

# **MIGRATION TO AND FROM ARIZONA**

**A Report from the Office of the University Economist**

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## SUMMARY

The migration of individuals to and from Arizona is of particular significance since so much of the state's population growth results from migration. Net migration, from other states and from other countries, accounted for more than 62 percent of Arizona's total population change in each of the last four decades. The share of population change resulting from net migration in Arizona has consistently been one of the highest among the states.

Generally, Arizona's migration patterns have not changed significantly in recent decades. The age distribution of Arizona's migrants differs from the national average. Nationally, migration rates are highest among young adults and lower with age. Arizona's migrants disproportionately consist of older adults, especially those who move after they retire. A comparison of the state's in-migrants and out-migrants shows that on net, Arizona's population growth disproportionately consists of older adults, with younger adults, especially very young adults, underrepresented.

A comparison of income by age group reveals that among younger adults, in-migrants to Arizona have lower incomes than out-migrants from Arizona. The situation is reversed among older adults, with in-migrants to the state having much higher incomes than out-migrants. Compared to the national average, the incomes of the state's in-migrants are below average except among those 65 and older.

The educational attainment of Arizona's migrants is somewhat below the national average, but recent data on the educational attainment of migrants by age group are not available. Combining the recent data on the overall educational attainment of migrants with older data on the educational attainment of migrants by age and recent data on the income of migrants by age suggests that the state's educational attainment benefits from the migration of older adults but suffers from the migration of younger adults. However, few of the migrating older adults are active in the Arizona workforce.

For most individuals other than retirees, migration is dependent upon obtaining a job. Thus, net migration to Arizona is highly correlated to the economic cycle.

Net migration to Arizona — particularly resulting from immigration from other countries — was unusually strong from the early 1990s through mid-2000s, but has been below the historical norm since then. Apart from this and fluctuations tied to the economic cycle, the net number of migrants to Arizona has been steady over the last several decades despite large increases in the state's population. Thus, relative to the state's population, migration rates have fallen substantially. Relative to the national population, in-migration rates have dropped while out-migration rates have held steady.

Numerically, the state with the greatest flow of migrants to and from Arizona is California. However, Arizona's migration rates are highest with Rocky Mountain states.

Three datasets are examined in this paper, each of which provides migration data by state and county. Each data source has advantages and limitations:

- University of Wisconsin. This dataset provides the most complete and accurate migration data since it is based on decennial census counts and the number of births and deaths. It

also provides data by the age of the migrant. However, only net migration is available, the data are available only by decade, and no distinction can be made between domestic migration and international migration.

- Internal Revenue Service. Reasonably accurate annual data are available on domestic in- and out-migration, but only for the subset of the population that files a tax return in a given year. Immigrants are not included. Some information is available by age and income.
- American Community Survey. Annual data are available on domestic in- and out-migration as well as immigration, and a broad range of characteristics, such as educational attainment, are available for migrants. However, since the number of people migrating in any year is small, survey error is very large. Even after aggregating five years of data, survey error remains significant.

### **University of Wisconsin**

Nationally, net migration consists entirely of net international migration: immigration, emigration, and the movement of U.S. citizens to and from other countries. Numeric net migration to the United States rose in the 1980s and 1990s before dropping back in the 2000s, though the net number during the 2000s still was historically high. The net migration rate — the number of migrants relative to the number of residents — also slipped in the 2000s but remained historically high.

By state, net migration consists of net international migration and net domestic migration (migration to and from other U.S. states). Net migration to Arizona rose considerably during the 1990s but was lower during the 2000s. Metropolitan Phoenix has dominated the state's net migration, accounting for more than 70 percent in five of the last six decades.

Nationally, net migration rates are highest among young adults. In Arizona, a peak occurs among young adults, but even higher rates are present at retirement age. Arizona's population growth has disproportionately consisted of the net in-migration of people when they retire.

### **Internal Revenue Service**

Annual domestic in- and out-migration data from the IRS going back to 1981 show that Arizona experiences considerable cyclical in its migration flows, with in-migration dropping but out-migration rising during economic recessions, with the reverse occurring during economic expansions. Thus, annual net migration is very cyclical.

Despite the state's rapid growth in population, little trend is present in its numbers of in- and out-migrants. Thus, migration rates have fallen considerably as calculated by the state's population. Relative to the national population, the in-migration rate has declined while the out-migration rate has held steady.

California has been the dominant source and destination of Arizona's domestic migrants, though the highest in- and out-migration migration rates, as calculated by the population of the other state, are with other Rocky Mountain states. Net migration has been greatest from California, followed by Illinois, Michigan, and New York. The net migration rate generally has been highest with other western states, including California, but Illinois also is on the list.

Migration by age data, categorized by the age of the primary tax filer, are provided by the IRS. Relative to migrants nationally, Arizona has a higher proportion of in-migrants age 55 and older, with a lesser share younger than 35. The out-migrant proportion is above average for those 65 and older and below average for those 26-to-44 years old.

The IRS also provides income data for migrants, but it is not known what portion of the annual income was earned at the prior address versus the new address. Nationally, migrants have considerably lower incomes than nonmigrants due to the disproportionate share of migrants who are young adults. Though the average income of nonmigrants in Arizona is considerably less than the national average, and the average income of out-migrants also is below average, the average income of in-migrants is nearly equal to the U.S. average, reflecting the disproportionate share of Arizona's in-migrants who are older adults.

In terms of income, Arizona benefits from the migration of older adults — but few of these migrants are active in the workforce. In contrast, the migration of the working-age population was to the state's detriment in recent years, with those moving in having lower incomes than those leaving. Among younger adults, Arizona's ratio of the average income of in-migrants to the average income of out-migrants ranked 40th among the states.

### **American Community Survey**

The ACS provides more detail on the age of migrants than does the IRS, including all migrants and more narrow age groupings. Nationally, migrants disproportionately consist of adults younger than 30, with relatively low shares among those 45 and older. Relative to the national age distribution of migrants, Arizona's in-migrants are disproportionately between 50 and 69, with relatively few younger than 35. Out-migration from Arizona is lower than average among adults younger than 30 and above average among those from 45 to 54. In recent years, Arizona experienced net out-migration among those 30 to 34 and among young children. The strongest net inflows were among those 55 to 74, followed by 20 to 29.

Nationally, domestic migrants are better educated than nonmigrants. Domestic migrants to and from Arizona are less well educated than the U.S. average, as are nonmigrants. International in-migrants nationally disproportionately have either university degrees or less than a high school education. Relative to the nation, a disproportionate share of international in-migrants to Arizona have little education.

## **DATA SOURCES AND DEFINITIONS**

This paper examines migration estimates from each of the three primary sources of migration data for states. Additional sources, such as the Current Population Survey and the Survey of Income and Program Participation, provide reliable data for the nation but not for states.

Migration may be defined in various ways. Conceptually, migration typically is defined as a move of residence from one labor market to another. Migration is therefore distinguished from the movement of people from one dwelling unit to another nearby unit, perhaps without changing their place of employment. However, geographical limitations generally cause migration to be measured as those moving from one state to another, or from one county to another. In both cases, such a move could be within the same labor market. For example, a person could move from Kansas City, Kansas to Kansas City, Missouri without changing jobs.

The number of people moving into a state or county (in-migration) minus the number of people moving from a state or county (out-migration) results in net migration — the net change in population of an area due to people moving into and out of the area. Gross migration — the sum of in-migration and out-migration — sometimes is used as a measure of the overall turnover of people in an area. Migration efficiency is the ratio of in-migration to out-migration.

Frequently, migration from one residence to another within the United States (domestic migration) is distinguished from the migration into the United States of people living outside the country. This international migration consists of immigration — citizens of another country moving to the United States<sup>1</sup> — and the return of U.S. residents to the country after living in another country. Data are available only for the in-migration portion of the international component — no estimate is available of the number of people who move from the United States.

### **Decennial Census/American Community Survey**

Historically, the decennial census conducted by the U.S. Census Bureau was the primary source of information on migrants; migration data were available from the 1940 through 2000 censuses. Migration data were available by numerous characteristics — such as age, race, marital status, etc. — but were subject to significant limitations. One limitation was sampling error, since the migration data were collected only from the long form of the census questionnaire, which was sent to approximately one-in-six households. The other limitation was that the migration data covered a five-year period — respondents supplied the place of residence five years earlier, which was compared to the current place of residence.<sup>2</sup> Any additional move during the prior five years was not recorded.

The American Community Survey (ACS) has replaced the long form of the decennial census questionnaire. This is an ongoing survey conducted by the Census Bureau; results are tallied by

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<sup>1</sup> Most data sources do not distinguish between documented and undocumented migration. Legal immigration is reported by the U.S. Department of Homeland Security, but only rough estimates of undocumented immigration are available.

<sup>2</sup> In the 1950 census, respondents entered the place of residence one year earlier.

calendar year, with data currently available for 2005 through 2014.<sup>3</sup> The ACS was designed to produce a sampling error similar to that of the long form of the decennial census if results for five years were combined. In reality, even with the aggregation of five years of ACS results, the sampling error exceeds that of the 2000 decennial census.

Unlike the decennial census, migration in the ACS is determined by comparing the current residence to the residence one year earlier. Thus, the migration results from the ACS are not consistent with those from the decennial census.

Since only a small proportion of the population migrates to another state in any given year, sampling error is a significant concern when examining migration data from the ACS. The Census Bureau provides the sampling error with each estimate, labeled as the margin of error (MOE). When the MOE is added and subtracted from the estimate, the confidence bounds are determined, but it is important to note that this is based on a 90 percent confidence interval, rather than 95 percent confidence typically used in opinion surveys. At 90 percent confidence, in one of 10 cases, the actual value will be outside the confidence bounds.<sup>4</sup>

Single-year ACS data have too much sampling error to be used at a state level, except perhaps for the estimate of the total number of in-migrants and out-migrants. Instead, the five-year aggregations are used to examine migration by characteristic, such as age. Arizona is compared to the nation for each of the available and comparable five-year periods — 2006-10 through 2010-14 — while the comparison to other states is limited to the 2010-through-2014 period. Some degree of overlapping observations are present for each of these periods. For example, 80 percent of the observations for the 2009-13 and 2010-14 periods are from the same years (2010 through 2013); even the 2006-10 and 2010-14 periods overlap with 2010 observations.

Aggregating data over five years makes the results difficult to interpret, particularly if the characteristic being examined is affected by the economic cycle and if a significant change in the economic cycle occurred over the five-year period. Migration is closely related to economic conditions and each of the five-year periods include a sharp swing in the economic cycle. For example, the most recent five-year period began with Arizona still in a recession in 2010. This was followed by a slow economic recovery, then by faster economic growth.

Tables of migration cross-tabulated by various characteristics — age, sex, race/ethnicity, citizenship, marital status, educational attainment, income, poverty status, and homeownership — are available from the Census Bureau.<sup>5</sup> Most of these tables are produced for the population age 1 and older, but the income and marital status tables are for the population 15 and older and the educational attainment table is for those 25 and older. Migration is just one component of these geographic mobility tables produced from the ACS. The following tabulations are available:

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<sup>3</sup> The 2005 ACS only included people living in housing units; those living in group quarters, such as prisons and college dormitories, were not surveyed.

<sup>4</sup> The MOE only reflects sampling error. Nonsampling error also may be present; for example, the imputation of a missing data point by the Census Bureau introduces additional error.

<sup>5</sup> The Census Bureau provides an aggregation of five years of data through its data-access tool “American FactFinder” (<http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>).

- The population living in the state.
- Those who did not move in the last year.
- Those who moved within the same county.
- Those who moved to a different county in the same state.
- Those who moved into the state from another state.
- Those who moved into the state from abroad.

A separate table provides data for those who moved from one state to another state. Domestic net migration can be calculated from those moving into and out of a state but within the United States. Total in-migration can be calculated as the sum of those moving from another state and those moving from abroad.

The analysis in this paper includes mobility by age, educational attainment, and income.<sup>6</sup> Since the five-year period used to determine migration in the decennial census is not comparable to the one-year period used in the ACS or to the periods measured by the two other data sources examined in this paper, migration data from the decennial census are not examined in this paper.

### **Internal Revenue Service**

The migration data from the IRS are derived from its Individual Master File, which contains information from each individual tax return processed by the IRS. Until 2012, all returns filed with the IRS by late September of each year, accounting for approximately 96 percent of the individual income tax filing population, were used to produce the migration data. Since 2012, all tax returns filed during a calendar year have been used.

Annual data on migration are available from the IRS back to 1981, with the data since 1991 available from the IRS website: <https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data>. In this paper, the IRS data are expressed on a tax year basis. For example, the latest data for 2014 represent tax returns filed during calendar year 2014 reporting income for calendar year 2013. These data include the number of returns filed, which approximates the number of households, and the number of personal exemptions claimed, which approximates the number of individuals. Since 1996, data on adjusted gross income also have been available.

The IRS determines migration by comparing each taxpayer's address in two consecutive years. If the two addresses are in different counties, the filer is assumed to have migrated. This assumption may not always be correct. For example, if a taxpayer owns more than one dwelling and files from different houses in consecutive years, the filer will erroneously be counted as a migrant. If a taxpayer moves to an adjacent county within the same labor market, such as from Maricopa to Pinal, the move is included in the IRS data as migration, when it really represents a local move.

The migration data from the IRS understate the total number of people migrating:

- Not everyone is required to file an income tax return. In particular, the migration of elderly and those with low incomes is understated.

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<sup>6</sup> The income analysis is problematic since income is measured over the prior 12 months — some of the income presumably was earned prior to migrating and some after migrating. Other factors, such as a change in employment status before and after the move, could have an effect on the year's income.

- Not everyone required to file a return does so, at least within the calendar year.
- Prior to 2012, a change in filing status could result in an undercount of the number of migrants; the IRS matched addresses based only on the primary taxpayer's identification number.
- Those moving to the United States from another country generally are not included in the IRS data; the exception is when a U.S. resident living in another country files a return while living in the other country then returns to the United States in the following year. Thus, the IRS migration figures are particularly low when compared to sources that includes both domestic migrants and immigrants.

When the IRS detects a change in a taxpayer's address, it is unclear exactly when that move occurred. For example, a move across county lines that occurred between the filing of the tax return in 2013 and the filing in 2014 is expressed as occurring during tax year 2014, though the move may have occurred during either calendar year 2013 or 2014. Regardless of when the move occurred, the income data refer to the calendar year (2013 in this example) — but it is not known what proportion of the income was received at the previous address versus the new address. Thus, caution is recommended when analyzing the income data of migrants.

The IRS provides migration data as state-to-state flows and as county-to-county flows. In order to maintain confidentiality, only aggregate data are available from the IRS. If fewer than 10 households moved from one county (or state) to another in a year, then even the aggregate data for this county-to-county migration is not disclosed (though it is included in the totals for a county).<sup>7</sup> Because of the undisclosed data, it is not possible to aggregate county figures into a state total. For example, it is not possible to tally the number of people who move from California to Maricopa County.

With the release of the 2012 data, the methodology used by the IRS was improved and additional data are being released. Improvements in the address-matching process (all taxpayer ID numbers are now matched) and the inclusion of all returns filed in a calendar year have increased the number of matched records by about 5 percent. Thus, the data for 2011 and earlier years are not exactly comparable to the more recent data. Since many of the tax returns filed after the late September cutoff that was previously used are complex returns filed by very high-income households, the number of high-income returns has increased by 25 percent due to the methodological enhancements. Thus, the recent income data are particularly inconsistent with the earlier data.

At the state level, more-detailed data are available for 2012 through 2014, with migration flows tabulated by adjusted gross income (with gross income placed into one of seven categories, such as \$200,000 and more) and by the age of the primary taxpayer (grouped into six categories, such as age 65 and older). This file excludes tax returns with a negative adjusted gross income.

In addition to the number of people migrating, the IRS also reports the number of people not moving across a county line. This number of nonmigrants can be added to the number of immigrants to obtain an estimate of the number of people identified on tax returns filed with the

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<sup>7</sup> The cutoff for counties was changed to 20 households in 2014.

IRS. This estimate of the population can be compared to the population estimates made by the U.S. Census Bureau. In Arizona, the estimate of the population from the IRS was about 85 percent of the Census Bureau total in the early-to-mid-1980s, but the ratio slipped, dropping as low as 73 percent after 2000. With the improved methodology, the share has been above 76 percent since 2012. The number of personal exemptions counted in the tax returns filed in 2014 as a share of the July 1, 2013 population was 76.5 percent in Arizona and 80.7 percent nationally.

