accounting for 34 percent.

By Gender

Nationally and in Arizona among those 25 or older, a higher proportion of males than females held at least a bachelor’s degree in 2000. However, a marginally larger proportion of males than females did not earn a high school diploma (see Table 6).

In the younger age groups (through age 34), females in Arizona were better educated than males, with higher percentages of both high school graduates and university graduates. The opposite was true in older age groups (age 55 or older), where males had more educational attainment. The differential between the genders was particularly wide among those at least 55 years old with a university degree.

By Race/Ethnicity

Significant differences in educational attainment existed across racial/ethnic groups in 2000. Nationally, non-Hispanic whites and Asians/Pacific Islanders had much higher attainments than other groups. Asians/Pacific Islanders by far had the highest proportion of college graduates, but also had a higher proportion than non-Hispanic whites of those without a high school diploma. Blacks and American Indians had the next highest achievement while Hispanics and “other” had the lowest attainment, especially as measured by the percentage of high school graduates.

In Arizona, non-Hispanic whites had the highest educational attainment as measured by the percentage of high school graduates in 2000 (in the under-25 age groups, Asians had the highest attainment). The share of high school graduates was lower than the overall state total among American Indians and Blacks, and far below average among Hispanics (see Table 7). A considerably greater proportion of Asians than non-Hispanic whites had at least a bachelor’s degree. The percentage of university graduates was low for Blacks, American Indians, and Hispanics.

TABLE 6
EDUCATIONAL ATTAINMENT IN 2000 BY GENDER: POPULATION 25 OR OLDER

Race/Ethnicity	<=8th grade	9th-12th	HS Grad	Some College	Bach Degree	Grad Degree	>=HS Grad	>=Bach Degree
Male	9%	12%	24%	31%	16%	9%	80%	25%
Female	8	12	26	34	14	7	80	21
TOTAL 25+	8	12	25	33	15	8	80	23
Difference from National Average:								
Male	1	0	-5	5	1	0	1	0
Female	0	0	-5	6	0	0	0	-1
TOTAL 25+	0	0	-5	6	0	0	0	0

Source: Calculated from the 2000 PUMS, U.S. Census Bureau.

TABLE 7
EDUCATIONAL ATTAINMENT IN 2000 BY RACE/ETHNICITY:
POPULATION 25 OR OLDER

Race/Ethnicity	<=8th grade	9th-12th	HS Grad	Some College	Bach Degree	Grad Degree	>=HS Grad	>=Bach Degree
Asian/Pacific Island	9%	9%	16%	22%	24%	20%	83%	44%
Non-Hispanic White	3	9	25	36	18	10	89	28
Other Race	7	12	25	36	13	8	82	21
Black	5	14	25	38	12	6	81	18
Hispanic	28	20	23	21	5	3	51	8
American Indian	17	22	29	26	5	2	62	7
TOTAL 25+	8	12	25	33	15	8	80	23
Difference from National Average:								
Other Race	-1	-1	-2	6	-1	0	3	-1
Black	-4	-6	-5	11	3	1	10	4
Asian/Pacific Island	-2	0	-1	1	-2	3	3	1
Non-Hispanic White	-2	-1	-6	8	2	1	4	3
Hispanic	-1	0	1	2	-1	-1	0	-2
American Indian	8	4	-3	-4	-2	-2	-10	-4
TOTAL 25+	0	0	-5	6	0	0	0	0

Source: Calculated from the 2000 PUMS, U.S. Census Bureau.

Relative to the same racial/ethnic group nationally, educational attainment in Arizona was considerably lower among Native Americans and somewhat lower among Hispanics as measured by share with a bachelor's degree. In contrast, educational attainment in Arizona relative to the nation was much higher among Blacks and higher among non-Hispanic whites. The above-average proportion of Hispanics in Arizona lowered the state's overall educational attainment relative to the nation.

By Place of Birth and By Place of Residence in 1995

Arizona natives (those born in Arizona) had substantially lower educational attainment in 2000 than Arizonans born elsewhere in the United States, in all age groups and as measured both by high school graduates and university graduates. A considerably lower proportion of those born outside the United States were high school graduates, but the proportion of foreign-born with at least a bachelor's degree marginally exceeded that of Arizona natives (see Table 8).

The same patterns prevailed nationally, though the difference in attainment between natives and interstate migrants was not as large as in Arizona. When measured by those with at least a bachelor's degree, all three groups (natives, interstate migrants, and immigrants) had lesser attainment in Arizona than nationally. Arizona's overall figure was close to the national average because the state had a disproportionately large share of those born in other states, the category with the highest educational attainment. When measured by those with at least a high school diploma, interstate migrants to Arizona were slightly better educated than interstate migrants to other states, but immigrants to Arizona were much less well educated than immigrants to other states.

TABLE 8
EDUCATIONAL ATTAINMENT IN 2000 BY PLACE OF BIRTH
AND PLACE OF RESIDENCE IN 1995: POPULATION 25 OR OLDER

	<=8th grade	9th- 12th	HS Grad	Some College	Bach Degree	Grad Degree	>=HS Grad	>=Bach Degree
Place of Birth								
Same State	8%	15%	28%	34%	10%	4%	77%	15%
Different State	3	9	25	36	17	10	88	27
Foreign	30	18	18	18	9	7	52	16
1995 Residency								
Same State	9	12	25	33	14	8	79	21
Different State	4	8	23	34	20	11	87	31
Foreign	26	17	18	18	13	9	57	22
TOTAL 25+	8	12	25	33	15	8	80	23
Difference from National Average:								
Place of Birth								
Same State	2	2	-7	7	-3	-2	-4	-4
Different State	-1	-1	-1	6	-2	-2	2	-3
Foreign	7	3	-1	-1	-5	-3	-10	-7
1995 Residency								
Same State	1	-1	-6	6	0	0	0	-1
Different State	0	0	1	4	-3	-3	-1	-5
Foreign	9	3	0	0	-5	-5	-12	-11
TOTAL 25+	0	0	-5	6	0	0	0	0

Source: Calculated from the 2000 PUMS, U.S. Census Bureau.

