# Migration in the Tenth District: Long-Term Trends and Current Developments

*By William R. Keeton and Geoffrey B. Newton*

The movement of people into and out of a state can have important implications for the state's economy. The total net inflow of people matters because it affects the overall supply of workers in the state. Having access to a large pool of workers has always been an important issue for businesses in deciding where to locate. Economists predict that growth in the national labor force will slow in coming decades as a result of such factors as the aging of the baby boomers and the decline in the fertility rate. As this happens, the availability of workers is likely to become an even more important factor in firms' location decisions.

Migration matters not only for the size of a state's workforce but also for the composition of the workforce. The spread of computers and advances in information technology have increased the demand for highly educated workers over the last two decades. Most economists expect the demand for such workers to continue growing in response to further advances in technology. But there will also continue to be a need for unskilled workers to perform jobs at the bottom of the job distribution. In deciding where to locate, firms are likely to pay careful attention

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to the educational composition of a state's workforce in addition to the size. The most important determinant of the educational composition of the workforce is the quality of the state's educational institutions. But also important is whether the state is retaining and attracting the kinds of workers in demand by businesses—for example, whether the state is suffering a net gain or net loss of college graduates to the rest of the nation, and whether the state is receiving too large or too small an influx of less-educated immigrants from abroad.

Focusing on the last half-century, this article examines overall patterns in total migration and migration by level of education in Tenth District states. The first section of the article shows that the net inflow of people from other states was consistently positive in only one state, Colorado, but gradually improved in most other states. The section also shows that immigration increased greatly in most district states but ended up more important than in the nation only in Colorado.

Turning to the educational composition of migration flows, the second section shows that many district states experienced both a net loss of college graduates to the rest of the nation and a net gain of people without high school degrees from abroad. The section points out, however, that the effects of these migration flows on the mix of workers have been greatly outweighed up till now by increases in education in the population at large.

Finally, the third section takes a brief look at migration in the current decade. The section finds that migration flows took a turn for the worse in several states but argues that the shift was due to temporary changes in relative economic conditions.

## I. TOTAL MIGRATION IN TENTH DISTRICT STATES, 1950-2000

Most economists and demographers predict that the growth of the national labor force will slow sharply in coming decades (Ellwood, Kodrzycki). As the growth of the U.S. labor force slows, states that are successful in attracting workers from other areas and keeping their own workers at home may be at an advantage in competing for employers.[1] To help determine if Tenth District states will have an adequate supply of workers, this section examines the total inflow and outflow of people

in these states over the last 50 years. The section first explains how migration at the state level is measured and then identifies four key trends in total migration flows in Tenth District states during the period 1950-2000.

### *Measures of total migration*

The migration of people into and out of states can be calculated from data collected by the Census Bureau on people's current and previous place of residence (Tables 1a and 1b).[2] Since 1940, the Census Bureau has asked respondents in each decennial census not only where they live currently but where they lived five years earlier. Gross in-migration to a state from other areas of the country during the five years prior to the census can be measured by the number of people who lived in the state at the time of the decennial census but lived in a different state five years earlier. Similarly, gross out-migration to other areas of the country can be measured by the number of people who did not live in the state at the time of the census but did live in the state five years earlier. The difference between these two flows represents net in-migration to the state from the rest of the country. Finally, immigration from abroad can be measured by the number of foreign-born people who lived in the state at the time of the census but lived abroad five years earlier.

These migration measures are reported in Tables 1a and 1b for each five-year period during the last half-century. The measures are expressed as a percentage of total population at the beginning of the period to make them comparable across states. Table 1a reports the migration measures for the three Mountain states (Colorado, New Mexico, and Wyoming), while Table 1b reports the measures for the four Plains states (Oklahoma, Missouri, Kansas, and Nebraska). For convenience, the corresponding migration measures for the U.S. as a whole are reported at the bottom of each table. Net in-migration for the U.S. is zero for each period because inflows and outflows must just balance for the nation as a whole.