### **University of Wisconsin**

The University of Wisconsin's Applied Population Laboratory provides net migration estimates by decade for U.S. states and counties at <http://www.netmigration.wisc.edu/>. Estimates are available for the last six decades, which are dated from one decennial census to the next census. For each of the decennial censuses from 1950 through 2010, the census date was April 1. The estimates are available for each decade by age group, sex, and race. Net migration by Hispanic origin is available for the 1990-to-2000 and 2000-to-2010 periods.

The analysis in this paper examines migration by age but not by sex or race/ethnicity. Age is expressed as five-year groupings through age 74 plus one age group for those 75 and older. The reported age is as of the end of a decade. An individual who migrated at some point during a decade and whose age at the end of a decade is between 25 and 29 could have been between the ages of 15 and 29 when the migration actually occurred.<sup>8</sup> On average, the age at which the migration occurred for those 25-to-29 years old at the end of a decade was between the ages of 20 and 24.

Conceptually, the methodology for estimating net migration over a decade begins with the census count by single-year of age at the beginning of the decade. If no migration or deaths occurred, then the number who were, for example, 30 years old at the beginning of a decade would be equal to the number 40 years old at the end of the decade. The number at the end of the decade is reduced by the number of age-specific deaths that occurred during the decade. For those younger than 10 at the end of a decade, the number is set equal to the number of births by year throughout the decade, adjusted for any subsequent deaths. The result of aging the census count forward and adjusting for births and deaths is an “expected” population at the end of the decade, assuming that no migration occurred. The difference between the expected population and the census count at the end of the decade is assumed to result from net migration. Thus, net migration is calculated as a “residual.”

Since this method uses census counts and counts of the numbers of births and deaths rather than estimates derived from samples, conceptually the estimates of net migration should be quite accurate. In reality, undercounts and overcounts of specific population groups are present in the decennial censuses, the magnitudes of which have varied by decade. For example, young people in some minority groups have a history of being undercounted in decennial censuses. An example of an overcount is when a household with more than one home is counted at each home.

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<sup>8</sup> For example, someone 25 years old on April 1, 2010 who migrated in April 2000 was only 15 when the migration occurred. Someone 29 years old on April 1, 2010 who migrated in March 2010 was 29 when the migration occurred.

The Census Bureau publishes estimates of the size of the undercounts and overcounts by population group. These estimates were used by the University of Wisconsin to adjust each census count. In addition, corrections to the published census counts sometimes are made by the Census Bureau; the methodology incorporates these corrections. The birth and death data are considered to be quite accurate, but the detailed data — by age, sex, and race/ethnicity — are slow to be released. Thus, estimates of births and deaths for the last 15 months of the 2000-to-2010 decade were used when the estimates of net migration between 2000 and 2010 were made.

This methodology does not allow for net migration to be divided into domestic and international components, nor are estimates of in-migration and out-migration available. The University of Wisconsin calculates a net migration rate as the number of net migrants divided by the expected population. This rate differs from more commonly calculated rates, which typically are based on the population at the beginning of the period.

## NET MIGRATION ESTIMATES FROM THE UNIVERSITY OF WISCONSIN

This analysis focuses on Arizona, with comparisons made to other states and to the nation. Net migration estimates for Arizona's counties also are presented. Migration estimates by age group are examined, but migration figures by sex, race, and Hispanic origin are not included in this paper. Because of significant changes in population size between 1950 and 2010, the focus in this section is on the net migration rate, as calculated by the University of Wisconsin: net migration divided by expected population, expressed per 100 residents.

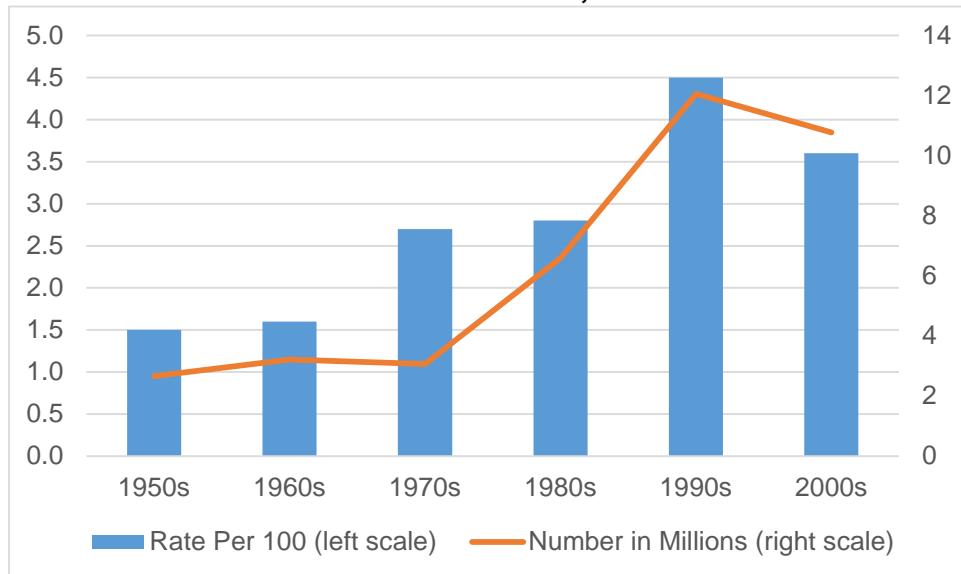
Nationally, net migration consists only of net international migration. By state and county, net migration consists of net international migration plus net domestic migration. Across all states, net domestic migration sums to zero.

### United States

The overall net migration rate nationally for each of the last six decades is shown in Chart 1, along with the number of net migrants. The net migration rate increased in the 1970s and 1990s but decreased during the 2000s, while the number of net migrants rose in the 1980s and 1990s, but slipped in the 2000s.

In most decades, the number of legal immigrants reported by the U.S. Department of Homeland Security's Office of Immigration Statistics<sup>9</sup> is only a little less than the net number shown in the chart, but the differential was larger in the 1970s and 1990s, presumably because of greater

**CHART 1  
NET MIGRATION BY DECADE, UNITED STATES**



Note: The rate is based on the expected U.S. population at the end of the decade.

Source: University of Wisconsin, Applied Population Laboratory, <http://www.netmigration.wisc.edu/>.

<sup>9</sup> See the annual Yearbook of Immigration Statistics at <http://www.dhs.gov/yearbook-immigration-statistics>.

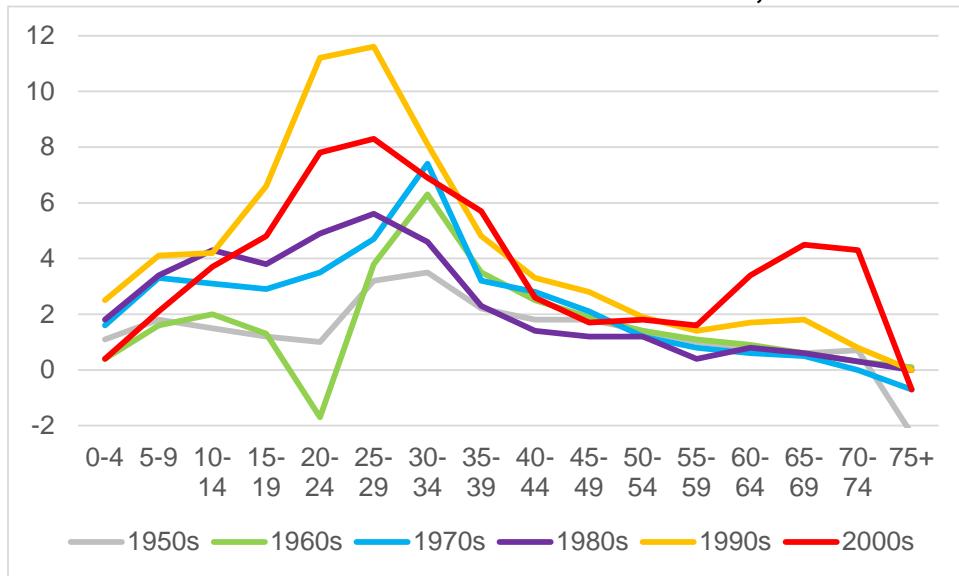
undocumented immigration during those decades. However, other factors cause the residual net number to differ from the reported number of legal immigrants, including emigration and differences in timing between entry into the United States and being recorded as legal immigrants.

Reasons for immigrating to the United States are varied. Young adults are disproportionately represented. Some of the young-adult immigrants move to the United States to attend college, as either an undergraduate or a graduate student. Others immigrate for employment opportunities.

In recent decades, the highest net migration rate nationally has occurred in the 25-to-29 age group (on average, people 20-to-24 years old at the time of the migration), with almost as high a rate in the 20-to-24 group. In the earlier decades, the peak occurred in the 30-to-34 age group. In general, immigrants since the 1990s have been younger on average than their predecessors, with rates relative to the overall rate rising in the 15-to-29 age groups and falling in the 40-to-59 age groups.

In most decades, the net migration rate nationally has declined steadily with increasing age beyond the young-adult age groups. However, in the 2000s, the rates were higher in the 60-to-74 age groups than among those of middle age; during the 1950s and 1960s, the migration rates of those 20-to-24 years of age were low. As seen in Chart 2, the higher overall migration rates during the 1990s and 2000s largely resulted from higher net migration among young adults.

**CHART 2**  
**NET MIGRATION RATE BY AGE GROUP BY DECADE, UNITED STATES**



Notes: The rate is based on the expected U.S. population at the end of the decade. Age is expressed at the end of the decade; on average, the age at which migration occurred is five years younger.

Source: University of Wisconsin, Applied Population Laboratory, <http://www.netmigration.wisc.edu/>.

## Arizona

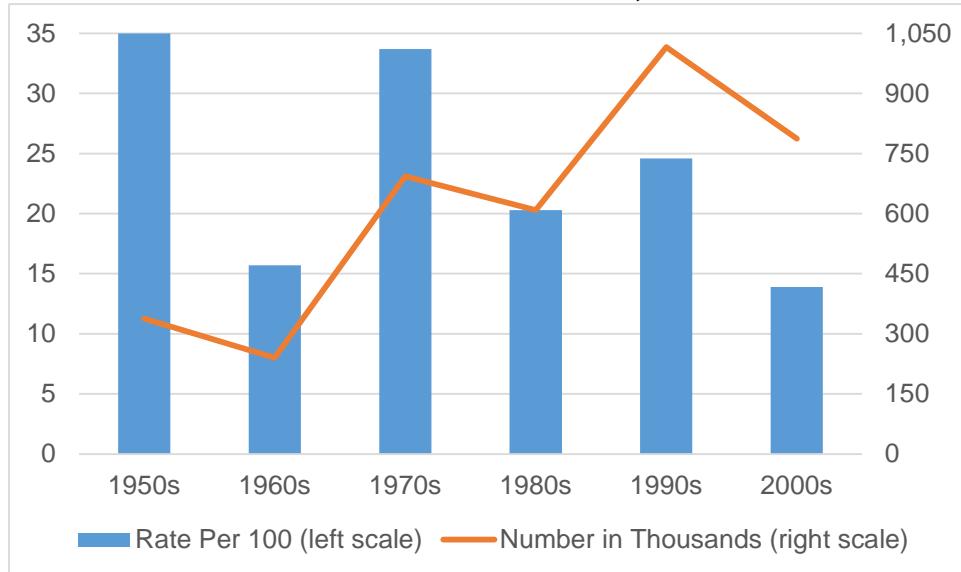
Net migration rates in Arizona have been substantially higher than for the nation, as the state receives not only a positive flow of net immigrants but also a net inflow of migrants from other U.S. states. As seen in Chart 3, the relative popularity of the state has fluctuated over time, whether measured by the rate or number. On both a rate and number basis, net migration dropped in the 2000s.

The inclusion of domestic migration in state migration figures introduces other causes of migration. Moves to attend college, moves after the completion of college, and entry and exit from the military contribute to the high migration rates among young adults. Domestic migration rates are relatively low throughout middle age, but a greater number of individuals migrate when they retire. Some of those who migrated at retirement move again when they are elderly in order to receive help from their children.

The age distribution of Arizona's net migrants is different from that of the nation. While net migration rates in Arizona are relatively high among young adults, in most decades these rates have been lower than the rates at retirement age (see Chart 4). In recent decades, a sizable proportion of workers have retired at an age other than 65, so higher net migration rates are seen for the age groups from 60 through 74 — those retiring and moving at ages 55 through 69.

Arizona's net migration rates among those of middle age have been lower than the rates for young adults and for those reaching retirement age, but the lowest net migration rates in most decades have been among those younger than 10. This is associated with the relatively low rates

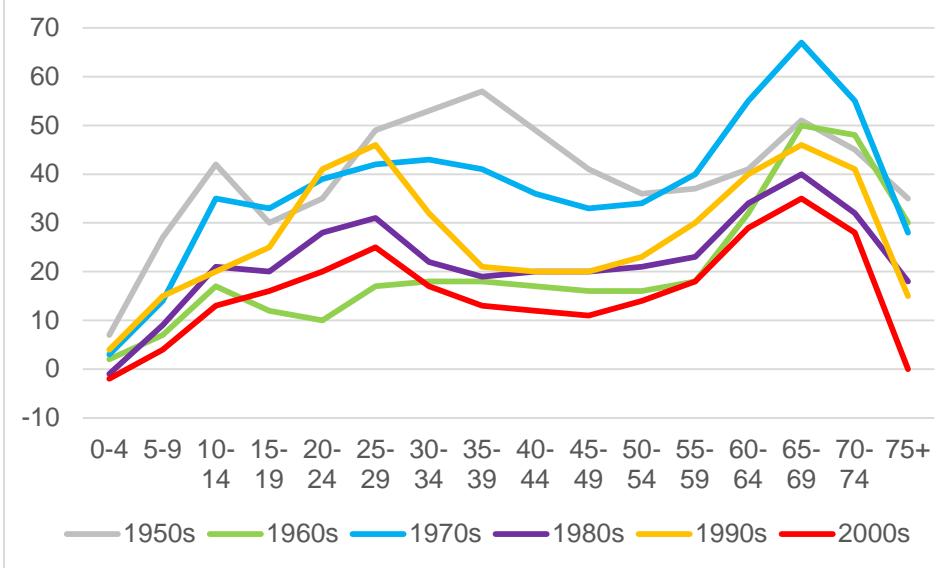
**CHART 3  
NET MIGRATION BY DECADE, ARIZONA**



Note: The rate is based on the expected Arizona population at the end of the decade.

Source: University of Wisconsin, Applied Population Laboratory, <http://www.netmigration.wisc.edu/>.

**CHART 4**  
**NET MIGRATION RATE BY AGE GROUP BY DECADE, ARIZONA**



Notes: The rate is based on the expected Arizona population at the end of the decade. Age is expressed at the end of the decade; on average, the age at which migration occurred is five years younger.

Source: University of Wisconsin, Applied Population Laboratory, <http://www.netmigration.wisc.edu/>.

of net migration among those of younger middle age. In recent decades, Arizona's net migration rates also have been relatively low among those 75 and older.

The net migration rates in the 2000s were the lowest of the six decades except among those in the 15-to-29 age groups. In general, net migration to Arizona has become slightly younger over time, with rates relative to the overall rate rising in the 15-to-24 age groups and falling in the 35-to-49 age groups.

#### Arizona Compared to Other States

National migration patterns have shifted considerably over the last six decades. During the 1950s, southeastern states such as Georgia and North Carolina had among the largest numbers of net out-migrants in the nation, while northeastern and Great Lakes states, including New York and Ohio, were among the leaders in the number of net in-migrants. Migration patterns began to shift during the 1960s but it was not until the 1970s that the current patterns were firmly in place. Since the 1970s, the southeastern and western states have been the leaders in the number of net in-migrants, while northeastern and Great Lakes states have experienced significant net out-migration.