Recent migrants (those moving between 1995 and 2000) from other states had higher attainment than those who had been in Arizona longer. Those moving recently from another country had the lowest attainment as measured by the percentage of high school graduates, but marginally higher attainment compared to long-term Arizona residents as measured by percentage with a bachelor's degree.

The educational attainment of those who did not make an interstate move between 1995 and 2000 was about the same in Arizona as the national average. Recent interstate migrants to Arizona were less well educated than other interstate migrants, especially as measured by the share with a bachelor's degree. Those who immigrated to Arizona between 1995 and 2000 were far less educated than other immigrants.

In Arizona in 2000, educational attainment was highest among citizens by birth, followed by naturalized citizens. Residents who were not citizens had appreciably lesser educational attainment. The share with at least a bachelor's degree was 24 percent of citizens by birth, 19 percent of naturalized citizens, and 12 percent of non-citizens.

Among immigrants living in Arizona in 2000, educational attainment was highest among those living in the country for more than 20 years. However, the percentage with at least a bachelor's degree was as high among those who entered the United States between 1995 and 2000 as among those who entered prior to 1980.

By Age, Race/Ethnicity, Place of Birth, and Place of Residence in 1995

In order to better understand the causes of Arizona's educational attainment being different from the United States average, attainment was examined by four factors simultaneously: age, race/ethnicity, place of birth, and place of residence in 1995. Because of small sample sizes in some categories, the analysis by age group was limited.

The analysis discussed in this subsection was of the entire population 25 or older; in the last subsection of the next section the same analysis for labor force participants between the ages of 25 and 64 is discussed. Individuals were distributed into one of nine categories based on place of birth and migration during the five years prior to the census date:

1. "Earlier Migrant": A person born in a different U.S. state from the one in which they lived in 2000 who had migrated to their 2000 state of residence before 1995.
2. "Recent Migrant": A person born in a different U.S. state from the one in which they lived in 2000 who had migrated to their 2000 state of residence in the five years prior to the 2000 census.
3. "Recent Migrant (in another country in 1995)": A person born in a different U.S. state from the one in which they lived in 2000 who had migrated to their 2000 state of residence from a foreign country in the five years prior to the 2000 census.
4. "Native": A person living in the same state in both 1995 and 2000 as that in which they were born.
5. "Native (in another state in 1995)": A person living in the same state in 2000 as that in which they were born but who lived in another U.S. state in 1995.
6. "Native (in another country in 1995)": A person living in the same state in 2000 as that in which they were born but who lived in another country in 1995.
7. "Earlier Immigrant": A person born in another country who was living in the same state in 1995 and 2000.
8. "Earlier Immigrant (in another state in 1995)": A person born in another country who was living in a different U.S. state in 1995 than their state of residence in 2000.
9. "Recent Immigrant": A person born in another country who moved to the United States between 1995 and 2000.

Individuals were further divided by three racial/ethnic groups (non-Hispanic whites, Hispanics, other), resulting in 27 categories. The "other" racial/ethnic group is diverse, including Asians (a group with higher-than-average educational attainment), Native Americans (a group with lower-than-average educational attainment), Blacks, and other. This racial combination was necessary because of the small sample sizes in Arizona in each of these four racial/ethnic groups.

Differences in educational attainment between Arizona and the national average are shown for most of the 27 categories in Table 9, listed in order of the number of people living in Arizona in 2000. Those categories with a sample size in Arizona of less than 250 are not shown.

By far the largest category in Arizona was that of non-Hispanic whites who moved to Arizona from another state prior to 1995. As a proportion of the total, this category was far larger in Arizona than nationally. While the high school graduation rate of earlier non-Hispanic white interstate migrants was a little higher, the university graduation rate was lower, in Arizona than the national average. A relationship between educational attainment and age existed in this

category, with those 65 or older having the highest attainment in Arizona relative to their national peers (considerably higher attainment based on high school graduation rate and only slightly lower based on university graduation rate). Among the working-age population, high school attainment was slightly higher in Arizona except among those less than 25, who had an attainment less than the national average. University graduation rates were lower in Arizona in all of the age groups less than 65.

The second largest category in Arizona was non-Hispanic whites who moved to Arizona from another state between 1995 and 2000, which also made up a much larger proportion of the Arizona total than of the national total. Educational achievement among Arizonans in this category was far below the national average based on university graduation rate and equal to the national average as measured by high school graduation rate. A relationship between educational attainment and age also existed in this category. Those 65 or older had the highest attainment in Arizona relative to their national peers based on both high school and university graduation rates, with high school rates being above the national average and university rates being close to the national average. Based on high school graduation rate, those under 25 had the weakest attainment relative to their peers at just below the national average. All of the under-65 age groups had lower-than-average university graduation rates.

In contrast, non-Hispanic whites living in the same state in both 1995 and 2000 as that in which they were born was a far larger category nationally than in Arizona. Though educational attainment in this category was higher in Arizona than the nation, the small size of the category in Arizona kept it from offsetting the inferior attainment of the two non-Hispanic white interstate migrant categories. A very strong relationship between age and attainment relative to the national average was present among non-Hispanic white natives: measured both by high school and university graduation rates, attainment was far above the national average in Arizona among those 65 or older but below average among those less than 35.