The migration measures in Tables 1a and 1b have one important disadvantage—they cover only the second half of each decade. A state might experience a large inflow of people during the second half of a decade, followed by an equally large outflow of people during the first

*Table 1a*

## MIGRATION INFLOWS AND OUTFLOWS DURING 5-YEAR PERIODS—MOUNTAIN STATES

*Percent of initial population*

| | Gross inflow from other states | Gross outflow to other states | Difference (net inflow from other states) | Gross inflow of foreign-born from abroad |
|---|---|---|---|---|
| **Colorado** | | | | |
| 1955-60 | 19.2 | 15.2 | 4.0 | .5 |
| 1965-70 | 19.7 | 15.4 | 4.3 | .6 |
| 1975-80 | 22.1 | 17.0 | 5.2 | NA |
| 1985-90 | 15.2 | 17.7 | -2.5 | 1.0 |
| 1995-2000 | 17.4 | 13.0 | 4.4 | 2.8 |
| **Average** | **18.7** | **15.7** | **3.1** | **1.2** |
| **New Mexico** | | | | |
| 1955-60 | 24.1 | 18.5 | 5.6 | .6 |
| 1965-70 | 14.4 | 20.2 | -5.8 | .4 |
| 1975-80 | 18.2 | 15.6 | 2.6 | NA |
| 1985-90 | 14.0 | 14.8 | -.8 | 1.0 |
| 1995-2000 | 12.2 | 14.0 | -1.8 | 1.5 |
| **Average** | **16.6** | **16.6** | **.0** | **.9** |
| **Wyoming** | | | | |
| 1955-60 | 19.1 | 21.3 | -2.2 | .3 |
| 1965-70 | 16.2 | 22.4 | -6.2 | .3 |
| 1975-80 | 32.3 | 19.6 | 12.7 | NA |
| 1985-90 | 13.2 | 25.2 | -12.0 | .3 |
| 1995-2000 | 15.5 | 18.2 | -2.7 | .5 |
| **Average** | **19.3** | **21.3** | **-2.1** | **.3** |
| **U.S.** | | | | |
| 1955-60 | 9.0 | 9.0 | .0 | .7 |
| 1965-70 | 9.3 | 9.3 | .0 | .9 |
| 1975-80 | 9.9 | 9.9 | .0 | NA |
| 1985-90 | 9.6 | 9.6 | .0 | 1.7 |
| 1995-2000 | 8.7 | 8.7 | .0 | 2.3 |
| **Average** | **9.3** | **9.3** | **.0** | **1.4** |

Note: Data are for people aged 5 or older at the end of the period. Initial population is the number of people living in the area at the beginning of the period and living anywhere in the U.S. at the end of the period.

NA: Not available

Source: Census Bureau

*Table 1b*

## MIGRATION INFLOWS AND OUTFLOWS DURING 5-YEAR PERIODS—PLAINS STATES

*Percent of initial population*

| | Gross inflow from other states | Gross outflow to other states | Difference (net inflow from other states) | Gross inflow of foreign-born from abroad |
|---|---|---|---|---|
| **Oklahoma** | | | | |
| 1955-60 | 10.3 | 13.8 | -3.4 | .2 |
| 1965-70 | 12.5 | 12.3 | .1 | .2 |
| 1975-80 | 14.5 | 10.1 | 4.4 | NA |
| 1985-90 | 9.3 | 13.5 | -4.2 | .5 |
| 1995-2000 | 10.3 | 9.7 | .5 | 1.1 |
| **Average** | **11.4** | **11.9** | **-.5** | **.5** |
| **Missouri** | | | | |
| 1955-60 | 8.4 | 10.1 | -1.7 | .2 |
| 1965-70 | 9.4 | 9.4 | .1 | .3 |
| 1975-80 | 9.4 | 9.9 | -.5 | NA |
| 1985-90 | 9.6 | 9.0 | .6 | .4 |
| 1995-2000 | 9.3 | 8.4 | .9 | .8 |
| **Average** | **9.2** | **9.3** | **-.1** | **.4** |
| **Kansas** | | | | |
| 1955-60 | 11.2 | 15.2 | -4.0 | .3 |
| 1965-70 | 12.0 | 14.2 | -2.3 | .3 |
| 1975-80 | 12.7 | 13.3 | -.6 | NA |
| 1985-90 | 11.9 | 13.0 | -1.0 | .8 |
| 1995-2000 | 11.3 | 11.6 | -.3 | 1.5 |
| **Average** | **11.8** | **13.5** | **-1.6** | **.7** |
| **Nebraska** | | | | |
| 1955-60 | 8.6 | 13.3 | -4.7 | .2 |
| 1965-70 | 9.6 | 12.6 | -3.0 | .2 |
| 1975-80 | 10.4 | 12.4 | -1.9 | NA |
| 1985-90 | 9.5 | 12.2 | -2.7 | .4 |
| 1995-2000 | 9.7 | 10.7 | -1.0 | 1.3 |
| **Average** | **9.6** | **12.2** | **-2.7** | **.5** |
| **U.S.** | | | | |
| 1955-60 | 9.0 | 9.0 | .0 | .7 |
| 1965-70 | 9.3 | 9.3 | .0 | .9 |
| 1975-80 | 9.9 | 9.9 | .0 | NA |
| 1985-90 | 9.6 | 9.6 | .0 | 1.7 |
| 1995-2000 | 8.7 | 8.7 | .0 | 2.3 |
| **Average** | **9.3** | **9.3** | **.0** | **1.4** |

Note: Data are for people aged 5 or older at the end of the period. Initial population is the number of people living in the area at the beginning of the period and living anywhere in the U.S. at the end of the period.