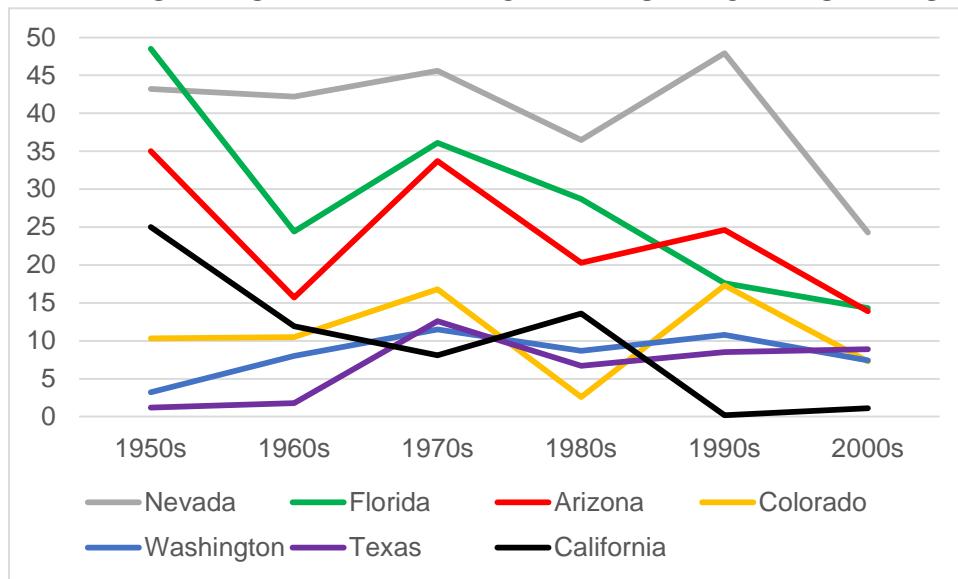
A few states have been consistently among the leaders in net in-migration over the six decades. Florida ranked first or second in each decade and Arizona ranked between fourth and sixth in each decade, including fourth in each of the last four decades. Colorado, Nevada, Texas, and Washington ranked among the top 14 states in each decade, with Texas ranking second or third in each decade since the 1970s. California ranked first or second in each decade through the

1980s, but its net in-migration has been significantly lower since then. The southeastern states of Georgia, North Carolina, South Carolina, Tennessee, and Virginia have ranked among the top 14 states in each of the last four decades.

From the 1950s through the 1980s, the number of states with negative net migration was about equal to the number of states with positive net migration. In the 1990s and 2000s, the number of states with a net inflow was considerably greater than the number with a net outflow. This change from the historical pattern is due to both the higher national rate of net immigration and the increased dispersion of immigrants throughout the country over the last couple of decades. The only states with negative net migration in both the 1990s and 2000s were Louisiana, Massachusetts, Michigan, New York, and Ohio.

The ranking of states is somewhat different on a rate basis. Arizona, Florida and Nevada ranked among the top three states on the overall net migration rate in each of the six decades. Nevada had the highest rate except during the 1950s and Arizona ranked third in each decade except for second in the 1990s. Chart 5 displays the overall rate by decade for California and for the top six states, based on the average rank over the six decades in the net migration rate. Until the 2000s, Nevada's rate had been quite steady over the decades, while the rates in Arizona and Florida have been more variable. California's rate was not much less than the Arizona rate in the 1950s and 1960s, but was barely positive in the 1990s and 2000s. Texas had a low positive rate in the 1950s and 1960s, but the rate has been higher since then and quite consistent. Washington's rate has been the most consistent among these leading states.

**CHART 5**  
**NET MIGRATION RATE BY DECADE IN SELECTED STATES**



Note: The rate is based on the expected state population at the end of the decade.

Source: University of Wisconsin, Applied Population Laboratory, <http://www.netmigration.wisc.edu/>.

Given the volume of data by state and by age over six decades, the analysis of net migration rates by age and by state focuses on the 2000-to-2010 period. Net migration rates by age group and state were adjusted for both the national age pattern and for the overall migration rate of the state. Arizona, Florida, and Nevada were among the states with the most variation in adjusted rate by age group. Arizona and Florida had very strong figures in the 60-to-74 age groups, but weak figures in the 75-and-older group and in the 0-to-9 groups. Nevada had weak figures in the same age groups, but its strength was in the 25-to-34 groups. The District of Columbia had the most variation by age, with extremely strong figures in the 20-to-29 age groups, but very weak figures in the 35-to-44 groups and in the associated 5-to-14 groups. Four of the New England states also had high variation, but the age pattern across these four states was not consistent.

In contrast, the adjusted rates by age group did not vary much in a number of states in the 2000-to-2010 period, especially states in the mid-section of the country that did not experience either weak or strong overall migration rates. However, several states that received moderately strong net in-migration overall did not exhibit much of an age pattern: Washington, Oregon, Texas, Tennessee, North Carolina, and Georgia.

The unadjusted rates by age group are shown in Chart 6 for states that ranked among the top 15 on both the overall migration rate and the number of net migrants. Among the states with moderate-to-high variability across age groups (the top graph), the rates were very similar in Arizona and Florida, except for somewhat higher rates in Florida in the middle age groups. Nevada had higher rates than Arizona and Florida in each age group through 59, but the major difference was its much higher rates among young adults, particularly those in the 25-to-34 age groups (those migrating at ages 20 through 29).

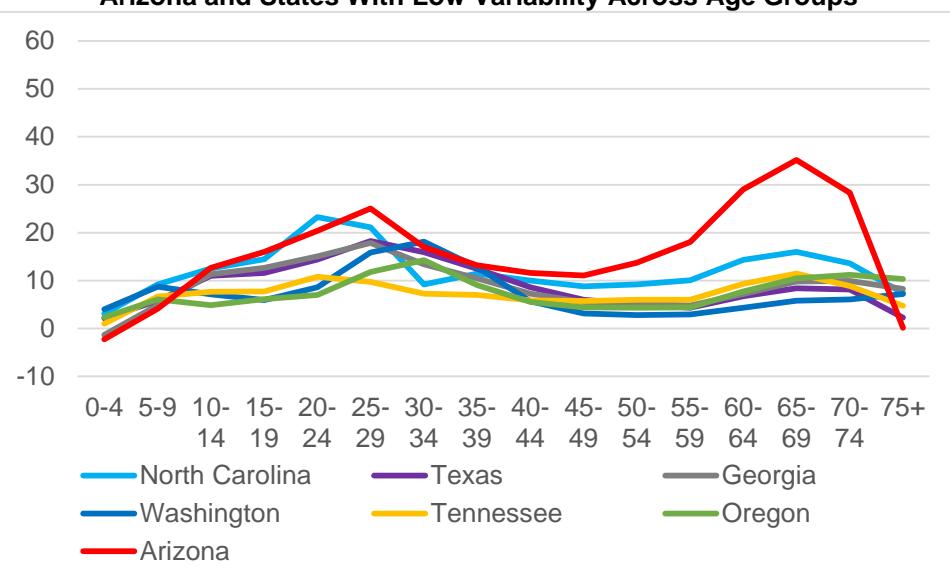
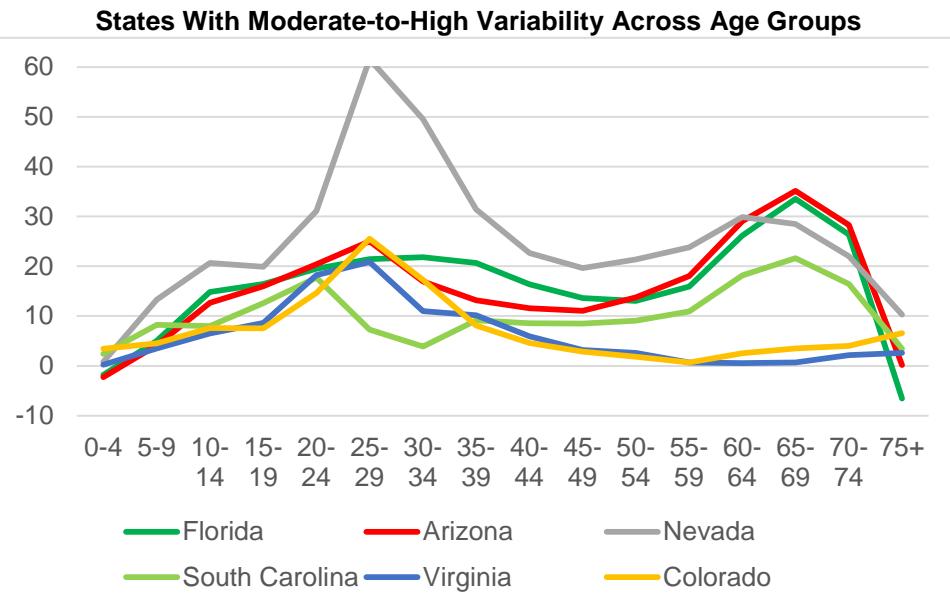
Net migration rates by age group were less volatile in Colorado, South Carolina, and Virginia and generally were lower than the rates in Arizona, Florida, and Nevada. South Carolina's rates were similar to those in Arizona and Florida through age 24 and also showed an increase in the retirement age groups. However, its rates were much lower in the 25-to-34 age groups. Colorado and Virginia followed a similar pattern, with no uptick in the retirement age groups. At the peak in the 25-to-29 age group, their rates were as high as those in Arizona and Florida.

The states with low variability across age groups (the bottom graph) all showed a slight uptick in the retirement age groups, but the highest rate except in Tennessee was among young adults. The highest rate varied from the 20-to-24 age group in North Carolina to the 25-to-29 or 30-to-34 age groups in the other states. In each of these states, migration rates of children were about equal to those in Arizona. In the 15-to-49 age groups, the rates generally were highest in Arizona, but not by a wide margin. The primary reason that Arizona had a higher overall rate than each of these states is its much higher rates in the 55-to-74 age groups.

### **Arizona Counties**

Metropolitan Phoenix (Maricopa and Pinal counties) has dominated the state's net migration, accounting for more than 70 percent in five of the six decades. Through the 1980s, more than 95 percent of the net migration to the Phoenix area was to Maricopa County, but in the 2000s, this share dropped to below 70 percent as the urbanized area spread into Pinal County. While

**CHART 6**  
**NET MIGRATION RATE BY AGE GROUP, 2000 TO 2010,**  
**HIGH-RANKING STATES ON OVERALL RATE AND OVERALL NUMBER**



Notes: The rate is based on the expected state population at the end of the decade. Age is expressed at the end of the decade; on average, the age at which migration occurred is five years younger.

Source: University of Wisconsin, Applied Population Laboratory, <http://www.netmigration.wisc.edu/>.

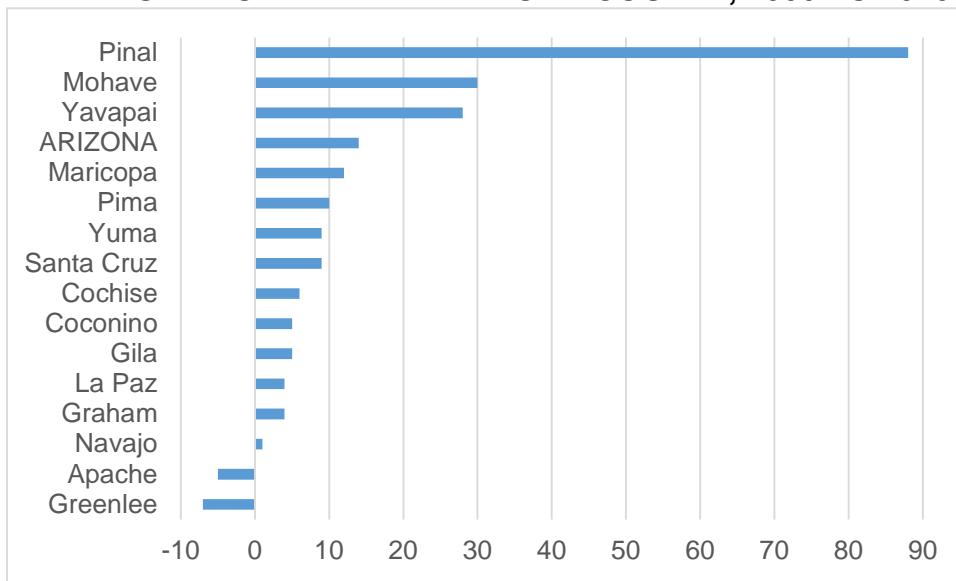
substantial net in-migration has been the norm for Arizona, four counties — Apache, Gila, Greenlee, and Navajo — experienced net out-migration in at least half of the last six decades.

The overall migration rate has varied widely across the state's counties, with most of the less-populous counties having rates lower than the state's figure in either five or six of the last six decades. The exceptions are Mohave and Yavapai counties, which have had rates well above the state's figure since the 1960s. In the more populous counties relative to the state's figure, Maricopa's rate was higher through the 1990s, Pinal's rate was higher in the 1990s and 2000s, and Pima's rate was equal to or higher from the 1960s through 1980s. The county rates during the 2000s are shown in Chart 7.

Significant differences in the age composition of the net migration also are present by county. In most counties, migration rates vary widely by age group. Moderate-to-strong positive rates in some age groups but negative rates in other age groups are common.

Arizona's strong net in-migration among young adults almost entirely has been due to the two large metropolitan counties of Maricopa and Pima. Maricopa's strength primarily has been among those in the 25-to-29 age group (those moving between the ages of 20 and 24), while Pima's strength has been in the 20-to-24 age group, largely related to the in-migration of college students at ages 18 and 19 due to the large size of the University of Arizona relative to the county's population. Coconino County also has had strong net in-migration in the college age group. Coconino and Pima counties each have experienced net out-migration in the age groups

**CHART 7**  
**NET MIGRATION RATE BY ARIZONA COUNTY, 2000 TO 2010**



Notes: The rate is based on the expected county population at the end of the decade. Age is expressed at the end of the decade; on average, the age at which migration occurred is five years younger.

Source: University of Wisconsin, Applied Population Laboratory, <http://www.netmigration.wisc.edu/>.

just beyond the typical age of college graduation — particularly in the 30-to-34 age group (those migrating between the ages of 25 and 29).

Otherwise, the migration rate among young adults — the 20-to-29 age groups, primarily those moving between the ages of 18 and 24 — has consistently been significantly below the state's figure in most counties, with net out-migration common. This is part of a national phenomenon in less-populous areas, where young people leave for more-populous areas, either to attend college or to find jobs.

Arizona's high net migration rates among those retiring also is far from a statewide phenomenon. Mohave and Yavapai counties have been the primary magnets for retirees. Gila, particularly among young retirees, La Paz, Pinal, and Yuma counties also have had higher retirement-age net migration rates than the state's figure. The number of net migrants of retirement age to Maricopa and Pima counties has been large, but the rates in these counties generally have been below the state's figures since the 1970s.

## MIGRATION AND INCOME DATA FROM THE INTERNAL REVENUE SERVICE

As with the University of Wisconsin data, this analysis of IRS migration data focuses on Arizona, with comparisons made to other states and to the nation. Migration figures for Arizona's counties also are presented. Unlike the University of Wisconsin data, annual data are available, figures are available for in-migration and out-migration as well as net migration, and flows between specific states and counties are available, but migration data by age from the IRS are limited to the last three years.

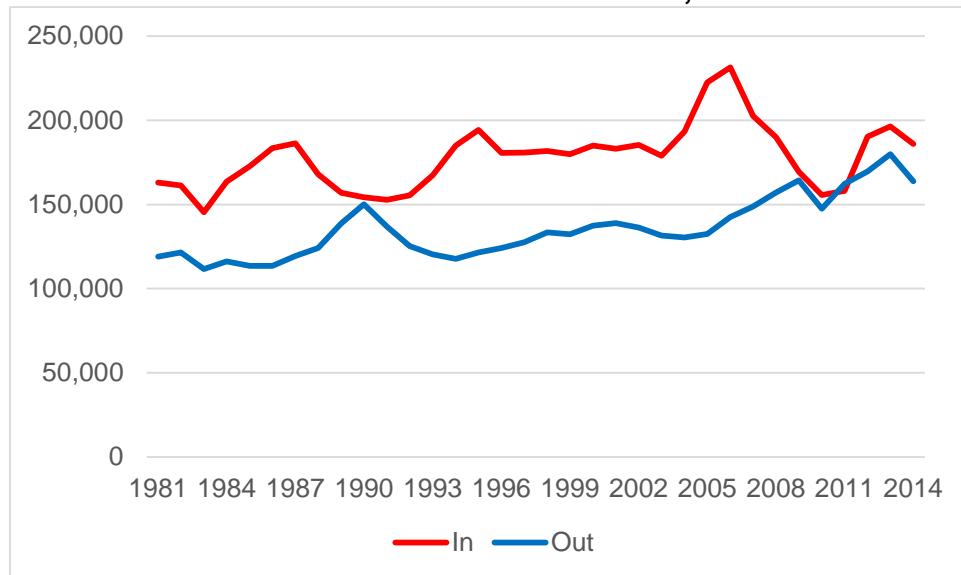
Most of this section is confined to domestic migration — those moving from one state to another. However, the detailed data for states by age and income include all tax filers.

### Migration Flows: Arizona Total

Total annual domestic in- and out-migration for Arizona is displayed in Chart 8. Due to the change in IRS methodology adopted with the release of the 2012 data, the figures since 2012 are about 5 percent higher than in prior years.