Educational attainment in Arizona was less than the national average in each of the next four categories listed in Table 9. Age had no effect in three of these categories — earlier Hispanic immigrant, earlier Hispanic interstate migrant, and native other race — with attainment in Arizona below average in every age group based on both high school and university graduation rates. In the native Hispanic category, those 55 or over had above-average high school graduation rates while those under 35 had below-average rates. Based on university graduation, the elderly were close to average while the younger-than-55 age groups were below average.

Looking at all of the categories of non-Hispanic whites, educational attainment as measured by university graduation rate was lower than the national average in each case except that of people living in the same state in both 1995 and 2000 as that of their birth. University graduation rates were lower in Arizona than the national average in all nine categories of Hispanics. Among non-Hispanics of other races, results were more mixed by category, but none of the categories were large in size. Non-Hispanic other race natives had attainments considerably below average, likely due to a disproportionate share of Arizona natives being

Native Americans, a group with considerably below average attainment in Arizona. In contrast, most of the non-Hispanic other race migrant and immigrant categories had educational

attainment similar to or slightly greater than the national average. This likely resulted from a disproportionate share of the immigrants being Asian and a disproportionate share of the interstate migrants being Blacks or Asians — races with higher educational attainment in Arizona than nationally.

**TABLE 9
EDUCATIONAL ATTAINMENT IN 2000 BY RACE/ETHNICITY, PLACE OF BIRTH
AND PLACE OF RESIDENCE IN 1995: POPULATION 25 OR OLDER**

	Difference in Attainment, AZ Less U.S.		Percentage of All Observations		
	>=HS Grad	>=Bach Degree	Ari- zona	U.S.	Differ- ence
Earlier Migrant, White	1.5	-3.9	45.1	23.2	21.9
Recent Migrant, White	-0.1	-7.4	12.3	4.4	7.9
Native, White	5.4	1.9	9.0	42.5	-33.5
Earlier Immigrant, Hispanic	-5.7	-2.5	7.4	4.9	2.5
Native, Hispanic	-0.5	-3.0	6.0	2.4	3.6
Native, Other Race	-9.5	-5.5	4.0	6.9	-2.9
Earlier Migrant, Hispanic	-2.6	-2.3	2.7	0.8	1.9
Earlier Migrant, Other Race	6.1	0.7	2.5	3.4	-0.9
Earlier Immigrant, White	5.2	-1.1	2.5	2.9	-0.4
Recent Immigrant, Hispanic	-9.4	-4.7	1.5	0.7	0.8
Earlier Immigrant, Other Race	2.3	0.8	1.2	3.1	-1.9
Earlier Immigrant in Another State in 1995, Hispanic	-7.8	-5.3	1.0	0.4	0.6
Recent Migrant, Other Race	2.0	-0.1	0.8	0.6	0.2
Earlier Immigrant in Another State in 1995, White	-3.4	-11.1	0.7	0.3	0.4
Recent Migrant, Hispanic	0.4	-3.6	0.6	0.2	0.4
Native in Another State in 1995, White	1.1	-1.4	0.5	1.2	-0.7
Earlier Immigrant in Another State in 1995, Other Race	1.3	-5.4	0.4	0.4	0.0
Recent Immigrant, White	-0.5	-9.8	0.4	0.4	0.0
Recent Migrant in Another Country in 1995, White	-2.8	-5.9	0.4	0.2	0.2
Recent Immigrant, Other Race	3.6	1.0	0.4	0.6	-0.2
Native in Another State in 1995, Hispanic	2.9	-2.9	0.2	0.1	0.1

Notes: “White” and “Other Race” include only non-Hispanics. “Earlier” refers to a move made before 1995; “recent” refers to a move made between 1995 and 2000. “Migrant” refers to someone moving from one U.S. state to another; “immigrant” refers to someone moving to the U.S. from another country. “Native” refers to someone living in the same state in 2000 as that in which they were born.

Source: Calculated from the 2000 PUMS, U.S. Census Bureau.

**EDUCATIONAL ATTAINMENT OF WORKFORCE PARTICIPANTS
BETWEEN THE AGES OF 25 AND 64 IN 2000:
ARIZONA COMPARED TO THE NATION AND OTHER STATES**

In all age groups, educational attainment was higher among those active in the labor market than those not in the workforce, nationally and in Arizona. From an economic development perspective, the educational attainment of those active in the labor market (particularly those between 25 and 64 years of age, most of whom have completed their education and are not of traditional retirement age) is of more relevance than overall attainment of the entire 25-or-older population. This is particularly true in Arizona, which attracts a large number of well-educated retirees (many under the age of 65) who boost the state's average educational attainment but do not participate in the labor market. Thus, the most commonly reported educational attainment figures, which are for the entire population 25 or older, present Arizona more favorably relative to the nation and other states than is the reality of labor market participants.

This section focuses on labor market participants between the ages of 25 and 64 in Arizona in 2000, based on the PUMS. Arizona is compared to the nation and to each of the other states based on the nine categories of place of residence in 1995 and place of birth discussed in the prior subsection. The comparison to the nation includes the racial/ethnic distinction, resulting in 27 categories.

Educational attainment among those in the workforce aged 25 to 64 was considerably higher in 2000 than among the entire 25-or-older population discussed in the prior section. Nationally, the percentage with at least a high school diploma was 7.3 percentage points higher among the 25-to-64 workforce; the differential among those with at least a bachelor's degree was 4.1 percentage points.

With so many highly educated older adults not in the workforce, Arizona's educational attainment in the 25-to-64 workforce was not as far above the entire 25-or-older population as the national average, with differentials of 5.0 percentage points measured by high school graduation and 3.9 points based on university graduation. Only nine states had a smaller differential on the high school graduate measure, but many of these were competitor and/or new economy states.