NA: Not available

Source: Census Bureau

half of the next decade. In such a case, averaging inflows to the state over the 5-year periods shown in Tables 1a and 1b would overstate the long-run tendency for the state to attract in-migrants from other areas. As a check on the results, the appendix reports an alternative set of migration measures covering the entire decade—measures based on the difference between a person's place of residence and place of birth. In general, these measures lead to the same conclusions as the ones based on change in residence in Tables 1a and 1b.

### *Key facts about total migration in Tenth District states*

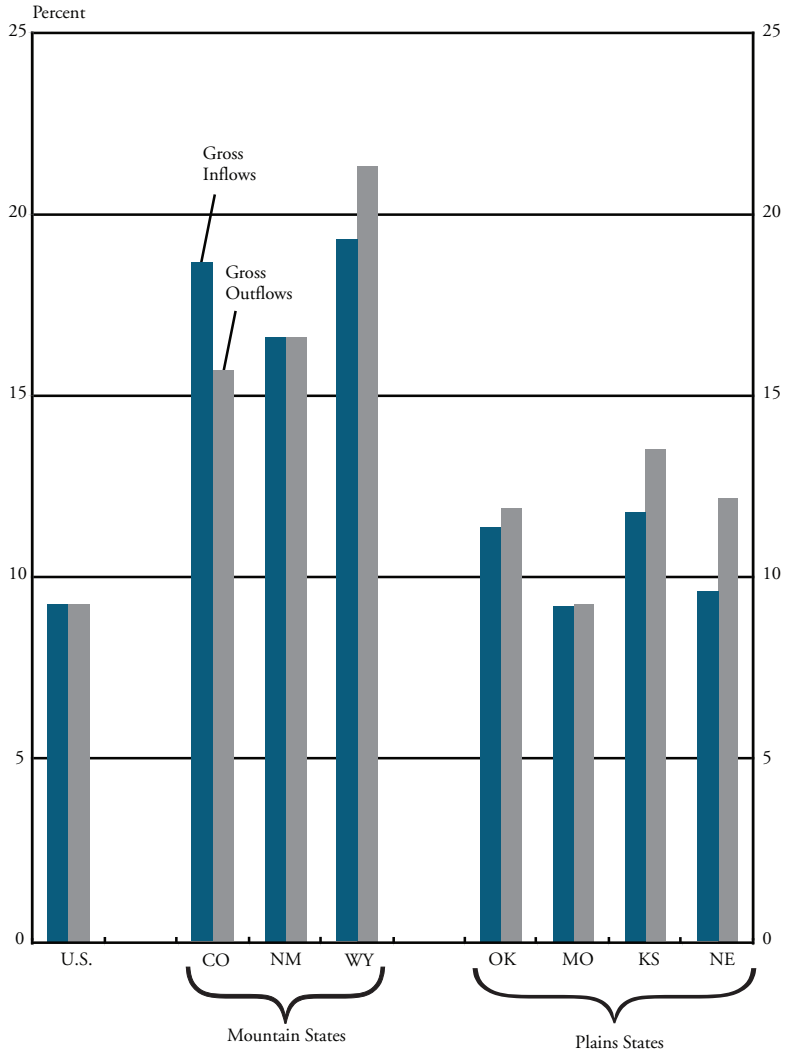
Over the past 50 years, migration flows in the Tenth District have shown considerable variety, differing not only across states but also across decades. Despite this diversity in experience, a few broad trends can still be identified. These trends are summarized below in the form of four key facts about Tenth District migration.

### *Fact No. 1: The Mountain states have experienced both much larger gross inflows and much larger gross outflows than the Plains states.*

Table 1 and Chart 1 show that gross inflows and gross outflows have been much higher than in the rest of the U.S. in the Mountain states, but only moderately higher than in the rest of the U.S. in the Plains states. The number of people moving between states in the nation as a whole varied between 8.7 and 9.9 percent of population and averaged 9.3 percent for the five half-decades. In each of the Mountain states, average gross inflows exceeded this figure by a substantial amount—19.3 percent in Wyoming, 18.7 percent in Colorado, and 16.6 percent in New Mexico. Average gross inflows in the Plains states were considerably smaller, ranging from a low of 9.2 percent in Missouri to a high of 11.8 percent in Kansas. Gross outflows also tended to be considerably higher in the Mountain states than in the Plains states. Specifically, average outflows to other states ranged from 15.7 percent to 21.3 percent of population in the Mountain states, but from only 9.3 percent to 13.5 percent of population in the Plains states.