In-migration is cyclical, dropping during economic recessions — in the early 1980s, late 1980s-to-early 1990s, and late 2000s. The early-to-mid-2000s stand out for two reasons: the lack of decrease in in-migration in the early 2000s despite a recession, and the high peak during the mid-2000s, which was related to a real estate boom. Out-migration is not as cyclical as in-migration, but tends to rise during recessions. The continued rise in out-migration through 2013 as the economy recovered was not consistent with the earlier pattern, but out-migration dropped in 2014. However, in-migration also slipped in 2014, contrary to the historical pattern.

**CHART 8  
NUMBER OF DOMESTIC MIGRANTS, ARIZONA**



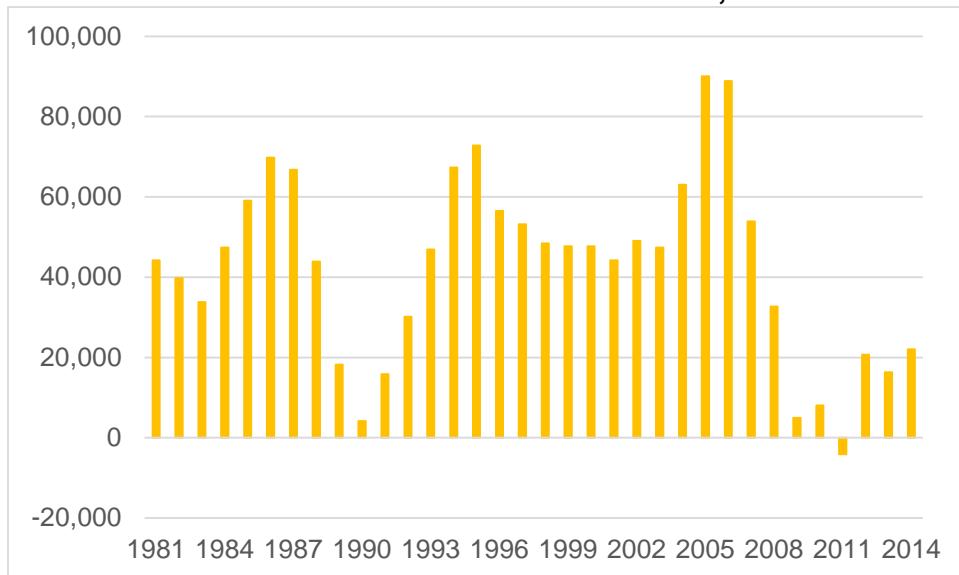
Source: Internal Revenue Service, <https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data>.

Migration efficiency — the ratio of in-migration to out-migration — also cycles with the economy. For domestic migration, the ratio reached 1.6 or a little higher in each of the last three economic expansions. During recessions, the ratio has ranged from about 1 to 1.3. Efficiency exceeded 1.6 in 2005 and 2006, fell to below 1 in 2011, and still was relatively low in 2014 at 1.13.

Arizona's net domestic migration by year is highly cyclical, as seen in Chart 9. The peak numbers during the economic expansions of the 1980s and 1990s were similar, but higher values were recorded during the mid-2000s due to the real estate boom. The number of net domestic migrants during economic recessions has been inconsistent, with quite low figures from 1989 through 1991 and from 2009 through 2011 and relatively strong figures during the early 2000s. Though higher than in the five prior years, net domestic migration in 2014 remained lower than in most years since 1981.

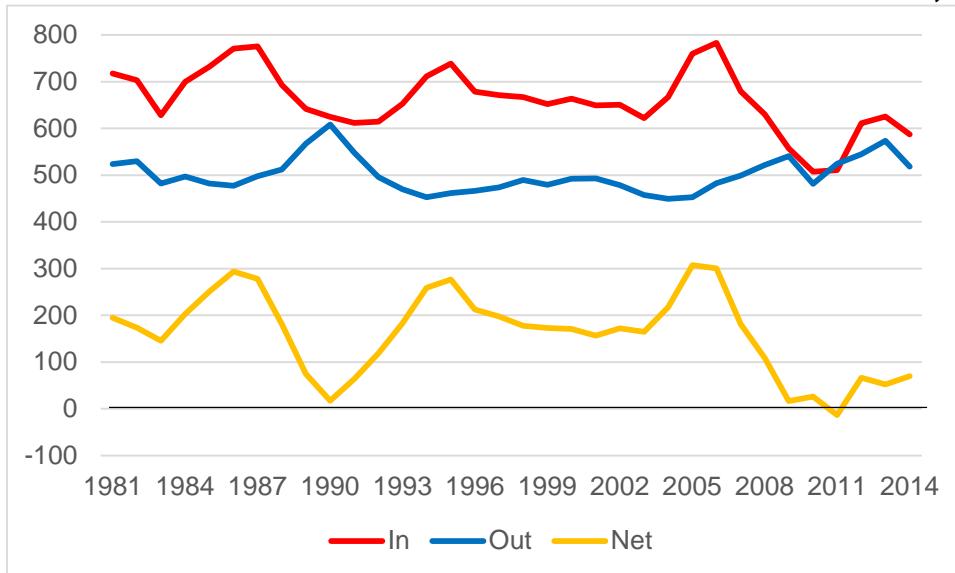
Despite the state's substantial increase in population since 1981, little upward trend has occurred in the number of domestic migrants, as seen in Chart 8. Relative to the size of Arizona's population, the number of domestic migrants — in, out, and net — has dropped considerably. Relative to the population of the United States, domestic migration to and from Arizona has cycled but displays little trend, as seen in Chart 10. Domestic in-migration to Arizona per 1 million U.S. residents was unusually low during the last recession, even compared to prior recessions, and has been lower in recent years than in prior economic expansions. At the same time, the out-migration rate continued to rise until 2014. As a result, the net migration rate has remained quite low.

**CHART 9**  
**NET NUMBER OF DOMESTIC MIGRANTS, ARIZONA**



Source: Internal Revenue Service, <https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data>.

**CHART 10**  
**NUMBER OF DOMESTIC MIGRANTS PER 1 MILLION U.S. RESIDENTS, ARIZONA**



Sources: Internal Revenue Service, <https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data> (migration) and U.S. Department of Commerce, Census Bureau (population).

The lower domestic in-migration and net-migration rates of the last several years have caused the trend line for these indicators to fall. The domestic in-migration rate based on the national population has dropped since 1981 from more than 700 to 600 and the domestic net migration rate has dropped from more than 200 to 100. The domestic out-migration rate has been unchanged at 500.

#### Migration Flows Between Arizona and the Other States

On average, the number of people moving between Arizona and each of the other states is highly dependent on two factors: the population of each state and the distance of each state from Arizona. The number of migrants fluctuates from year to year with variations in the relative economic performance of Arizona and each state. In general, the greater the positive difference in the economic growth rate between Arizona and each state, the greater the in-migration to Arizona and the lesser the out-migration from Arizona.

#### **In-Migration**

By far, the largest number of domestic in-migrants to Arizona come from neighboring California, the most-populous state. Between 2001 and 2014, California accounted for 23.4 percent of Arizona's domestic in-migrants. The second-largest number came from Texas, which accounted for 6.6 percent of Arizona's total. Shares were between 4.3-and-4.6 percent from Colorado, Illinois, New Mexico, and Washington.

Because of the relationship between the number of migrants to and from Arizona and the population size of the other states, expressing the migration data on a rate basis (dividing the number of migrants by the population of the other state) provides a better comparison of the importance of other states to Arizona's migration flows. All of the states providing the highest

in-migration rates to Arizona are western states, with New Mexico having the highest rate over the 2001-14 period at 438 per 100,000 residents, followed by Nevada (277) and Utah (225). The very high rate for New Mexico in part relates to the situation on the Navajo Reservation, which spans both states. A large number of tribal members report different addresses in succeeding years.

Despite sharing a border with Arizona, California only ranked 12th on the in-migration rate at 122. The states with the lowest in-migration rates to Arizona are located either along the East Coast or in the South. West Virginia had the lowest rate at only 17 per 100,000 residents.

The 2001-14 period can be split into two parts: the 2001-07 period preceding the severe recession, and the 2008-14 period of the recession followed by a relatively slow economic recovery in Arizona. Annual average domestic in-migration to Arizona was 199,653 in the earlier period and 177,910 in the latter period, a 10.9 percent drop. Despite this overall decline, the average number of in-migrants to Arizona in the latter period was higher than in the former period from 18 states, mostly in the southern and western parts of the country. In contrast, the decline was 29 percent in in-migrants from California. In the earlier period, 26 percent of the domestic in-migrants to Arizona came from California; in the more recent period, the share was 21 percent.

### **Out-Migration**

California was the most popular destination of people moving from Arizona between 2001 and 2014, receiving 18.6 percent of Arizona's domestic out-migrants. Texas ranked second at 9.6 percent. Shares were between 4.2-and-5.5 percent in Colorado, New Mexico, Washington, and Nevada.

As with in-migration, the most-popular states for domestic out-migrants from Arizona relative to the population of the other state over the 2001-to-2014 period were New Mexico (412 per 100,000 residents), Nevada (255), and Utah (202). All of the states with the highest out-migration rates are western states, but California is not among the leaders. The states with the lowest rates again are either along the East Coast or in the South.

Annual average domestic out-migration from Arizona was 137,314 from 2001 through 2007 and 163,530 from 2008 through 2014, a 19.1 percent increase. Average out-migration was higher in the latter period to all but three states. California and Texas were among the top seven states on the percentage increase in the average number of out-migrants from Arizona between 2008 and 2014 relative to between 2001 and 2007.

### **Net Migration**

In terms of net domestic migration to Arizona, California was the most important state between 2001 and 2014, accounting for 42.1 percent of the total. Illinois ranked second at 10.5 percent, followed by Michigan (6.4) and New York (5.6).

Relative to population, the net inflow from 2001 through 2014 was greatest from Alaska at 54 per 100,000 residents. California ranked second (45), followed by Illinois (32), New Mexico

(26), Washington (26), and Wyoming (26). The largest net outflow on a rate basis was to Idaho (-15), followed by Texas (-8) and Arkansas (-5).

States ranking in the top 10 on at least one measure of domestic migration with Arizona — number of in-migrants, number of out-migrants, net number of migrants, in-migration rate, out-migration rate, and net migration rate — are included in Table 1. Western states are disproportionately represented, some of which rank in the top 10 on both the number and the rate.

Net domestic migration to Arizona averaged 62,339 per year from 2001 through 2007 but only 14,380 per year from 2008 through 2014, a 77 percent decline. While Arizona continued to receive a net inflow from California in the latter period, the annual average number dropped from 27,280 between 2001 and 2007 to 5,055 between 2008 and 2014, a disproportionately large decline. Even in the first period, Arizona experienced net out-migration to four states, though the numbers were small. In the latter period, net migration was negative to 16 states. The net flow

**TABLE 1**  
**MIGRATION BETWEEN ARIZONA AND SELECTED STATES,**  
**CUMULATIVE TOTAL FROM 2001 THROUGH 2014**

	Number of Migrants			Migration Rates Per 100,000 Residents		
	In	Out	Net	In	Out	Net
TOTAL	2,642,947	2,105,909	537,038	63	50	13
Alaska	19,416	14,251	5,165	<b>204</b>	<b>150</b>	<b>54</b>
California	<b>617,386</b>	<b>391,042</b>	<b>226,344</b>	122	77	<b>45</b>
Colorado	<b>114,458</b>	<b>115,056</b>	-598	<b>172</b>	<b>172</b>	-0
Florida	<b>85,418</b>	<b>78,115</b>	7,303	34	31	3
Idaho	29,167	32,338	-3,171	<b>142</b>	<b>157</b>	-15
Illinois	<b>120,281</b>	<b>63,940</b>	<b>56,341</b>	68	36	<b>32</b>
Michigan	<b>77,299</b>	42,884	<b>34,415</b>	55	31	<b>25</b>
Minnesota	53,677	35,500	<b>18,177</b>	74	49	<b>25</b>
Montana	18,200	17,174	1,026	<b>136</b>	<b>128</b>	8
Nebraska	22,853	16,917	5,936	92	68	<b>24</b>
Nevada	<b>95,623</b>	<b>88,031</b>	7,592	<b>277</b>	<b>255</b>	22
New Jersey	35,025	17,384	<b>17,641</b>	29	14	15
New Mexico	<b>119,811</b>	<b>113,031</b>	6,780	<b>438</b>	<b>412</b>	<b>26</b>
New York	74,075	44,034	<b>30,041</b>	28	16	12
Ohio	64,614	40,905	<b>23,709</b>	40	25	15
Oregon	63,679	<b>61,861</b>	1,818	<b>124</b>	<b>120</b>	4
Pennsylvania	48,658	33,302	<b>15,356</b>	28	19	9
South Dakota	13,610	10,877	2,733	123	98	<b>25</b>
Texas	<b>173,458</b>	<b>202,605</b>	-29,147	53	61	-8
Utah	<b>80,246</b>	<b>72,801</b>	7,445	<b>225</b>	<b>202</b>	23
Washington	<b>122,270</b>	<b>99,701</b>	<b>22,569</b>	<b>136</b>	<b>110</b>	<b>26</b>
Wisconsin	47,597	30,554	<b>17,043</b>	61	39	22
Wyoming	14,852	12,979	1,873	<b>199</b>	<b>173</b>	<b>26</b>

Note: Bold figures indicate a top 10 rank.

Sources: Internal Revenue Service, <https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data> (migration) and U.S. Department of Commerce, Census Bureau (population).

with Texas averaged -4,642 between 2008 and 2014, compared to an average net flow of 479 in the earlier period.

In 2014, Arizona had domestic net migration of 22,017. California accounted for 7,739 (35 percent). Illinois (4,780; 22 percent) was the only other state with more than 2,000. Arizona experienced a net outflow to 11 states, including Texas at -6,647. Of the 14 years from 2001 through 2014, the net inflow in 2014 was the largest from Arkansas and New Mexico, but the net outflow to South Carolina and Texas was the largest.

### **Distance and Migration Flows**

As noted earlier, migration flows to and from Arizona and other states are highly correlated to the population of the other state and the distance between the states. Controlling for population by using migration rates, it is possible to estimate the relationship between distance and migration flows.

The distance between the population center of Arizona and the population center of each of the other states was determined. This distance was used as the sole independent variable explaining the variation by state in the average migration rates with Arizona over the 2001-14 period (the dependent variable). Excluding Alaska and Hawaii, distance alone explained 51 percent of the variation by state in both in-migration and out-migration rates. However, the error by state resulting from this regression equation was not randomly distributed. The actual in- and out-migration rates were higher than predicted by the regression equation in most of the western states (with California being the notable exception). Actual rates also were higher than predicted in the New England and Middle Atlantic states. In contrast, actual rates were lower than predicted in the southern states, in the Great Lakes region, and in most of the Plains states.

Because of this geographic pattern to the errors in the initial regression, another regression was run that used nine geographic regions as explanatory variables instead of distance. This resulted in higher explanatory power, at 70 percent of the variation across states in in-migration rates and 72 percent in out-migration rates.

While distance/region does a good job of explaining migration flows to and from Arizona, the explanatory power for net migration is not as high. Based on regions, 46 percent of the variation across states in net migration rates was explained. The lower explanatory power results from Arizona's net migration rates varying widely even for neighboring states. For example, the average rate from 2001 through 2014 was 25.9 with Washington, but only 4.0 with Oregon.

### **Migration Flows: Totals by State**

Arizona's domestic in-migration of 185,863 in 2014 ranked ninth among the states and was 3.0 percent of the sum of the states. In-migration to Texas (623,993), Florida (536,424), and California (432,409) was far higher. Georgia, North Carolina, New York, Virginia, and Washington also had a greater number of in-migrants. None of these states were among the leaders on the in-migration rate, though Colorado, 10th on the number of in-migrants, ranked seventh on in-migration rate. Less-populous states had the highest in-migration rates. Arizona ranked 12th with a figure of 28 per 100,000 residents, behind the western states of Nevada, Colorado, and Idaho.

Domestic out-migration from Arizona totaled 163,846 in 2014, the 12th-highest figure in the country, and 2.7 percent of the sum of the states. Out-migration exceeded 358,000 from California, Florida, Texas, and New York. Other states with a greater number than Arizona included Illinois, Virginia, Georgia, North Carolina, Pennsylvania, New Jersey, and Ohio. Among these states, only Virginia had among the 20 highest out-migration rates. Arizona ranked 18th with a figure of 24.7 per 100,000 residents. The less-populous western states of Nevada, New Mexico, Idaho, and Colorado had higher out-migration rates.

The ratio of domestic in-migration to out-migration was 1.13 in Arizona in 2014 and ranked ninth in the nation. Texas had the highest efficiency at 1.58. Other western states with a higher ratio than Arizona included Oregon, Colorado, Nevada, and Washington. Other states with considerable migration flows that had a higher efficiency included Florida and South Carolina. The lowest efficiencies were 0.66 in New York and 0.67 in Illinois. New Mexico was the only western state among the bottom 10.