Among labor force participants 25-to-64 years old, the proportion with at least a high school diploma was 86.0 percent in Arizona, less than the national average of 87.7 percent and ranking 40th among all states, seventh among 11 competitor states, and 10th among 11 new economy states. These ranks are worse than those based on the entire 25 or older population. In contrast, the ranks are about the same for the entire 25-or-older population and labor force participants 25-to-64 on the percentage with at least a bachelor's degree. Arizona's figure of 27.4 percent was less than the U.S. average of 28.5 percent, ranking 23rd among all states, seventh among competitor states, and last among new economy states.

By Place of Birth and Place of Residence in 1995

Individuals between the ages of 25 and 64 who were active in the labor market at the time of the 2000 census (this includes those who were unemployed but actively looking for work) were

placed into one of the nine categories discussed in the prior section (based on migration during the five years prior to the census date and place of birth).

Nationwide, 40 percent of the entire population in 2000 were labor force participants between the ages of 25 and 64. Due to slightly above-average shares of children and elderly and a below-average workforce participation rate of people of working age, Arizona's proportion was below average at 36 percent. The proportion was lowest in the South and Southwest, as low as 34 percent in Louisiana, Mississippi and West Virginia. The highest proportions were scattered across the northern states, as high as 46 percent in New Hampshire.

As seen in Table 10, earlier interstate migrants to Arizona were by far the most numerous among 25-to-64-year-old labor force participants, followed by Arizona natives, recent interstate migrants, and earlier immigrants. None of the other five categories were large. Few native Arizonans were living elsewhere in 1995 but had returned to Arizona in 2000 and few born in another U.S. state were living in another country in 1995 but in Arizona in 2000.

Large differences between Arizona and the national average are seen in the distribution across the nine categories. In particular, Arizona proportionally had far fewer natives (those living in the same state in both 1995 and 2000 as their birth state), with its 21 percent share second lowest in the country. Most of the states with the lowest proportions were in the West (including Nevada at 9 percent) and the states with the highest proportions mostly were in the Plains and Great Lakes regions, with Pennsylvania having the highest share at 75 percent.

TABLE 10
RELATIVE SIZE OF NINE CATEGORIES IN 2000:
LABOR FORCE PARTICIPANTS AGED 25 TO 64

	Arizona	U.S.	Difference
Earlier Migrant	47.9%	26.4%	21.5
Recent Migrant	14.2	6.0	8.2
Recent Migrant (in another country in 1995)	0.6	0.4	0.2
Native	20.9	52.3	-31.4
Native (in another state in 1995)	1.0	1.6	-0.6
Native (in another country in 1995)	0.2	0.1	0.1
Earlier Immigrant	10.8	10.5	0.3
Earlier Immigrant (in another state in 1995)	2.2	1.2	1.0
Recent Immigrant	2.2	1.7	0.5
Born in another state	62.7	32.8	29.9
Born in same state	22.1	54.0	-31.9
Born in another country	15.2	13.4	1.8
Living in same state in 1995	79.6	89.2	-9.6
Living in another state in 1995	17.4	8.8	8.6
Living in another country in 1995	3.0	2.2	0.8

Source: Calculated from the 2000 PUMS, U.S. Census Bureau.

Arizona proportionally had considerably more migrants from other states, both those who had moved recently and those who had moved prior to 1995. In nine states, more than half of the workforce between the ages of 25 and 64 were born in another state (a combination of the three interstate migrant categories). Arizona ranked third, behind Nevada and Alaska. In contrast, in eight states less than one-fourth of the 25-to-64 workforce were born in another state.

Arizona was one of relatively few states with a higher proportion of immigrants in the 25-to-64 workforce (15 percent) than the national average of 13 percent (a combination of the three immigrant categories). The proportion exceeded 20 percent in five mostly populous states: California, New York, New Jersey, Hawaii, and Florida.

Based on place of birth, migrants from other states had the highest educational attainment both in Arizona and nationally, especially on the bachelor's degree measure. Immigrants had low attainment based on the percentage of high school graduates, but higher attainment than natives based on the percentage with bachelor's degrees. Based on place of residence in 1995, those living in another state had higher attainment than those living in the same state as in 2000. A higher percentage of recent immigrants had a bachelor's degree than natives nationally, but the proportion was smaller in Arizona.

The educational attainment within the nine categories is ordered by size of the category in Arizona in Table 11. Recent interstate migrants had the highest attainment based on high school graduation and university graduation, in Arizona and nationally.

Comparing Arizona to the nation, overall educational attainment was a little lower in Arizona. Based on high school graduation, Arizona's attainment was far below the national average among immigrants and below average among natives. Attainment among interstate migrants was marginally higher in Arizona. The large size of this group in Arizona partially offset the large educational deficiencies in Arizona among the other categories.

Measured by university graduation, Arizona was below the national average in all categories, with the largest differentials among immigrants. Because the earlier interstate migrant and recent interstate migrant categories had among the highest university graduation rates and were proportionately much more numerous in Arizona, Arizona's overall university graduation rate was not as far below the national average as in each of the categories.

As seen in Table 12, Arizona's attainment as measured by percentage with at least a bachelor's degree was at or near the bottom of the new economy states and below the middle of the competitor states in each of the major categories. Overall attainment ranked 23rd among all states, even though the highest rank by category was a tie for 27th among earlier interstate migrants. Arizona ranked 40th or lower in most categories.