*Chart 1*

## AVERAGE IN-MIGRATION AND OUT-MIGRATION RATES, 1955-1960 THROUGH 1995-2000




Note: Averages are for the five half-decades from 1955-1960 to 1995-2000.
Source: Census Bureau

The tendency within the Tenth District for areas with high inflows of migrants to also experience high outflows of migrants is nothing new: the same pattern has been noted in many other studies of migration, going as far back as the 1800s.[3] One reason demographers have suggested for this positive correlation between inflows and outflows is that the kind of people who move once are likely to move again—for example, young, well-educated adults who are starting out in their careers or people who are restless and enjoy a change in environment. After moving to a state in search of a better job or quality of life, such people may decide to return to their home states or move on to another state (Long, p. 74, Hoover and Giarratani).

Another reason suggested by demographers for the positive correlation between inflows and outflows is that states attracting high numbers of in-migrants may be states specializing in highly volatile industries. Such states are likely to experience heavy in-migration during booms, but also heavy out-migration during busts (Long, p. 73). If the highly volatile industries are not synchronized, heavy in-migration may even coincide with heavy out-migration—some people may be moving in to take jobs in the state's expanding industries at the same time other people are moving out because they have lost jobs in the state's contracting industries.

Both explanations for the positive association between gross inflows and gross outflows appear to apply to the Mountain states. As discussed in more detail later, the amenities of these states have helped them attract more in-migrants than the Plains states. Many of these in-migrants have been repeat movers, helping explain why the Mountain states have high outflows in addition to high inflows. The Mountain states also have relatively high concentrations of volatile industries—energy and mining in Wyoming and New Mexico, semiconductors in New Mexico, and telecommunications in Colorado. These industries have attracted large numbers of workers from other states during their expansion phases, but they have also lost large number of workers to other states during their contraction phases.[4]

*Fact No. 2: Among the Mountain states, net inflows from other states were mostly positive in Colorado, mostly negative in Wyoming, and highly variable in New Mexico.*

Although the Mountain states are alike in having experienced both high inflows from other states and high outflows to other states, Table 1a and Chart 1 show that *net* inflows have behaved very differently in the three states. Net inflows for each state and half-decade are shown in the third column of Table 1. Average net inflows are represented in Chart 1 by the difference between the two bars. Over the entire period, net inflows to Colorado averaged 3.1 percent of population. Furthermore, net inflows were positive in every 5-year period except the second half of the 1980s, when simultaneous downturns in the energy, agricultural, and commercial real estate sectors led to sharply reduced inflows of people from other states (Kendall). In contrast, net inflows to Wyoming were -2.1 percent on average and were negative in all but one of the periods shown. The one exception was the second half of the 1970s, when the energy boom led to a doubling of gross inflows from other states. Finally, net inflows averaged zero in New Mexico but varied considerably from period to period. For example, the state enjoyed a net inflow of 5.6 percent in the second half of the 1950s, but then suffered a net outflow of 5.8 percent in the second half of the 1960s.

The most likely causes of the large net inflows of people to Colorado during the second half of the century were the abundance of scenic amenities in the state and the high educational attainment of the population. The proximity of the Denver metro area to skiing and other recreational activities made it an attractive destination for people from other states, including those with high education. As the educational level of the population increased, both businesses and people moved to the state to take advantage of the productive workforce. New Mexico enjoyed some of the same scenic amenities as Colorado, plus other amenities, including a warm climate and rich multicultural heritage. However, New Mexico's military establishment and federally funded

research and development sector were subject to booms and busts.[5] This volatility carried over into migration flows and likely prevented the state from attaining the critical size needed for sustained in-migration. Finally, Wyoming has many scenic amenities but suffers from the lack of a major metropolitan area. Highly educated people with specialized skills often prefer to locate in major metro areas, because there is a greater chance of finding a good match with an employer in such areas. This preference of migrants for thick labor markets may be one reason Wyoming could not attract as many people as it lost over the half-century.