Arizona's net domestic in-migration of 22,017 in 2014 ranked sixth. Only two states had a figure exceeding 30,000: Texas at 229,416 and Florida at 116,594. Colorado and Washington were the other western states with a figure greater than Arizona; net in-migration was just a little lower than in Arizona in Nevada and Oregon. The states with the greatest net domestic out-migration were New York (-123,317), Illinois (-81,144), California (-55,585), and New Jersey (-44,414). Texas ranked first on the net migration rate at 8.7, followed by North Dakota (7.6), South Carolina (6.3), and Florida (6.0). Other western states with a rate higher than Arizona's 3.3, which ranked 10th, included Nevada, Colorado, Oregon, Washington, and Idaho. Alaska had the lowest rate at -10.9, followed by New York and Illinois at -6.3.

### **Migration Flows: Arizona Counties**

Since county totals for in- and out-migration include migration to and from other Arizona counties, the sum of the counties is greater than the state total. However, the sum of the counties for net migration is equal to the state total.

Over the entire 1981-through-2014 time period, Maricopa County was responsible for 62 percent of the net migrants to Arizona. The Phoenix metro area — Maricopa and Pinal counties — accounted for 72 percent of the total. Pima County (the Tucson area) accounted for between 10 and 11 percent, and Mohave and Yavapai counties combined for an additional 14 percent. The other 10 Arizona counties combined accounted for only 3.4 percent.

County shares of the state's net migration were considerably different in 2014 than the long-term average. Average annual net migration for Cochise, Coconino, Pima, and Yuma counties was positive, but each of these counties experienced net out-migration in 2014. Offsetting these lower shares were higher shares in Maricopa, Pinal, and Yavapai counties than the long-term average. In 2014, net in-migration to metro Phoenix exceeded the state total.

Selected migration figures for 2014 are shown by county in Table 2. Significant differences are seen by county. Five counties experienced net in-migration and four counties suffered net out-migration from both other Arizona counties and from other states. Five counties had a net loss to

**TABLE 2**  
**MIGRATION BY ARIZONA COUNTY, 2014**

	Net Migration		Migration Efficiency		Total Rate*
	Same State	Other State	Same State	Other State	
Apache	-116	207	0.95	1.08	1
Cochise	-1,080	-441	0.65	0.92	-12
Coconino	-915	-171	0.80	0.96	-7
Gila	3	136	1.00	1.19	3
Graham	-167	70	0.85	1.13	-3
Greenlee	127	25	1.36	1.15	14
La Paz	-77	66	0.82	1.12	-1
Maricopa	1,670	16,366	1.06	1.17	5
Mohave	-372	1,486	0.79	1.19	6
Navajo	107	-106	1.03	0.95	0
Pima	-351	-403	0.96	0.98	-1
Pinal	1,749	3,104	1.13	1.37	15
Santa Cruz	-569	33	0.67	1.06	-11
Yavapai	857	2,421	1.19	1.46	15
Yuma	-866	-772	0.63	0.89	-7

\* Net migration per 1,000 county residents.

Sources: Internal Revenue Service, <https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data> (migration) and Arizona Department of Administration, Office of Employment and Population Statistics, <https://population.az.gov/population-estimates> (population).

other Arizona counties but experienced net in-migration from other states, while only one had net in-migration from other Arizona counties but a net loss to other states.

Despite a large net outflow to Pinal County, Maricopa County received a net inflow from within Arizona, with large net inflows from Pima, Yuma, and Coconino counties. Other than Maricopa and Pinal counties, Yavapai County also had a sizable net inflow from within the state, particularly from Coconino County. Cochise, Coconino, and Yuma counties had large net outflows to other Arizona counties.

The interstate portion of in- and out-migration varied considerably by county, exceeding 75 percent in Maricopa, Mohave, and Yuma counties. In contrast, intrastate migration accounted for the majority in several of the less-populous counties and in Pinal County. A high proportion of the migration flows in Pinal County were with Maricopa County. Such moves are within the same labor market and thus really should not be categorized as migration.

Of counties outside of Arizona, the California counties of Los Angeles, San Diego, and Riverside were among the gross migration leaders in several Arizona counties. Clark County, Nevada also was commonly near the top.

#### Migration Flows: Metropolitan Areas

Since the IRS does not publish the data for all county-to-county migration flows, only incomplete results are obtained from aggregating counties into metropolitan areas. Table 3 compares the Phoenix and Tucson areas on migration efficiency with selected metropolitan areas

**TABLE 3**  
**MIGRATION EFFICIENCY IN THE PHOENIX AND TUCSON METROPOLITAN AREAS WITH SELECTED METROPOLITAN AREAS, 2014**

	Metro Phoenix	Metro Tucson	Difference
San Diego-Carlsbad, CA	1.24	1.00	0.24
Los Angeles-Long Beach-Anaheim, CA	1.32	1.06	0.26
Riverside-San Bernardino-Ontario, CA	1.37	0.86	0.51
Oxnard-Thousand Oaks-Ventura, CA	1.33	1.72	-0.39
San Francisco-Oakland-Hayward, CA	1.07	0.98	0.09
San Jose-Sunnyvale-Santa Clara, CA	1.10	0.83	0.27
Bakersfield, CA	1.22	1.06	0.16
Fresno, CA	0.84	0.77	0.07
Sacramento-Roseville-Arden-Arcade, CA	1.14	0.74	0.40
Portland-Vancouver-Hillsboro, OR-WA	0.83	0.79	0.04
Seattle-Tacoma-Bellevue, WA	1.09	0.90	0.19
Las Vegas-Henderson-Paradise, NV	1.04	0.77	0.27
Salt Lake City, UT	1.21	0.91	0.30
Albuquerque, NM	1.83	0.98	0.85
Colorado Springs, CO	1.16	0.92	0.24
Denver-Aurora-Lakewood, CO	0.93	0.63	0.30
El Paso, TX	1.57	1.60	-0.03
San Antonio-New Braunfels, TX	0.78	0.82	-0.04
Austin-Round Rock, TX	0.20	0.28	-0.08
Houston-The Woodlands-Sugar Land, TX	0.81	0.49	0.32
Dallas-Fort Worth-Arlington, TX	0.71	0.83	-0.12
Minneapolis-St. Paul-Bloomington, MN	1.60	1.02	0.58
Chicago-Naperville-Elgin, IL	2.06	1.84	0.22

Source: Internal Revenue Service, <https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data>.

in 2014, based on the county-to-county flows that are available. For both the Tucson and Phoenix areas, efficiencies varied considerably across the selected metro areas. The efficiency in the Phoenix area in most cases was substantially higher than in the Tucson area, but there were exceptions. The efficiencies with the Austin metro area were remarkably low for both the Tucson and Phoenix areas.

Among the selected metro areas, the highest in-migration rate to the Phoenix area was from metro Albuquerque. Other high rates of in-migration came from the Colorado Springs, El Paso, and Las Vegas areas. The out-migration rate from metro Phoenix was by far the highest to metro Austin. Out-migration rates also were high to the Las Vegas and Colorado Springs metro areas. The net migration rate was highest to the Albuquerque and El Paso areas; it was significantly negative with the Austin area. The net migration rate for the Tucson area was highest with metro El Paso and lowest with metro Austin.

#### **Migration Flows by Age**

Beginning with tax returns filed in 2012, the IRS is providing data by the age of the primary taxpayer, divided into six age groups: 25 and younger, 26 to 34, 35 to 44, 45 to 54, 55 to 64, and 65 and older. The data file that contains the age data is not limited to domestic migrants.

Based on all nonmigrant tax returns filed during 2014, the age distribution of Arizona tax filers differs from the national average, with a considerably higher proportion 25 and younger, a somewhat higher proportion 65 and older, and a lesser proportion from 35 to 64 years of age, as seen in Table 4.<sup>10</sup> This age distribution is somewhat inconsistent with the age distribution of all Arizona residents relative to the national average from the 2010 census, which did not show such a disproportionate share of very young adults.

Nationally, the age distribution of migrants differed from that of nonmigrants. Migrants disproportionately consisted of young adults, particularly those from 26-to-34 years of age, with the shares of those 45 and older lower than for nonmigrants. The age distribution of in-migrants to Arizona partially reflected the national distribution by disproportionately consisting of young adults, but the shares differed from the nation. Compared to migrants nationally, Arizona's in-migrants disproportionately consisted of those 45 and older, particularly those 55 and older. The share younger than 35 was significantly below the national average. Compared to the national age distribution of migrants, Arizona's out-migrants disproportionately consisted of those 65 and older, with below-average shares from 26-to-44 years of age. The age distribution of in-migrants

**TABLE 4**  
**NUMBER OF PERSONAL EXEMPTIONS BY AGE OF PRIMARY TAXPAYER, 2014**

	Share of Total					
	25 and Younger	26 to 34	35 to 44	45 to 54	55 to 64	65 and Older
<b>Nonmigrants</b>						
United States	9.7%	16.5%	22.9%	22.3%	15.4%	13.3%
Arizona	13.6	16.7	21.7	19.8	14.0	14.1
Difference	3.9	0.2	-1.1	-2.4	-1.4	0.8
Arizona Rank:						
51 States	3	28	45	46	47	25
10 Western States	3	6	8	8	7	3
<b>In-Migrants</b>						
United States	18.1	30.7	22.8	13.0	8.0	7.5
Arizona	15.2	26.0	21.1	14.1	11.3	12.3
Difference	-2.9	-4.7	-1.7	1.0	3.4	4.8
Arizona Rank:						
51 States	45	50	41	7	5	3
10 Western States	10	10	9	2	1	1
<b>Out-Migrants</b>						
United States	18.1	30.7	22.8	13.0	8.0	7.5
Arizona	18.8	27.7	21.6	12.9	8.6	10.5
Difference	0.7	-3.0	-1.2	-0.2	0.6	3.0
Arizona Rank:						
51 States	18	46	43	26	19	5
10 Western States	2	9	9	6	6	1

Note: Differences calculated on less-rounded numbers.

Sources: Internal Revenue Service, <https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data>.

<sup>10</sup> Table 2 includes Arizona's rank among 10 western states: Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Texas, Utah, and Washington.

to Arizona was considerably different from that of out-migrants from Arizona, with lesser shares of in-migrants younger than 45, particularly younger than 26, and greater shares of in-migrants 45 and older.

The age distribution of Arizona's migrants in the 2014 IRS data in part reflects economic conditions. Arizona experienced relatively weak economic growth in 2013 and 2014, with a relatively high unemployment rate. Thus, the opportunities for employment-related in-migration to Arizona were not strong while job opportunities elsewhere may have attracted some unemployed or underemployed Arizonans to leave the state. In contrast, retirement-age migration (which starts earlier than age 65) was not affected by these conditions, causing the retirement-age migrants to be an unusually high share of total migrants. Currently, Arizona's economic growth is stronger and its unemployment rate is lower. Thus, the age distribution of Arizona's current in- and out-migrants may more closely resemble the national average than in the 2014 IRS data.

#### **Adjusted Gross Income**

For those identified by the IRS as nonmigrants in 2014, adjusted gross income per tax return for calendar year 2013 averaged \$71,158 nationally. Average income was much lower for migrants — at \$59,459, it was 16.4 percent less than the average for nonmigrants. For the resident population at the time of filing taxes in 2014 — the sum of nonmigrants and in-migrants — the average was \$70,824.

Among nonmigrants, average adjusted gross income per tax return in 2013 varied widely by state, from 44 percent higher than the U.S. average in Connecticut to 28 percent below average in Mississippi. Ideally, the figures should be adjusted for the cost of living; the regional price parity (RPP) figures produced by the U.S. Department of Commerce's Bureau of Economic Analysis have been used. Adjusting for the cost of living has a significant effect in states with living costs either much higher or much lower than the national average. However, the variation in average income across the states still is considerable after adjusting for living costs, ranging from 33 percent above average in Connecticut to 25 percent below average in Hawaii.

The average income of Arizona's nonmigrants in 2013 was \$61,728 — 13.3 percent less than the national average. Arizona ranked 36th among the 51 states and eighth among 10 western states. After adjusting for the cost of living, Arizona's differential from the nation was smaller at 10.7 percent. However, the adjustment for living costs did not improve Arizona's ranks — 42nd nationally and eighth among the western states. Among the 10 western states, the average income of nonmigrants after adjustment for living costs varied considerably in 2013, from 6 percent above the national average in Texas to 19 percent below average in New Mexico (see Table 5). Idaho also had a lower figure than Arizona.

While it is desirable to adjust the average income of nonmigrants for the cost of living, it is not clear that such an adjustment should be made for the average income of migrants. Only aggregate income for the calendar year is reported by the IRS. The proportion of the total income earned at the previous residence versus the current residence is unknown, making it impossible to create an appropriate cost-of-living index. The uncertainty of the location at which income

**TABLE 5**  
**AVERAGE ADJUSTED GROSS INCOME, WESTERN STATES, 2014**

	Nonmigrant Relative to U.S. Average		In-Migrants Versus Nonmigrants	Ratio Out-Migrants Versus Nonmigrants	In-Migrants Versus Out- Migrants
	Unadjusted	Adjusted for the Cost of Living			
51-State Total	100.0%	100.0%	0.836	0.836	1.000
Arizona	86.7	89.3	0.957	0.872	1.097
California	110.9	98.8	0.839	0.832	1.008
Colorado	107.5	105.2	0.769	0.796	0.966
Idaho	80.0	86.2	0.898	0.786	1.144
Nevada	87.8	89.4	0.951	0.655	1.451
New Mexico	77.1	81.2	0.905	0.922	0.981
Oregon	91.0	92.2	0.821	0.789	1.041
Texas	102.0	105.5	0.755	0.819	0.923
Utah	95.0	97.7	0.871	0.753	1.156
Washington	107.8	104.5	0.753	0.755	0.998

Note: Income is for calendar year 2013.

Sources: Internal Revenue Service, <https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data> (migration) and U.S. Department of Commerce, Bureau of Economic Analysis (cost of living).

was earned should be considered when drawing conclusions based on the IRS income data of migrants.

The main focus in this analysis is to examine the average income of in-migrants and of out-migrants relative to each other and to nonmigrants. Such an analysis provides insight into which states are benefitting most, in terms of income, from migration. The analysis in this subsection is limited to domestic migrants.

The average income of in-migrants to Arizona (\$59,057) was similar to the national average, with the unadjusted figure ranking 16th nationally and third among the western states. The average income of out-migrants from Arizona of \$53,855 was 9 percent below the national average but ranked 25th nationally and fifth among the western states.

The average income of in-migrants to Arizona was only 4 percent less than that of nonmigrants, compared to a differential of 16 percent nationally. Arizona's ratio of in-migrant average income to nonmigrant average income was the highest among the western states, just above Nevada, and ranked fourth nationally.

The average income of out-migrants from Arizona was 13 percent less than that of nonmigrants, compared to a differential of 16 percent nationally. Arizona ranked second among the western states on the income ratio of out-migrants to nonmigrants; its national rank was 14th.

In Arizona, the average income of in-migrants was 10 percent higher than the average of out-migrants. Arizona ranked fourth among the western states; its national rank was 11th.

Thus, the ratio of the income of in-migrants to the income of nonmigrants was among the highest in the nation in Arizona. The ratio of the income of in-migrants to the income of out-migrants also was high. This suggests that Arizona benefited from migration in terms of income in 2014. However, as discussed in the next subsection, this results from the migration of older adults, not from younger adults active in the workforce.

### **Adjusted Gross Income by Age**

The IRS file that provides detail by age and income bracket excludes tax returns with a negative adjusted gross income. Thus, the totals from this file differ from those described in the prior subsection.

As discussed in the prior subsection, the average income of nonmigrants in Arizona was considerably below the national average in 2013. However, the differential from the national average varied by age, as seen in Table 6. Average income also varied considerably by age, with the average in the older working-age categories more than three times higher than the average for the youngest adults. Since a disproportionate share of Arizona's tax filers are very young adults, the shortfall from the nation in the total (-12.1 percent) is larger than in all but one of the age brackets.