TABLE 11
EDUCATIONAL ATTAINMENT IN 2000 IN NINE CATEGORIES:
LABOR FORCE PARTICIPANTS AGED 25 TO 64

	At Least High School Graduate			At Least Bachelor's Degree		
	AZ	US	Diff	AZ	US	Diff
Earlier Migrant	92.6%	92.2%	0.4	31.1%	35.2%	-4.1
Native	85.4	89.3	-3.9	17.8	23.0	-5.2
Recent Migrant	94.7	94.4	0.3	37.8	43.9	-6.1
Earlier Immigrant	56.3	68.3	-12.0	16.8	26.1	-9.3
Earlier Immigrant (in another state in 1995)	68.8	78.3	-9.5	28.2	41.4	-13.2
Recent Immigrant	51.4	68.4	-17.0	21.5	36.3	-14.8
Native (in another state in 1995)	89.8	92.1	-2.3	25.9	35.6	-9.7
Recent Migrant (in another country in 1995)	91.5	93.5	-2.0	34.8	41.4	-6.6
Native (in another country in 1995)	75.5	83.9	-8.4	18.9	28.0	-9.1
Born in another state	93.1	92.6	0.5	32.7	36.8	-4.1
Born in same state	85.5	89.4	-3.9	18.2	23.4	-5.2
Born in another country	57.4	69.1	-11.7	19.1	28.7	-9.6
Living in same state in 1995	85.8	87.7	-1.9	25.7	27.0	-1.3
Living in another state in 1995	91.2	91.9	-0.7	35.9	42.0	-6.1
Living in another country in 1995	60.3	73.3	-13.0	24.0	36.2	-12.2
TOTAL	86.0	87.7	-1.7	27.4	28.5	-1.1

Source: Calculated from the 2000 PUMS, U.S. Census Bureau.

TABLE 12
EDUCATIONAL ATTAINMENT IN 2000 BY PLACE OF BIRTH AND PLACE OF
RESIDENCE IN 1995: LABOR FORCE PARTICIPANTS AGED 25 TO 64

	Percentage with at Least a Bachelor's Degree			Arizona Rank	
	Arizona	United States	51 States	11 Competitors	11 New Economy
Earlier Migrant	31.1%	35.2%	27t	8	11
Native	17.8	23.0	40t	9t	11
Recent Migrant	37.8	43.9	30t	9	11
Earlier Immigrant	16.8	26.1	48	9	11
Earlier Immigrant (in another state in 1995)	28.2	41.4	49	9	10
Recent Immigrant	21.5	36.3	43	10	11
Native (in another state in 1995)	25.9	35.6	47	10	11
TOTAL*	27.4	28.5	23	7	11

t = tie

* Includes small numbers in other categories not shown

Source: Calculated from the 2000 PUMS, U.S. Census Bureau.

By Race/Ethnicity

The nine migration categories are repeated in Table 13, by race/ethnicity. Overall, educational attainment was far higher among non-Hispanic whites than Hispanics. Other races grouped together had figures less than non-Hispanic whites, but considerably above those of Hispanics.

Non-Hispanic whites born in Arizona had slightly lower educational attainment as measured by the percentage with a high school diploma than non-Hispanic whites born either in another state or in another country. The differential was more pronounced when measured by percentage with a bachelor's degree. Recent arrivals in Arizona had the highest attainment among non-Hispanic whites, with those from another state having the highest achievement based on high school graduation and those from another country having the highest attainment measured by university graduation.

In every category, educational attainment of Hispanics was less than that of non-Hispanic whites, with the difference especially large when measured by percentage with a bachelor's degree. Hispanics born in Arizona had a lesser attainment than Hispanics born in another state, but Hispanic immigrants had considerably lower attainment measured by percentage with a high school diploma. Hispanic immigrants had far lower attainment than non-Hispanic immigrants.

The "non-Hispanic other" category is a diverse group. Based on the percentage of high school graduates, non-Hispanic other interstate migrants were the best educated, with Arizona natives the worst. However, based on percentage with bachelor's degrees, non-Hispanic other

TABLE 13
EDUCATIONAL ATTAINMENT IN ARIZONA IN 2000 BY RACE/ETHNICITY:
LABOR FORCE PARTICIPANTS AGED 25 TO 64

	Non-Hispanic White		Hispanic		Non-Hispanic Other	
	HS+	Bach+	HS+	Bach+	HS+	Bach+
Recent Migrant	95.4%	39.3%	86.9%	23.0%	92.5%	30.9%
Earlier Migrant	93.6	32.6	79.4	16.1	90.9	23.6
Recent Migrant (in another country in 1995)	94.5	39.5	78.9	18.3	87.5	23.4
Native (in another state in 1995)	91.8	31.2	83.1	18.4	90.3	11.3
Native	91.8	24.6	79.0	10.7	78.0	10.1
Native (in another country in 1995)	89.2	29.2	53.3	6.7	78.8	15.2
Earlier Immigrant (in another state in 1995)	92.9	42.9	44.1	9.6	89.7	48.0
Earlier Immigrant	92.4	35.3	40.0	6.6	83.7	40.4
Recent Immigrant	92.7	45.4	31.9	7.8	85.5	51.6
TOTAL	93.6	32.8	60.3	10.3	84.9	23.9

HS+: High School Graduate or More
Bach+: Bachelor's Degree or More

Source: Calculated from the 2000 PUMS, U.S. Census Bureau.

immigrants by far had the highest attainments (higher than those of non-Hispanic white immigrants).

The same relationships held among more narrow age groups. For example, among those between 25 and 34 years old, those born in Arizona had lower educational attainment than migrants from other states and immigrants other than Hispanics.

By Race/Ethnicity, Place of Birth and Place of Residence in 1995

The same multiway cross tabulation performed for the entire population 25 or older was conducted for workforce participants between the ages of 25 and 64 in Arizona compared to the nation. The results for labor force participants between 25 and 64 years of age are shown in Table 14 for those categories with a sample size of more than 250 in Arizona.