**TABLE 6  
AVERAGE ADJUSTED GROSS INCOME BY AGE OF PRIMARY TAXPAYER, 2014**

	Total	25 and Younger	26 to 34	35 to 44	45 to 54	55 to 64	65 and Older
<b>Nonmigrants</b>							
United States	\$73,459	\$25,780	\$48,336	\$80,039	\$94,814	\$94,897	\$75,779
Arizona	\$64,598	\$26,575	\$45,075	\$72,930	\$82,501	\$83,836	\$68,228
Arizona Ratio to U.S.	87.9%	103.1%	93.3%	91.1%	87.0%	88.3%	90.0%
Arizona Rank:							
51 States	34	14	27	28	30	33	30
10 Western States	8	4	6	8	7	8	7
<b>In-Migrants</b>							
United States	\$62,024	\$26,233	\$47,707	\$76,115	\$96,082	\$108,810	\$83,147
Arizona	\$61,503	\$23,977	\$42,520	\$68,642	\$83,101	\$99,921	\$81,869
Arizona Ratio to U.S.	99.2%	91.4%	89.1%	90.2%	86.5%	91.8%	98.5%
Arizona Rank:							
51 States	16	32	32	28	29	25	12
10 Western States	5	5	7	7	8	5	3
<b>Out-Migrants</b>							
United States	\$62,991	\$30,980	\$47,892	\$76,432	\$95,068	\$108,233	\$83,048
Arizona	\$55,653	\$26,495	\$43,760	\$71,006	\$80,951	\$82,717	\$66,088
Arizona Ratio to U.S.	88.4%	85.5%	91.4%	92.9%	85.2%	76.4%	79.6%
Arizona Rank:							
51 States	24	19	25	20	29	40	42
10 Western States	5	4	5	6	6	7	8

Note: Income is for calendar year 2013.

Source: Internal Revenue Service, <https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data>.

In each age group except for those 65 and older, the average income of in-migrants to Arizona was at least 8 percent below the national average. However, the average income of all in-migrants to Arizona was only marginally less than the U.S. average of all in-migrants since Arizona's in-migrants disproportionately consisted of older adults, who had higher incomes than younger in-migrants.

The average income of out-migrants from Arizona relative to the national average varied considerably by age. In the older age groups, those leaving Arizona had significantly lower incomes than the national norm for out-migrants of older adults.

Nationally, migrants had a substantially lower average income than nonmigrants overall. However, this results from the age distribution of migrants being tilted so much to young adults. The average income of migrants was similar to the average income of nonmigrants among those younger than 55. Older migrants had higher incomes than their peers who did not migrate.

In Arizona, the differential in the average income between in-migrants and nonmigrants was much smaller than the national differential overall. This resulted from Arizona's age distribution of in-migrants being so much older than the national average. Older in-migrants to Arizona followed the national pattern of higher incomes than nonmigrants of the same age, with the differential even larger than the national average. However, in-migrants to Arizona younger than 45 had lower incomes than those of the same age group who did not migrate, in contrast to the similar incomes nationally between migrants and nonmigrants.

Nationally, the figures for out-migrants were similar to those of in-migrants. In contrast, out-migrants from Arizona had slightly lower incomes than those who did not move in all age groups.

The average incomes of in-migrants and out-migrants were similar nationally, overall and by age group. In Arizona, the average income of in-migrants was considerably higher than the average income of out-migrants among those 55 and older. In contrast, the average income of in-migrants was lower than the average of out-migrants among those younger than 45.

Arizona was not the only state in which the income ratio of in- versus out-migrants was well above average for older adults but below average for younger adults. This was the case in neighboring Nevada and New Mexico, with the difference in the income ratios between old and young adults more extreme in Nevada than in Arizona.

In terms of income, Arizona benefited in 2014 from the migration of older adults, few of whom were active in the workforce. In contrast, the migration of the working-age population was to the state's detriment, with those moving in having lower incomes than those leaving. While the IRS has no information on educational attainment, the strong relationship that exists between income and educational attainment suggests that the educational attainment of Arizonans younger than 45 declined due to migration.

The migration of young adults with high educational attainment has become important to economic development, because of the belief that innovation is driving the economy to an

unprecedented extent and that innovation is closely associated with educational attainment. As a proxy for educational attainment, the IRS income data were examined more closely. The ratio of the average income of in-migrants to the average income of out-migrants was calculated by state by age group for 2012 and 2013 as well as 2014.

In a number of states, the ratio in the 25-and-younger age group is inconsistent with the ratios in the next-older age groups. This may be because some states are disproportionately attracting out-of-state students to either undergraduate or graduate programs. Many of these students are filing their own tax return, but their income is reduced due to their attending college, making the IRS income data of little use to this analysis. Thus, the analysis focused on the ratio of the average income of in-migrants to the average income of out-migrants in the 26-to-44 age group.

Since the results vary from year to year in some states, the three years of data were combined. Arizona's ratio of the average income of in-migrants to the average income of out-migrants in the 26-to-44 age group ranked 40th. Among the western states, only New Mexico had a lower ratio; Colorado and Utah ranked in the top 10 and California, Idaho, and Oregon ranked in the top 20. Three of the six New England states ranked in the top 10 on this measure, with Connecticut and Maine ranking first and second; Vermont was the other state. North Carolina, South Carolina, and Florida also ranked in the top 10, as did Hawaii and Montana. In contrast, the Mid-Atlantic region did poorly on this measure, with New York, Delaware, Maryland, the District of Columbia, Virginia, and West Virginia all ranking in the bottom 10. Illinois and Missouri also were among the bottom 10.

## MIGRATION ESTIMATES FROM THE AMERICAN COMMUNITY SURVEY

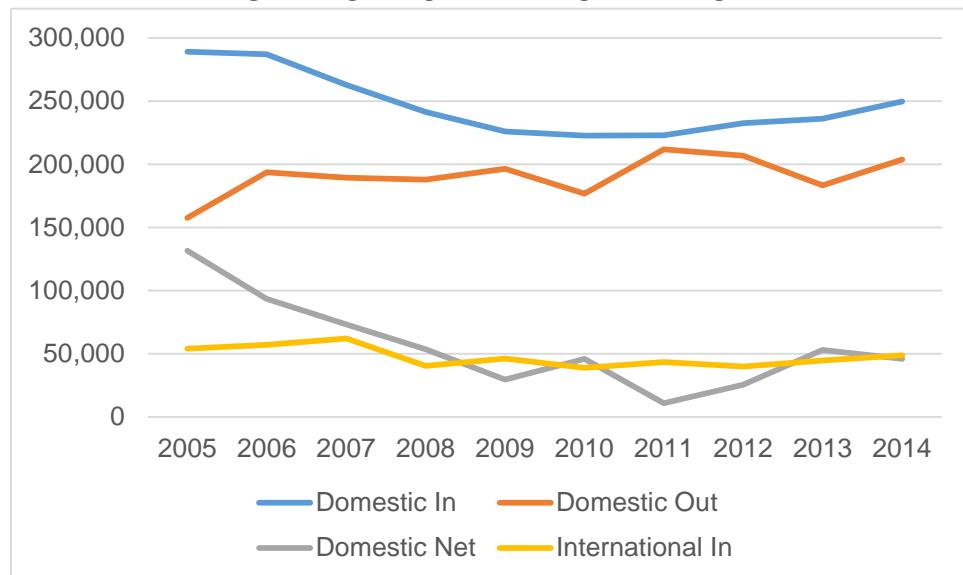
Other than total migration flows to and from Arizona, which are presented annually, this analysis uses the five-year aggregation of ACS data due to the sampling error in the ACS. Still, when examining migrants by characteristic, such as age, significant sampling error remains. By characteristic, Arizona is compared to the nation over each of the available five-year periods (2006-10 through 2010-14), while the comparison to other states is limited to the 2010-14 period.

Both in-migration and out-migration vary with the economic cycle. After peaking in 2005 and 2006, Arizona's economy slowed in 2007, dropped into a deep recession that lasted from the end of 2007 into 2010, then began a slow recovery. Domestic in-migration dropped from 2006 through 2010, was stable in 2011, then began to slowly rise, as shown in Chart 11. International in-migration, which includes the return of U.S. residents (such as military personnel returning from an overseas assignment) as well as documented and undocumented immigration, is much less than domestic in-migration. International in-migration dropped in 2008, likely due not only to the economic cycle but also to the passage of Arizona's employer sanctions law, which made it more difficult for undocumented immigrants to make a living in Arizona. Out-migration has been more erratic, with some of the ups and downs likely reflecting sampling error — a comparison of annual domestic migration flows from the ACS and IRS is included in the last section of this paper. Net domestic migration dropped significantly from 2005 through 2011. It has increased since then but in 2014 still was far below the level present in 2005 and 2006.

### Totals by State

Over the 2010-14 period, annual domestic in-migration to Arizona averaged about 232,000. This was the eighth-highest figure among the 50 states and the District of Columbia and third-highest among 10 western states, considerably less than the in-migration to Texas and California. Florida

**CHART 11  
MIGRATION TO AND FROM ARIZONA**



Source: U.S. Department of Commerce, Census Bureau, American Community Survey.

had the largest number, with Georgia, North Carolina, New York, and Virginia also exceeding Arizona's figure.

Considering the population of each state, Arizona was not among the top 10 states on the domestic in-migration rate. All of the top 10 states were less populous than Arizona, with the highest figure in the District of Columbia. Among the western states, Nevada, Colorado, and Idaho ranked in the top 10.

Arizona also was not among the top 10 in the number of domestic out-migrants. Though the ranks varied somewhat, nine states were among the top 10 on the number of both domestic in-migrants and domestic out-migrants. Less-populous states again were the leaders on the domestic out-migration rate, with Idaho and Nevada the only western states among the top 10.

On the ratio of domestic in-migrants to domestic out-migrants, Arizona was not among the leaders. The highest efficiencies were in North Dakota, South Carolina, Delaware, Colorado, and Texas. Alaska, New Jersey, New York, Illinois, and Michigan had the lowest efficiencies.

Domestic net in-migration was highest to Texas, followed by Florida, Colorado, North Carolina, and South Carolina. Arizona ranked sixth. Domestic net out-migration was greatest from New York, followed by California, Illinois, New Jersey, and Alaska. Arizona's domestic net migration rate ranked fifth, behind North Dakota, Colorado, Delaware, and South Carolina. Alaska by far had the largest negative domestic net migration rate; other states on net losing relatively large shares of their population included the District of Columbia, New Jersey, New York, and Illinois.

The ranking of states by the number of international in-migrants is different from that of domestic in-migrants. California had the largest number of international in-migrants, followed by Texas, Florida, New York, and Georgia. Arizona was not among the top 10. Relative to the size of the population, the leading states for international in-migrants were the District of Columbia, Hawaii, Massachusetts, Florida, and Washington.

### **By Age**

The Census Bureau produces two tables of geographical mobility by age: by age group and by median age. The tables are for the population age 1 and older. There are 15 age groups. Between the ages of 20 and 74, the population is divided into five-year age groups (for example, 20 to 24). The population 75 and older forms another group. Those younger than 20 are divided into three groups: 1 to 4, 5 to 17, and 18 to 19.

### **Arizona Versus the Nation**

The shares of the total population in each age group were calculated for Arizona and the nation for each of the five-year aggregations from the ACS for 2006-10 through 2010-14. The shares shifted noticeably over this period. Lower birth rates since the onset of the recession in 2008 have contributed to declining shares of younger children while the aging of the baby-boom generation contributed to increases in the shares of those from 55-to-69 years old and decreases in the shares of those from 35-to-49 years old. Arizona experienced a decrease in share of those in the 25-to-29 age group, while the share in this age group was unchanged nationally.

Focusing on the 2010-14 aggregation, the age distribution of Arizona's 1-and-older population varied somewhat from the national average. Arizona had higher shares of children and of those 65 and older, offset by lower shares from 45-to-59 years old. Thus, Arizona's dependency ratio — defined here as the ratio of the number of residents younger than 18 plus the number 65 and older divided by the number from 18-to-64 years old — was higher than the national average. There were 63.4 dependents per 100 people of working age in Arizona compared to 57.4 nationally. The dependency ratio nationally hardly increased between the 2006-10 and 2010-14 periods as declines in the shares of young children largely offset the rising share of those of retirement age. In Arizona, the dependency ratio increased.

Using 2010-14 data for the nation, the age distribution in each of the mobility categories was compared to the age distribution of the entire population. The age distribution of nonmovers was different from the age distribution of the entire population, with those 45 and older overrepresented among the nonmovers and those 18-to-34 years old, and young children, underrepresented. The age distribution of movers was much different from the distribution of the entire population, with above-average shares of movers among those younger than 40 and below-average shares among those 40 and older. Among the various categories of movers — those moving within a county, those moving to a different county in the same state, those moving to a different state, and those moving from outside the country — the age distribution was similar, with the 20-to-29 age group particularly overrepresented among movers and all of the age groups 45 and older underrepresented. Nationally, the frequency of moves of all types peaks among young adults and then drops with age.

For Arizona, the age distribution in each of the mobility categories also was compared to the age distribution of the entire population. The distribution of nonmovers was nearly identical to the national average. However, unlike the nation, the age distribution in Arizona was not consistent across the various categories of movers. The distribution was relatively similar to the national average among those moving within the state, but differed to a greater degree among domestic migrants and international in-migrants. Thus, while young adults and their young children also were disproportionately represented among Arizona's migrants, some significant differences existed between Arizona and the nation in the age distribution of the migrants.

In order to focus on the differences in the age distribution of movers in Arizona relative to the nation, the differences in Arizona between the mobility categories and the overall population were compared to the national differences between the mobility categories and the overall population.<sup>11</sup> For those making moves within the same county or to a different county in the same state, the movers in Arizona were disproportionately between 35 and 64 years old and older children, with considerably fewer between the ages of 20 and 29 making such moves.

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<sup>11</sup> This analysis consisted of the following calculations for each of the mobility categories: (1) the percentage share of the total population in each mobility category was calculated by age group, for the nation and for Arizona; (2) the national age group shares in each mobility category were compared to the shares of the entire population age 1 and older, and (3) the second calculation was performed for Arizona, then by mobility category the difference in the shares in Arizona were compared to the differences in the shares for the nation.

Those moving to Arizona from another state disproportionately consisted of those 45 and older, particularly those between the ages of 50 and 69. Those younger than 40, particularly those from 18 to 34, were underrepresented. This differential from the national average largely reflects two factors: Arizona is one of relatively few destinations for people who migrate at retirement age, and the weakness of the Arizona economy over the 2010-14 period restricted the ability of labor force participants to find a job in the state, reducing the number of young adults who otherwise might have moved to the state.

International in-migrants displayed a similar pattern to domestic in-migrants, disproportionately consisting of those from 55-to-69 years old, with relatively few younger than 45. Arizona's comparatively weak economy since 2008 likely has diminished its attractiveness to young working-age immigrants, and the employer sanctions law passed in 2008 has discouraged undocumented immigrants, who predominantly are young adults, from moving to the state.

A disproportionately low share of those moving from Arizona to another state were young adults (age 18 to 29). The out-migrant shares in most other age groups, especially 45 to 54, were relatively high. In Chart 12, the age distribution of migrants is compared to that of the entire population.

The annual average net number of domestic migrants to Arizona in 2010-14 was about 36,500 (compared to 58,300 in 2006-10). Arizona experienced net out-migration among those 30 to 34 and among children younger than 5. Net in-migration was highest among those from 55 to 74, followed by those from 20 to 29. The efficiency of the domestic migration flows was strongest among those 55 and older, particularly those 65 to 74. Efficiencies were not above 1 by a wide margin in any other age group.

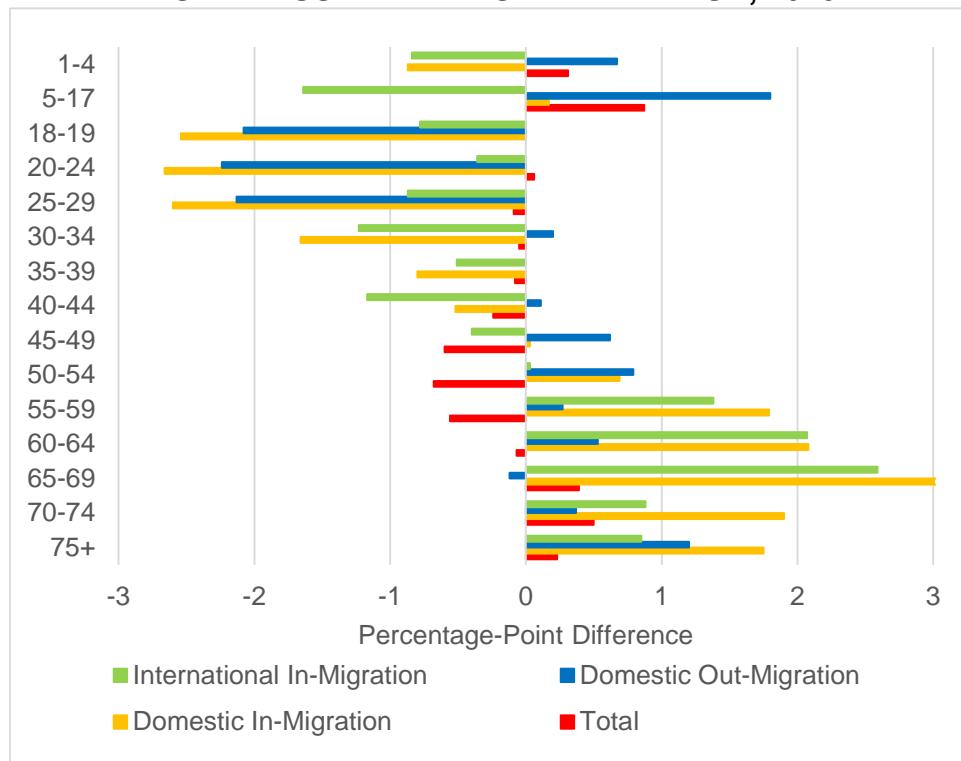
## States

Looking at all states in 2010-14, the similarity of the age distribution of the residents of Arizona relative to the national average was in the midrange of the states. Among the 10 western states, only Washington had an age distribution closer to the nation. The age distributions in Utah and Texas differed from the nation, with young people (particularly under 35) disproportionately represented and those 40 and older having relatively small shares.

Other states with an age distribution different from the nation included the District of Columbia, which had a high share of young adults; Montana, New Hampshire and Vermont, which had high shares in the preretirement age groups; and Florida, Maine, and West Virginia, which had high shares of retirees. The age distribution was most like the national average primarily in states in the midsection of the country.

In many states, differences in the age distribution of in- and out-migrants relative to the nation are similar to those of the resident population. In order to better identify states in which the migration flows were having an effect on the age distribution of the preexisting population, the variations from the nation were expressed relative to the age distribution of the residents of each state.

**CHART 12**  
**AGE DISTRIBUTION OF POPULATION 1 AND OLDER,  
ARIZONA LESS THE NATIONAL AVERAGE, 2010-14**



Note: In the migration categories, Arizona's figures are compared to both the national average for that category and the total for Arizona.

Source: U.S. Department of Commerce, Census Bureau, American Community Survey.

On this basis, the age distribution of domestic in-migrants to Arizona had the seventh largest differential, being overrepresented by those 50 and older and underrepresented by those 18 to 34 (and children under 5). The difference was not as large among domestic out-migrants, with Arizona ranking 17th, with those 45 to 59 overrepresented and those 18 to 29 underrepresented. Arizona ranked 16th on domestic net migration, with high shares of those from 55 to 74 and low shares among those 30 to 39 (and children under 5). Among international in-migrants, Arizona ranked in the middle of the states, with somewhat high shares of those 55 to 69 and somewhat low shares of those under 45.

On domestic in-migration, Florida and Nevada were similar to Arizona in attracting a disproportionate share of older adults and below-average shares of young adults. The other states with large differences were primarily in the northern part of the country and included Utah; these states received disproportionate shares of young adults, particularly those from 18 to 24. The age groups in these states with low shares varied.

Nevada was similar to Arizona in the age distribution of domestic out-migrants. Otherwise, most of the states with large differences were in the northern part of the country and had large

outflows of young adults. Massachusetts and Vermont ranked among the top 10 on both domestic in-migration and domestic out-migration, with each flow dominated by those 18 to 29 and with low shares among older but preretirement-age adults.

None of the western states ranked high on the differences in domestic net migration. Most of the states with large differences were along the East Coast. Most of these states had disproportionately large net inflows of young adults, offset by lower shares of middle-age adults.

Utah and Idaho led the states on differences among international in-migrants, with each receiving disproportionate shares of young adults. Five of the western states ranked among the bottom 10 on differences.

#### **By Educational Attainment**

The Census Bureau's table of educational attainment by geographical mobility is limited to the population age 25 and older. Maximum educational attainment is divided into five categories: not a high school graduate, high school diploma or equivalent, some college (including an associate's degree), bachelor's degree, and graduate/professional degree.

An examination of the five-year aggregations from the ACS for 2006-10 through 2010-14 indicates that educational attainment nationally rose over this time period, overall and in each of the mobility categories, with the shares of the population with a high school diploma or less falling while the shares increased in each of the categories of greater educational attainment. This improvement is part of a long-term trend in which young people aging into the 25-and-older age group have greater educational attainment than elderly people who die. The educational attainment of those moving from abroad increased the most, with those not moving having the least gain.

Educational attainment overall also improved in Arizona between 2006-10 and 2010-14, but at a slower pace than the national average. The increases in attainment were inconsistent across the mobility categories and inconsistent relative to the national average across the mobility categories.

Focusing on the 2010-14 aggregation, the educational attainment of Arizona's 25-and-older population was different from the national average. While Arizona had a much higher share with some college and a lesser share with a high school diploma, Arizona also had lesser shares with a bachelor's degree and with a graduate degree, and a slightly higher share who had not graduated from high school.

Based on 2010-14 data, the educational attainment by mobility category was compared to the overall total for the nation. In addition, the educational attainment by mobility category in Arizona was compared to the overall total, relative to the nation:

- No move. The educational attainment of nonmovers was very similar to the total nationally, with Arizona's relationship to the total similar to the national average.
- Moved from one dwelling to another in the same county. The attainment in this category was lower than the total nationally, with those earning university degrees a lesser share of those moving and those who have not graduated from high school making up a

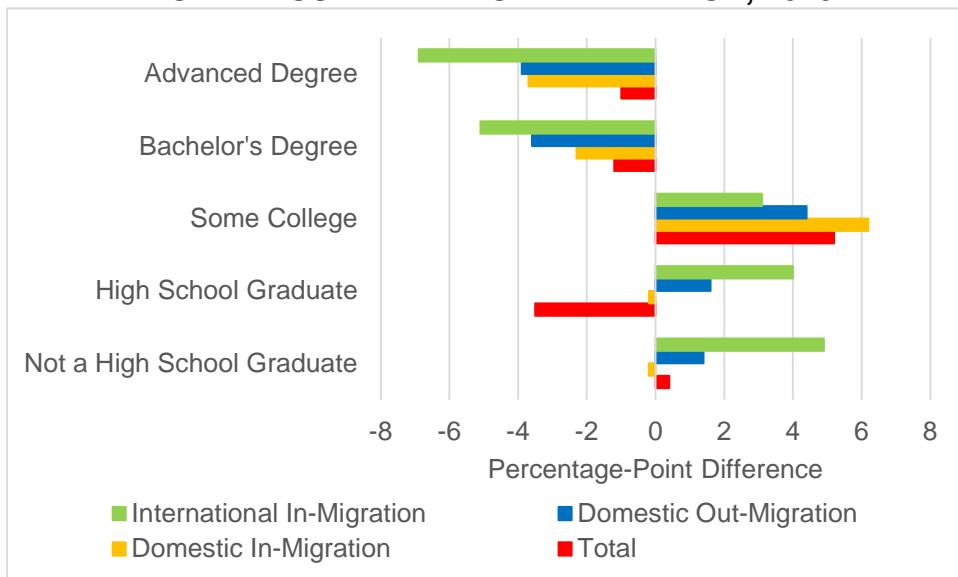
disproportionately high share. Arizona's relationship to the total was similar to the national average.

- Moving from one county to another in the same state. The attainment of this subset was a little lower nationally than the overall population; those with a graduate degree were particularly underrepresented. Arizona's county-to-county movers were highly skewed to the less well educated: particularly few had at least a bachelor's degree.
- Moved from another state (domestic in-migrants). The educational attainment of those moving from one state to another was substantially higher than that of the entire population nationally, with much higher shares of those with a university degree and much lesser shares with a high school diploma or less. Arizona's domestic in-migrants were less well educated, with a particularly low share with a graduate degree and a high share of high school graduates.
- Moved from abroad (international in-migrants). Nationally, a disproportionate share of international in-migrants had university degrees, but the share without graduating from high school also was somewhat high. In contrast, Arizona received a disproportionately small share of the well educated and had a large share with a high school diploma or less.
- Total in-migrants. This subset nationally had a high share of university graduates and a low share of those with less education. Arizona's share of the highly educated was lower, with a high share of those with a high school diploma.
- Moved to another state (domestic out-migrants). Nationally, this subset is identical to domestic in-migrants. In Arizona, domestic out-migrants are similar to domestic in-migrants in being underrepresented by those with university degrees and overrepresented by those with a high school diploma or less.

As seen in Chart 13, Arizona's migrants — domestic in, domestic out, and international in — during the 2010-14 period were overrepresented by those with some college as their maximum educational attainment and underrepresented by those with a university degree (especially those with an advanced degree). Arizona's international in-migrants (and to a lesser extent its domestic out-migrants) also were disproportionately represented by those who had a high school diploma or less.

A comparison of Arizona's domestic in-migrants to domestic out-migrants shows that Arizona's educational attainment benefited somewhat from this exchange of residents, with a decline in the share with a high school diploma or less and an increase in the shares with some college and a bachelor's degree. Comparing all in-migrants (domestic and international) to out-migrants lessens the attainment gains realized by Arizona through migration. Arizona experienced a net gain in those with a bachelor's degree (and to a lesser extent in those without a high school diploma), offset by a decrease in those with a high school diploma. Given the age distribution of Arizona's migrants, the small improvement in attainment from migration probably did not extend to the workforce — the differential proportion of in-migrants with a bachelor's degree likely consisted of retirees.

**CHART 13**  
**EDUCATIONAL ATTAINMENT OF THE POPULATION 25 AND OLDER,  
ARIZONA LESS THE NATIONAL AVERAGE, 2010-14**



Note: In the migration categories, Arizona's figures are compared to both the national average for that category and the total for Arizona.

Source: U.S. Department of Commerce, Census Bureau, American Community Survey.

In order to simplify the analysis of educational attainment by state, a single measure — “score” — was created by multiplying the share of the total in each of the educational attainment categories by a weight, ranging from 1 for less than a high school graduate to 5 for a graduate degree. Based on the 2010-14 ACS, Arizona’s score for the population 25 and older was 2.84, marginally less than the national average. Arizona ranked 31st among the 50 states and District of Columbia and sixth among 10 western states. The ranks for the categories of geographic mobility are shown in Table 7.

The educational attainment of Arizona’s domestic in-migrants (a score of 3.10) was less than the national average (3.19) and ranked only eighth among the 10 western states. However, the educational attainment of those moving from Arizona also was subpar at 3.03. Thus, Arizona realized a slight increase in educational attainment from domestic net migration.

This slight increase, however, was offset by the very low educational attainment of Arizona’s international in-migrants (a score of 2.79 versus 3.11 nationally, ranking 48th nationally and ninth in the West). In some states, the educational attainment of international in-migrants exceeded that of domestic in-migrants, but Arizona was one of six western states ranking among the bottom 12 states on the difference in educational attainment between international in-migrants and domestic in-migrants.

**TABLE 7**  
**EDUCATIONAL ATTAINMENT RANKS, ARIZONA, 2010-14**

<b>Population Age 25 and Older</b>	<b>Rank: All States*</b>	<b>Rank: West**</b>
Total	31	6
Same House One Year Ago	30	7
Moved Within Same County	25	6
Moved From Different County Within Same State	36	8
Moved From Different State (Domestic In-Migration)	31	8
Moved From Abroad (International In-Migration)	48	9
Moved From Different State or Abroad (Total In-Migration)	34	8
Moved From Arizona to Another State (Domestic Out-Migration)	40	9
Difference, International In-Migration Less Domestic In-Migration	46	9
Difference, Domestic In-Migration Less Domestic Out-Migration	10	4

\* The rank is among the 50 states and the District of Columbia, where a rank of 1 represents the highest educational attainment score and a rank of 51 the lowest score. See the text for a definition of the score.

\*\* The rank is among 10 western states: Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Texas, Utah, and Washington.

Source: U.S. Department of Commerce, Census Bureau, American Community Survey.

Domestic in-migrants on average had a greater educational attainment than the entire population in every state. The differential in Arizona ranked 32nd nationally and sixth in the West. Domestic out-migrants in every state except Alaska had greater educational attainment than the entire population. Arizona had the sixth smallest differential (second smallest in the West). Arizona was one of only three states in which international in-migrants did not have greater educational attainment than the overall population. The differential in Arizona ranked 50th nationally and ninth among the western states.

#### **By Income**

The Census Bureau produces two tables of income by mobility. Each measures individual income of the population age 15 and older. One table provides a frequency distribution of income by range; the other presents the median income of those earning income.

Income is expressed as the inflation-adjusted income over the 12 months up to the time at which the respondent answered the ACS. As such, it is difficult to interpret for those migrating to a different labor market, since for most individuals a portion of the income over the prior 12 months was earned before they moved and a portion was earned after moving. A number of other factors complicate the analysis. Since income is closely related to age, differences in the age distribution of migrants over time and across states may account for apparent differences in the median income. For some migrants, a change in work status may accompany the migration. For example, an unemployed person may be motivated to migrate by a job offer in another state; a person may migrate upon retirement.

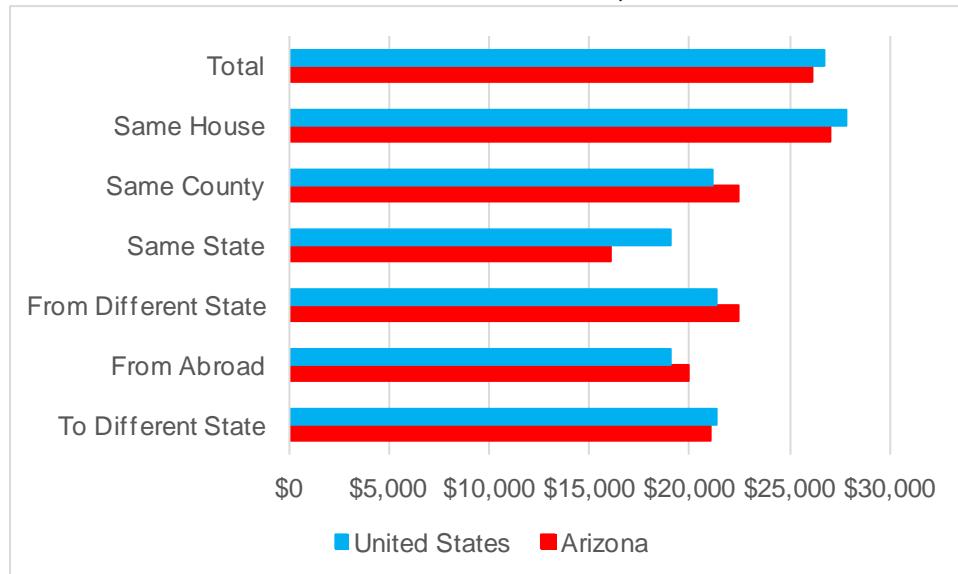
Typically, median income should be adjusted for geographic differences in living costs. For example, the average cost of living over the 2009-to-2013 period (the latest regional price parity data are for 2013) was 1.7 percent less in Arizona than the national average and ranged from 13.5 percent below average in Mississippi to 17.6 percent above average in the District of

Columbia. However, since the income reported for migrants could have been earned at either or both of their old and new locations, adjusting the median income of migrants by the cost of living is problematic.

Using the 2010-14 data, the median income was highest nationally and in Arizona among those who did not move (see Chart 14). The lowest medians were for those moving from one county to another in the same state and for those moving from abroad. Without adjusting for the cost of living, the median income of individuals living in Arizona was 2 percent less than the national average, but the median was 5 percent above the national average for domestic in-migrants and 4 percent above average for international in-migrants. For out-migrants from Arizona, the median was 1 percent less than the national average. The median income of domestic in-migrants was 6 percent higher than the median for domestic out-migrants in Arizona.

A comparison of the 2010-14 results to the 2006-10 results minimizes the overlap in the ACS sample. Average inflation over this period was 6.6 percent based on the national gross domestic product implicit price deflator, 8.1 percent based on the national consumer price index, and 6.1 percent based on the consumer price index for metropolitan Phoenix. Not considering inflation, the median income nationally rose 2.4 percent over this period, while the median in Arizona fell 1.2 percent. Median income for domestic migrants nationally rose 3.0 percent, compared to a 1.0 percent rise for domestic in-migrants to Arizona and a 1.6 percent decline for domestic out-migrants from Arizona. The median income of those moving from abroad rose considerably nationally, by more than inflation, and the gain in Arizona was even larger.

**CHART 14**  
**MEDIAN INDIVIDUAL INCOME OF THOSE EARNING INCOME**  
**BY MOBILITY CATEGORY, 2010-14**



Source: U.S. Department of Commerce, Census Bureau, American Community Survey.