TABLE 14
EDUCATIONAL ATTAINMENT IN 2000 BY RACE/ETHNICITY, PLACE OF BIRTH
AND PLACE OF RESIDENCE IN 1995:
LABOR FORCE PARTICIPANTS AGED 25 TO 64

	Difference in Attainment, AZ Less U.S.		Percentage of All Observations		
	>=HS Grad	>=Bach Degree	Ari-zona	U.S.	Difference
Earlier Migrant, White	0.3	-4.7	42.5	22.5	20.0
Recent Migrant, White	0.2	-7.3	12.3	5.0	7.3
Native, White	0.8	0.0	10.8	43.0	-32.2
Earlier Immigrant, Hispanic	-6.6	-2.9	7.2	4.6	2.6
Native, Hispanic	-0.6	-3.8	6.5	2.6	3.9
Native, Other Race	-4.6	-5.9	3.6	6.7	-3.1
Earlier Migrant, Hispanic	-1.7	-3.0	2.9	0.8	2.1
Earlier Migrant, Other Race	3.8	-0.3	2.6	3.1	-0.5
Earlier Immigrant, White	4.0	-2.8	2.2	2.5	-0.3
Recent Immigrant, Hispanic	-10.2	-4.9	1.5	0.7	0.8
Earlier Immigrant, Other Race	0.7	0.5	1.4	3.4	-2.0
Earlier Immigrant in Another State in 1995, Hispanic	-7.5	-5.6	1.0	0.4	0.6
Recent Migrant, Other Race	0.7	-0.2	1.0	0.8	0.2
Recent Migrant, Hispanic	0.8	-3.2	0.8	0.2	0.6
Native in Another State in 1995, White	-1.3	-6.9	0.7	1.3	-0.6
Earlier Immigrant in Another State in 1995, White	-2.4	-11.5	0.6	0.3	0.3
Earlier Immigrant in Another State in 1995, Other Race	0.1	-6.6	0.5	0.5	0.0
Recent Immigrant, White	1.0	-9.2	0.4	0.4	0.0
Recent Migrant in Another Country in 1995, White	-1.1	-7.4	0.4	0.3	0.1
Recent Immigrant, Other Race	0.7	-1.1	0.4	0.6	-0.2

Notes: "White" and "Other Race" include only non-Hispanics. "Earlier" refers to a move made before 1995; "recent" refers to a move made between 1995 and 2000. "Migrant" refers to someone moving from one U.S. state to another; "immigrant" refers to someone moving to the U.S. from another country. "Native" refers to someone living in the same state in 2000 in which they were born.

Source: Calculated from the 2000 PUMS, U.S. Census Bureau.

Among all 27 categories, results were mixed based on percentage with at least a high school diploma. Attainment in Arizona was marginally higher than the national average in the three largest categories, but below average in the next four categories.

Arizona's educational attainment as measured by the share with at least a bachelor's degree was greater than the national average in just one case: earlier non-Hispanic other race immigrants. Arizona equaled the national average among native non-Hispanic whites. However, the percentage with a bachelor's degree was far below the national average in the two largest categories: earlier non-Hispanic white interstate migrants and recent non-Hispanic white interstate migrants.

EDUCATIONAL ATTAINMENT RELATIVE TO JOB QUALITY IN 2000

Conceptually, educational attainment and job quality should be correlated. For this comparison, educational attainment was measured as both high school graduates and university graduates, in the entire population 25 or older and among the work force aged 25 to 64. Both educational attainment and job quality were expressed by state relative to the national average.

A strong correlation of 0.75 existed between job quality and educational attainment in 2000 when attainment was measured as the percentage of college graduates among all residents age 25 or older. The correlation was slightly higher at 0.79 when attainment was measured as the percentage of college graduates among workforce participants aged 25 to 64. In contrast, little correlation was present when the attainment measure was the percentage of high school graduates: 0.02 for all residents 25 or older and 0.03 for workforce participants aged 25 to 64.

The strong correlation of job quality with university graduation rates and the lack of correlation with high school graduation rates is another indication of the economic shift during the latter part of the 20th century (and continuing today) from the old industrial economy to the new knowledge economy. A university education has tremendous value in the 21st century economy.

Job quality and educational attainment are not perfectly related for a variety of reasons. Generally, some people will never move from the community in which they grew up, whether due to family ties or other reasons. Yet if educational attainment is encouraged in their family or community, these residents may gain too much education for the limited available job opportunities in their community (particularly true of less populous areas) and accept underemployment rather than migrate to an area with greater job opportunities matching their skills. Some states are attractive for non-economic reasons, such as natural beauty, causing people to be willing to be underemployed, frequently in tourism-related jobs. Other states have an unusual industrial mix that includes a large proportion of high-paying jobs that do not require a university education.

Table 15 displays job quality and educational attainment (measured as university graduation rate of workforce participants between 25 and 64 years of age) by state relative to the national average. The two measures were compared state by state in three ways: (1) difference between educational attainment and job quality, (2) difference between educational attainment and one-half of job quality (the value was divided in half since the job quality value varies more widely than educational attainment), and (3) difference in ranks.

Those states with a lesser job quality than expected given their educational attainment mostly are less populous states without large urban areas nearby. The most extreme differences are in states (Vermont, Hawaii, and Montana) that have considerable natural beauty. It is likely that these states attract a certain type of educated migrant who is willing to be underemployed in exchange for perceived non-economic advantages.

Those states with higher job quality than expected given their educational attainment are states with an abnormally high share of jobs that are high-paying but do not require much educational attainment, such as many mining and some manufacturing jobs. Michigan, Oklahoma, and Texas are among the states in this group. The differences between educational attainment and job

quality in these states are not nearly as extreme as in the three states mentioned in the preceding paragraph.

Arizona's slightly below-average job quality in 2000 was matched by its slightly subpar educational attainment among those in the workforce. The below-average educational attainment occurred primarily among young adults less than 35 years old. This suggests that Arizona had a disproportionate share of entry-level jobs and other positions that require relatively little experience.

TABLE 15
JOB QUALITY AND EDUCATIONAL ATTAINMENT IN 2000
Relative to the National Average

	Job Quality	Educational Attainment*		Job Quality	Educational Attainment*
DC	39.5	19.4	OR	-4.2	-0.7
MA	15.4	11.7	OK	-4.3	-6.1
NJ	7.7	8.2	LA	-4.8	-5.6
NY	6.9	4.5	AL	-4.9	-5.9
CO	6.9	7.4	NC	-5.3	-2.5
DE	6.8	1.7	NE	-5.9	-3.0
VA	6.4	5.8	RI	-6.4	4.0
MD	6.1	8.3	TN	-6.5	-5.2
CT	6.1	9.0	WV	-6.7	-8.1
IL	4.5	1.5	IN	-6.8	-6.7
TX	4.0	-1.6	ME	-7.2	-3.4
CA	3.9	3.5	KY	-7.3	-5.7
NH	2.2	3.4	ND	-8.4	-4.4
MN	1.9	-1.0	FL	-8.5	-2.1
WA	0.7	2.6	AR	-8.6	-9.7
UT	0.5	-0.3	WI	-8.6	-5.3
MI	0.1	-4.1	WY	-9.0	-5.5
GA	-0.2	-0.8	IA	-9.1	-5.5
PA	-0.5	-2.7	SC	-10.1	-5.3
AK	-1.0	-2.7	VT	-11.2	3.4
AZ	-1.3	-1.1	MT	-11.5	-0.4
KS	-1.9	-0.5	SD	-13.0	-4.6
MO	-2.2	-4.2	MS	-14.3	-8.4
ID	-3.1	-4.9	HI	-17.9	2.0
OH	-3.4	-3.9	NV	-20.1	-7.8
NM	-3.6	-1.4			

* University graduation rate of labor force participants between the ages of 25 and 64

Source: Job quality from job quality reports at <http://economist.asu.edu/P3/job-quality> and educational attainment calculated from the 2000 PUMS, U.S. Census Bureau.

EDUCATIONAL ATTAINMENT WITHIN ARIZONA IN 2000

Educational attainment among the 25-or-older population varied widely across Arizona in 2000. By county, the highest attainment was in the three counties with state universities: Coconino (Flagstaff and Northern Arizona University), Maricopa (the Phoenix area and Arizona State University), and Pima (the Tucson area and the University of Arizona). Each of these counties had above-average proportions of both high school graduates and university graduates. Yavapai County (the Prescott area and the Verde Valley) had the highest percentage of high school graduates among the 15 counties but was below average on the share of university graduates (see Table 16).

Among the other 11 counties, educational attainment was below average except as measured by high school graduates in Greenlee County (Clifton). Cochise (Sierra Vista) ranked sixth on high school graduates and fifth on university graduates. Santa Cruz County (Nogales) ranked next on university graduates but had the lowest high school graduation rate in the state. Apache, La Paz, and Yuma counties had much below-average percentages on each measure, and Mohave County's university graduation rate was second lowest.

Educational attainment also varied widely within the Phoenix area. Among the eight cities with a population of more than 100,000, all but Phoenix had a high school graduation rate at least equal to the Maricopa County total. However, only Scottsdale, Tempe, Gilbert, and Chandler had an

TABLE 16
EDUCATIONAL ATTAINMENT IN ARIZONA COUNTIES IN 2000:
POPULATION 25 OR OLDER
Ranked by 2000 Percentage of University Graduates

	High School Graduate	University Graduate
Coconino	83.8%	29.9%
Pima	83.4	26.7
Maricopa	82.5	25.9
Yavapai	84.7	21.1
Cochise	79.5	18.8
Santa Cruz	60.7	15.2
Gila	78.2	13.9
Navajo	71.2	12.3
Greenlee	82.5	12.2
Pinal	72.7	11.9
Graham	75.6	11.8
Yuma	65.8	11.8
Apache	63.6	11.3
Mohave	77.5	9.9
La Paz	69.3	8.7
Arizona	81.0	23.5
United States	80.4	24.4

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

above-average percentage of university graduates. Scottsdale, Gilbert, and Tempe ranked in the top three on both high school and university graduation rates.

Among all communities in Maricopa County, Paradise Valley, Carefree, and Litchfield Park had the highest attainments measured by both high school graduates (more than 95 percent) and university graduates (more than 45 percent). Cave Creek and Fountain Hills also were above average on each measure. In contrast, in Guadalupe, El Mirage, and Tolleson, less than 55 percent were high school graduates and less than 7 percent were university graduates. Gila Bend's figures also were far below average.

THE CHANGE IN EDUCATIONAL ATTAINMENT BETWEEN 1990 AND 2000

Between 1990 and 2000, the educational attainment of the 25-or-older population rose nationally, by 5 percentage points based on the proportion with at least a high school diploma and 4 points based on the percentage with at least a bachelor's degree. The overall gain resulted from large increases in educational attainment among those 50 or older relative to those of the same age in 1990. This reflects the advances in educational attainment experienced by those born during the first half of the 20th century as well as deaths among those born early in the 20th century, when even a high school diploma was not common. Little change in educational attainment occurred among those younger than 45 years old relative to people of the same age in 1990.

The strongest gains in the percentage with at least a high school diploma occurred in southern states that still had low percentages in 2000. The weakest gains occurred in the West. Educational attainment in 2000 in these western states ranged from still well above average to below average. Arizona's 1990-to-2000 increase in the share of high school graduates of 2.3 percentage points was considerably less than the national gain of 5.2 percentage points and ranked 48th among the 51 states and District of Columbia.