The median individual income by state varied widely in 2010-14, from 51 percent above the national average in the District of Columbia and 34 percent above average in Maryland to 21 percent below average in Mississippi. Atlantic Coast states from Virginia to the north accounted for seven of the top eight states, while eight of the 10 lowest median incomes were in southern states. On the ratio of the median income of domestic in-migrants to domestic out-migrants, six of the Atlantic Coast states ranked in the top 10 (but two ranked at the bottom of the states), while the other four in the top 10 were western states, including California (second), Washington (ninth), and Arizona (tenth). Most of the states with low ratios were in the South or Great Plains regions.

The median income figures in Arizona for the 2010-14 period are compared to those of nine other western/southwestern states in Table 8. The figures by mobility category are shown as the percent difference from the national average and as the rank among the 50 states and the District of Columbia, without adjusting for the cost of living. Arizona ranked between 14th and 37th across the categories nationally and between fourth and eighth among the western states.

Arizona ranked 10th nationally and third in the West on the ratio of the median income of in-migrants to out-migrants. The median income of international in-migrants was 10.5 percent less than the median income of domestic in-migrants nationally in 2010-14. The difference was nearly the same in Arizona; the state ranked fourth among the western states and 32nd among all states.

**TABLE 8**  
**MEDIAN INDIVIDUAL INCOME IN WESTERN STATES, 2010-14**

	Percent Difference From Nation And Rank Among States*									
	AZ	CA	CO	ID	NV	NM	OR	TX	UT	WA
All Residents	-2.3%	0.8%	13.8%	-12.3%	2.1%	-11.5%	-5.4%	-2.2%	-3.2%	13.4%
	29	25	11	46	21	43	34	28	30	12
Nonmovers	-2.8%	-0.8%	15.6%	-9.3%	3.2%	-10.7%	-3.7%	-3.0%	-0.1%	14.3%
	29	28	10	41	24	43	33	31	26	11
Moved Within Same County	5.8%	10.8%	10.7%	-18.8%	12.3%	-14.6%	-10.0%	2.0%	-5.9%	12.0%
	18	13	15	47	10	44	34	21	28	11
Moved From Different County in Same State	-15.9%	14.6%	18.0%	-25.7%	-5.9%	-18.2%	-9.9%	9.9%	-12.8%	-4.4%
	37	8	6	48	21	41	25	11	30	20
Moved From Different State (Domestic In-Migration)	5.1%	12.7%	6.3%	-22.4%	-0.2%	-2.5%	-11.3%	6.7%	-30.5%	10.2%
	14	8	13	45	21	23	30	12	49	9
Moved From Abroad (International In-Migration)	4.4%	3.1%	14.2%	-26.3%	7.1%	-20.8%	-28.3%	0.2%	-54.1%	25.1%
	17	18	11	47	14	44	48	24	51	6
Moved to Another State (Domestic Out-Migration)	-1.2%	-2.2%	5.5%	-22.1%	-1.5%	-1.4%	-6.6%	2.9%	-11.6%	2.8%
	21	26	10	51	23	22	38	13	45	15
Percent Difference and Rank Among States*										
Domestic In-Migrants to Domestic Out-Migrants	6.3%	15.3%	0.7%	-0.3%	1.3%	-1.1%	-5.1%	3.7%	-21.3%	7.2%
	10	2	19	20	17	22	28	12	48	9
International In-Migrants to Domestic In-Migrants	--11.0%	-18.1%	-3.8%	-15.0%	-4.0%	-27.3%	-27.6%	-16.0%	-40.9%	1.6%
	32	39	19	36	21	45	47	37	50	16

\* The rank is among the 50 states and the District of Columbia, where a rank of 1 represents the highest income and a rank of 51 the lowest income.

Source: U.S. Department of Commerce, Census Bureau, American Community Survey.

## **COMPARISON OF MIGRATION ESTIMATES**

This section compares the overall estimates of in-, out- and net migration for Arizona from various sources. For all states, the ACS and IRS data are compared for migration flows and income. The age data are not comparable, since the IRS provides age only for the primary taxpayer, while the ACS age data are for the entire population.

### **Annual Estimates of Migration Flows, Arizona**

Since the IRS data only include those who filed a tax return in two successive years, the number of migrants counted by the IRS is less than the total number of people migrating, and therefore less than the number estimated from the ACS. To compare the overall estimates of the number of migrants from the ACS and IRS, annual data from the ACS are used.

Because of the inherently lower IRS figures, the ratio of the IRS figure to the ACS figure has been calculated by year for in-migration, out-migration, net migration, and gross migration. These ratios vary considerably from year to year for Arizona — that is, the proportion of the number of migrants estimated from the ACS that are counted by the IRS fluctuates annually. The variation in the ratios may result from several factors:

- The sampling error of the ACS likely is a significant cause.
- The timing of the two data sources is somewhat different, with the ACS data for the calendar year and the IRS data for an indefinite period between the filings of tax returns in two consecutive years; for example, a taxpayer may file in February of one year but in April in the following year.
- The proportion of individuals filing a tax return varies by year, primarily due to changing economic conditions.

Annual domestic migration figures for Arizona from the IRS and ACS are compared in Table 9. While the two datasets broadly display the same pattern — declines in in-migration and net migration from 2005 through 2010 followed by an upswing, and an increase in out-migration from 2005 through 2009 — the magnitude of the figures varies by year, as reflected by the fluctuations in the ratio.

The fluctuations in the ratio are particularly large for net migration. In 2006, net migration dropped considerably according to the ACS, while the IRS showed only a slight decline. A large increase in out-migration as estimated from the ACS is the primary reason for this discrepancy. Given that economic conditions in 2006 were much like those in 2005, the ACS data almost certainly reflect sampling error.

Net migration from 2009 through 2011 as measured by the IRS was particularly far below the ACS figures. The ACS estimate of in-migration appears to be too high in 2010 and 2011. In 2013, the ACS again showed substantially higher net migration, with the decline in out-migration registered by the ACS inconsistent with the small rise according to the IRS. In 2014, the IRS data show a decrease in both in- and out-migration, while the ACS estimates rise.

Migration efficiency is shown in Chart 15. The efficiencies from the two data sources generally go up and down by year consistently. However, some differences are present, with the efficiency

**TABLE 9**  
**COMPARISON OF DOMESTIC MIGRATION FIGURES, ARIZONA**

	<b>ACS</b>	<b>IRS</b>	<b>IRS as a Share of ACS</b>		<b>ACS</b>	<b>IRS</b>	<b>IRS as a Share of ACS</b>
		In-Migration				Out-Migration	
2005	288,960	222,514	77.0%		157,459	132,497	84.1%
2006	287,071	231,452	80.6		193,594	142,620	73.7
2007	262,787	202,706	77.1		189,388	148,816	78.6
2008	241,357	189,870	78.7		187,722	157,168	83.7
2009	225,990	169,396	75.0		196,439	164,407	83.7
2010	222,725	155,609	69.9		176,768	147,538	83.5
2011	222,877	158,038	70.9		211,816	162,164	76.6
2012	232,457	190,316	81.9		206,842	169,664	82.0
2013	236,146	196,281	83.1		183,178	179,924	98.2
2014	249,730	185,863	74.4		203,810	163,846	80.4
Sum*	2,470,100	1,902,045	77.0		1,907,016	1,568,644	82.3
		Gross Migration				Net Migration	
2005	446,419	355,011	79.5		131,501	90,017	68.5
2006	480,665	374,072	77.8		93,477	88,832	95.0
2007	452,175	351,522	77.7		73,399	53,890	73.4
2008	429,079	347,038	80.9		53,635	32,702	61.0
2009	422,429	333,803	79.0		29,551	4,989	16.9
2010	399,493	303,147	75.9		45,957	8,071	17.6
2011	434,693	320,202	73.7		11,061	-4,126	-37.3
2012	439,299	359,980	81.9		25,615	20,652	80.6
2013	419,324	376,205	89.7		52,968	16,357	30.9
2014	453,540	349,709	77.1		45,920	22,017	47.9
Sum*	4,377,116	3,470,689	79.3		563,084	333,401	59.2

\* The 10-year total from 2005 through 2014.

Sources: U.S. Department of Commerce, Census Bureau (ACS: American Community Survey) and Internal Revenue Service, Statistics of Income Division (IRS).

from the IRS greater than from the ACS only in 2006 and with the efficiency in 2013 dropping according to the IRS but rising from the ACS. The reverse occurred in 2014.

Since a strength of the IRS data is the reasonably reliable state-to-state migration flows, an effort was made to compare the two datasets on Arizona's net migration flows with each of the other states. In order to reduce the sampling error from the ACS, the net figures were summed over the 2005-to-2014 period. Overall, net migration over these 10 years as measured by the IRS was 59 percent of the ACS figure but this share varied widely by state, suggesting that the sampling error in the ACS data is too great to produce reliable results on state-to-state migration flows, even when combining 10 years of data.

Since 2000, total net migration from the IRS and ACS can be compared to estimates produced by the Arizona Department of Administration's Office of Employment and Population Statistics (OEPS), which annually produces population estimates for Arizona, its counties, and its

**CHART 15**  
**DOMESTIC MIGRATION EFFICIENCY, ARIZONA**



Sources: U.S. Department of Commerce, Census Bureau (ACS: American Community Survey) and Internal Revenue Service, Statistics of Income Division (IRS).

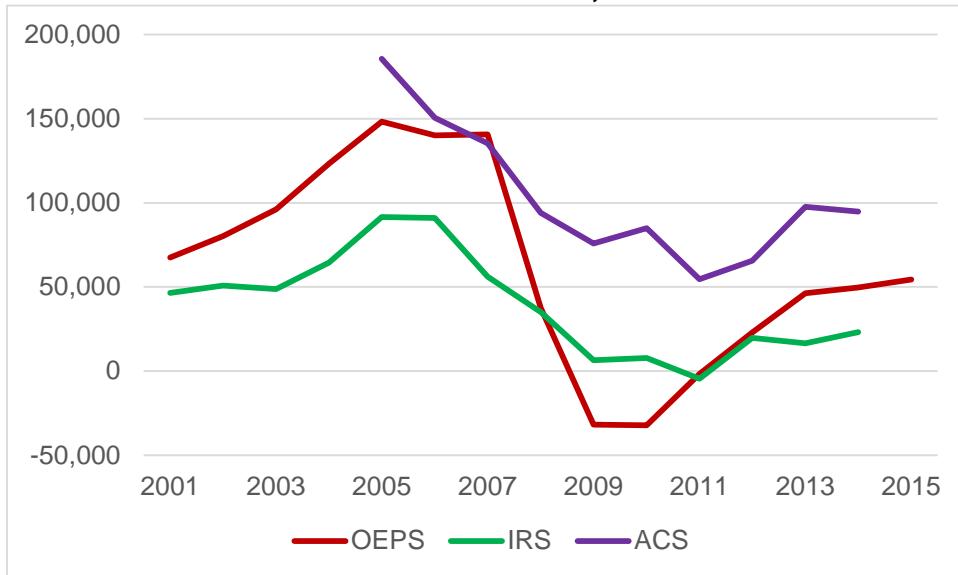
incorporated cities and towns. The timing of the OEPS estimates, which are for the period from July 1 through June 30, differs from the IRS and ACS. The estimates of total net migration are shown in Chart 16.

The OEPS estimates of total net migration were substantially higher than those from the IRS from 2001 through 2007 and since 2013, since the IRS figures do not include immigrants. The estimates were similar in 2008, 2011, and 2012, with the OEPS showing significant net out-migration in 2009 and 2010, while the IRS figures still were positive. During this period, it is believed that a substantial number of immigrants — many undocumented — returned to their native country or moved to another U.S. state. Many of those moving to another state presumably did not work as an employee and therefore did not file a tax return and were not included in the IRS database. The out-migration of immigrants from Arizona during this period was stimulated by two factors:

- The recession in Arizona was more severe than in most states and disproportionately affected the construction industry, in which many immigrants were employed.
- Arizona's employer sanctions law, which was passed in 2008, caused many undocumented immigrants to leave the state.

For the entire 2001-14 time period, the OEPS estimate of net migration was 53 percent higher than the estimate from the IRS. The differential was similar to this in Maricopa and Pinal counties, but the OEPS estimate was more than twice the IRS estimate for Pima County and only 39 percent higher for the 12 less-populous counties.

## CHART 16 TOTAL NET MIGRATION, ARIZONA



Sources: U.S. Department of Commerce, Census Bureau (ACS: American Community Survey), Internal Revenue Service, Statistics of Income Division (IRS), and Arizona Department of Administration, Office of Employment and Population Statistics (OEPS).

The comparison of the OEPS and ACS estimates is more problematic. Significant and inconsistent differences occur by year even though each source is measuring total net migration. Undocumented immigrants likely are underrepresented in the ACS, helping to explain why the OEPS figures were much lower from 2008 through 2011 when net out-migration of this group occurred. However, undocumented immigration to Arizona from 2005 through 2007 was still strong, suggesting that the OEPS estimates should have been higher than the ACS figures in those years. More generally, it is not clear why the ACS provides a greater estimate of total net migration than the OEPS in all but one year.

### Estimates by Decade, Arizona

For the 1980s, 1990s, and 2000s, the estimates of net migration from the University of Wisconsin can be compared to the estimates from the IRS. Differences in timing are slight, but the IRS data do not include most international migrants. Thus, net migration reported by the IRS has been considerably less than the total reported by the University of Wisconsin, with ratios of 71 percent in the 1980s, 51 percent in the 1990s, and 63 percent in the 2000s. After the 1980s, international migration was substantially higher, particularly during the 1990s, accounting for the variation in the ratio.

In the 2000s, the estimate of net migration from the OEPS was 7 percent lower than from the University of Wisconsin. The OEPS figure was lower in every county, though the percent differential varied by county. The IRS figure for the 2000s was 68 percent of the OEPS figure.

### **Annual Estimates of Migration Flows, All States**

For 2014, the number of in-migrants, out-migrants, and nonmigrants by state as reported by the IRS and ACS were compared. Since the numbers of in-migrants and out-migrants are so closely tied to the state populations, it is not surprising that the correlations exceeded 0.98 for both in-migration and out-migration. The correlation for net migration was not as high at 0.86.

The correlations were relatively high on the ratios of in-migrants to nonmigrants (0.96), out-migrants to nonmigrants (0.87), and in-migrants to out-migrants (0.78). Despite these relatively high correlations, significant differences in the IRS and ACS ratios occurred in some states.

Among the western states, significant discrepancies occurred in New Mexico, Texas, and Utah.

### **Income Estimates, All States**

The definition of income from the ACS and IRS datasets differs considerably:

- The IRS data are by the family units defined in the income tax returns, while the ACS data are for individuals.
- The mean is provided by the IRS, while the median is presented from the ACS.
- The IRS data are for a single year — 2014 was used in the comparison — while the ACS data are for a five-year period (2010-14 was used).

Thus, even if the ACS data were for the entire population instead of being derived from a small sample, and if the IRS data were not limited to those filing a tax return during a calendar year, perfect correlation would not be present between the two data sources.

A further difference between the income figures from the two sources is that the income figures from the IRS are documented, while the ACS figures are based on the survey respondent, who may enter an estimate or who may not include income from all sources and from all individuals in the household. Moreover, survey respondents often refuse to answer questions regarding income. Thus, beyond the ACS sampling error, there are additional reasons why the ACS income figures may be inaccurate.

The income figures from the IRS and ACS at the state level have reasonably strong correlations of 0.85 for both the entire population and nonmigrants. However, the correlations are not as high for in-migrants (0.52) or for out-migrants (0.48). The much smaller number of migrants compared to nonmigrants results in a substantially higher sampling error in the ACS data.

The correlations in the income ratios derived from the IRS and ACS data are not statistically significant:

- 0.23 for the ratio of in-migrants to nonmigrants.
- 0.06 for the ratio of out-migrants to nonmigrants.
- 0.01 for the ratio of in-migrants to out-migrants.

The income ratios were examined more closely for the western states. In some states, the ratios derived from the ACS data and IRS data are similar, but in other states, the ratios are very different. For example, the ratio of in-to-out-migration in Texas ranked 39th based on the IRS data but 12th based on the ACS data. For Utah, the rank was seventh based on the IRS data but 48th based on the ACS data. For Arizona, the results from the two datasets were fairly similar,

with the ranks on the in-migrant to nonmigrant and out-migrant to nonmigrant ratios a little lower based on the ACS data.

The low correlations between the two datasets of the incomes of migrants and especially of the income ratios indicate that the income data for migrants from the ACS should be used cautiously, if not discarded entirely. The main limitation to the IRS income data is the exclusion of those who did not file a tax return, primarily those with low incomes who have no legal requirement to file a return. Such low-income individuals probably do not migrate across state lines in large numbers.