Less variation occurred across the states in the 1990-to-2000 gain in the percentage with at least a bachelor's degree. Most of the states with the strongest gains in the percentage of university graduates were located along the Atlantic Coast, with most of these states among the leaders in the share of university graduates in 2000. Almost all of the states with the least gain in percentage of university graduates were in the southern portion of the country, particularly in the Southwest (see Table 17). The southwestern states generally still were average on the percentage of university graduates in 2000 while the southcentral and southeastern states were below average on attainment.

Arizona ranked tied for 41st in the 1990-to-2000 change in share with at least a four-year university degree, with its increase of 3.2 percentage points less than the national average of 4.1 percentage points. Among the competitor states, Arizona's change ranked eighth; Arizona ranked last among the new economy states.

Arizona's change in educational attainment between 1980 and 1990 also was subpar, with the change in university graduation rate ranking tied for 35th among all states, seventh among competitor states and 10th among new economy states. In 1980, Arizona's percentage of university graduates was above the national average. This relative decline in educational attainment between 1980 and 2000 was in line with that of other southwestern states: California, Nevada, New Mexico, Texas, and Utah. Among nearby states, only Colorado's share of university graduates rose relative to the U.S. average.

As measured by percentage with at least a high school diploma, Arizona's poor performance relative to the national average between 1990 and 2000 was experienced in all age groups but particularly among those in their 30s and least by those aged between 50 and 69. The somewhat smaller increase in Arizona in the percentage with at least a bachelor's degree largely resulted from an inferior performance among those 25 to 34 years old. Gains in Arizona were larger than the U.S. average among those 55 to 69 years old. The inferior performance on both measures

TABLE 17
1990-TO-2000 CHANGE IN EDUCATIONAL ATTAINMENT BY STATE:
POPULATION 25 OR OLDER
Ranked by Change in University Graduates

	High School Graduate	University Graduate
Massachusetts	4.8	6.0
District of Columbia	4.7	5.8
Colorado	2.5	5.7
Minnesota	5.5	5.6
Illinois	5.2	5.1
North Carolina	8.1	5.1
Vermont	5.6	5.1
Georgia	7.7	5.0
Virginia	6.3	5.0
Maryland	5.4	4.9
New Jersey	5.4	4.9
Nebraska	4.8	4.8
Washington	3.3	4.8
Kansas	4.7	4.7
Wisconsin	6.5	4.7
Montana	6.2	4.6
Oregon	3.6	4.5
Pennsylvania	7.2	4.5
Michigan	6.6	4.4
Iowa	6.0	4.3
New Hampshire	5.2	4.3
New York	4.3	4.3
Rhode Island	6.0	4.3
South Dakota	7.5	4.3
Connecticut	4.8	4.2
Maine	6.6	4.1
Ohio	7.3	4.1
United States	5.2	4.1
Florida	5.5	4.0
Idaho	5.0	4.0
North Dakota	7.2	3.9
Indiana	6.5	3.8
Missouri	7.4	3.8
South Carolina	8.0	3.8
Utah	2.6	3.8
Delaware	5.1	3.6
Tennessee	8.8	3.6
Kentucky	9.5	3.5
Arkansas	9.0	3.4
Alabama	8.4	3.3
Hawaii	4.5	3.3
California	0.6	3.2
Arizona	2.3	3.2
New Mexico	3.8	3.1
Wyoming	4.9	3.1
Nevada	1.9	2.9
Texas	3.6	2.9
Louisiana	6.5	2.6
Oklahoma	6.0	2.5
West Virginia	9.2	2.5
Mississippi	8.6	2.2
Alaska	1.7	1.7

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

among young adults could have resulted from a combination of conditions: poor achievement among those growing up in Arizona, net in-migration from other states of those with lesser educational attainment, or immigration from other countries of people with little education.

By race/ethnicity, the change in educational attainment between 1990 and 2000 as measured by the percentage with at least a high school diploma varied from stronger than the national average among Native Americans to weaker among Blacks, Hispanics, and non-Hispanic whites. Measured by percentage with at least a bachelor's degree, the change in each race/ethnicity was similar to the national average except for a larger gain in Arizona among Blacks. The increase in Arizona in the share of Hispanics — whose educational attainment was far below average — contributed to the state's inferior performance on improvements in educational attainment between 1990 and 2000.

Most Arizona counties experienced an increase between 1990 and 2000 in the share of the 25-or-older population with a high school diploma at least comparable to the national average of 5.2 percentage points. However, the increase was slight in Yuma County and in populous Maricopa County. The change in the proportion with at least a bachelor's degree was highly erratic by county. Three counties had a gain at least equal to the national average of 4.1 percentage points and a few counties, including populous Maricopa and Pima counties, had a gain close to the national average. In contrast, the proportion fell in Mohave and Yuma counties and barely rose in Graham and La Paz counties.

THE PRODUCTIVITY AND PROSPERITY PROJECT

The Productivity and Prosperity Project: An Analysis of Economic Competitiveness (P3) is an ongoing initiative begun in 2005, sponsored by Arizona State University President Michael M. Crow. P3 analyses incorporate literature reviews, existing empirical evidence, and economic and econometric analyses.

Enhancing productivity is the primary means of attaining economic prosperity. Productive individuals and businesses are the most competitive and prosperous. Competitive regions attract and retain these productive workers and businesses, resulting in strong economic growth and high standards of living. An overarching objective of P3's work is to examine competitiveness from the perspective of an individual, a business, a region, and a country.

THE CENTER FOR COMPETITIVENESS AND PROSPERITY RESEARCH

The Center for Competitiveness and Prosperity Research is a research unit of the L. William Seidman Research Institute in the W. P. Carey School of Business, specializing in applied economic and demographic research with a geographic emphasis on Arizona and the metropolitan Phoenix area. The Center conducts research projects under sponsorship of private businesses, nonprofit organizations, government entities and other ASU units. In particular, the Center administers both the Productivity and Prosperity Project, and the Office of the University Economist.

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