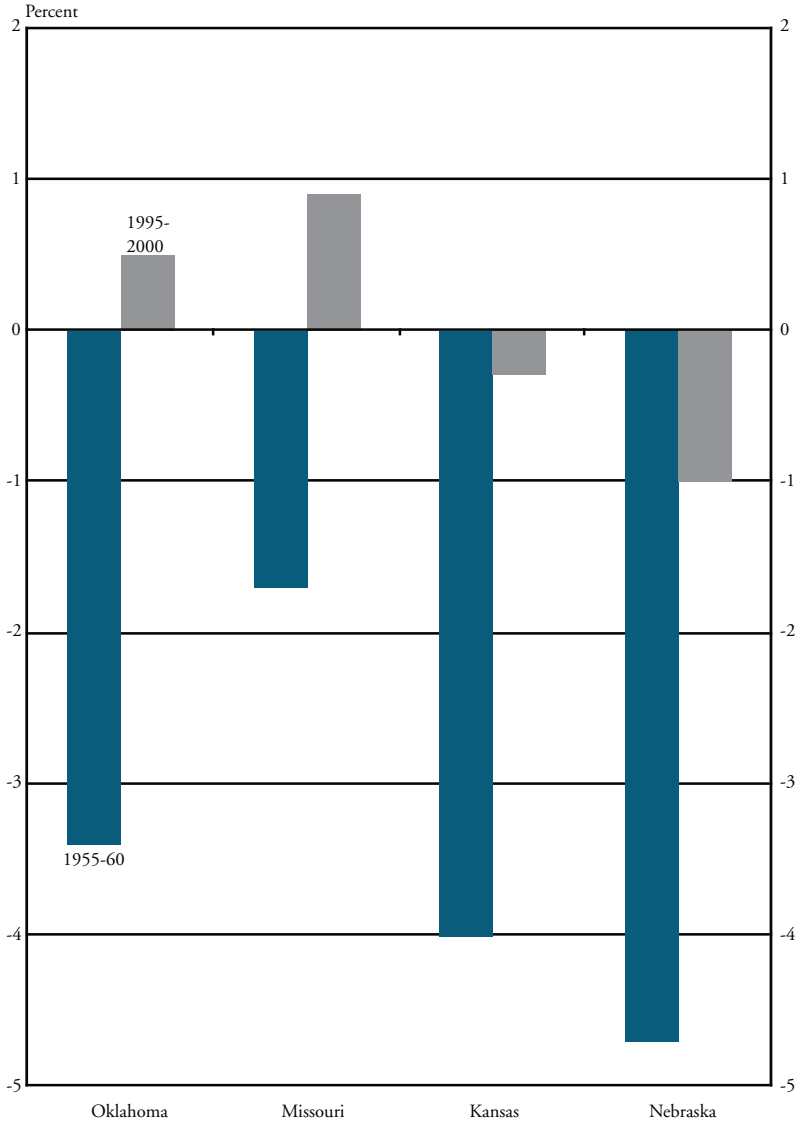
### *Fact No. 3: In the Plains states, net inflows from other states started out highly negative at mid-century but then increased over the rest of the century.*

Table 1 and Chart 2 show that net inflows to the Plains states were highly negative in the second half of the 1950s but were much less negative or slightly positive by the second half of the 1990s. In 1955-1960, net inflows were negative in all four states, ranging from -1.7 percent of population in Missouri to -4.7 percent in Nebraska. Net inflows generally improved in the Plains states over the rest of the half-century, with the notable exception of 1985-1990, when a severe agricultural slump slowed economic growth in the region and discouraged in-migration.[6] By 1995-2000, net inflows had increased to half a percent in Oklahoma and almost 1 percent in Missouri. In both Kansas and Nebraska, fewer people were still entering the state than leaving, but the difference had narrowed to -0.3 percent in Kansas and -1.0 percent in Nebraska.

Much of the improvement in net inflows to the Plains states during the last half-century was in nonmetropolitan areas. The first three columns of Table 2 show how net inflows to nonmetro areas of the four Plains states changed from 1995-1960 to 1995-2000. The first column shows net inflows from outside the state, the second column shows net inflows from metro areas in the same state, and the third column shows total net inflows. Between the two periods, net inflows to nonmetro areas from outside the state increased more than 2½ percentage points in all four states. As shown in the second column, the rate of net inflows from metro areas in the same state either improved or showed little change. As a result, nonmetro areas of Missouri were gaining people

*Chart 2*

## NET IN-MIGRATION RATES FOR PLAINS STATES, 1950-60 VS. 1995-2000




Source: Census Bureau

*Table 2*

## NET INFLOWS TO METRO AND NONMETRO AREAS OF PLAINS STATES—1955-60 VS.1995-2000

*Percent of initial population*

| | Net inflows to nonmetro areas | | | Net inflows to metro areas | | |
|---|---|---|---|---|---|---|
| | From other states | From metro areas in same state | From all areas in the U.S. | From other states | From non -metro areas in same state | From all areas in the U.S. |
| **Oklahoma** | | | | | | |
| 1955-1960 | -4.1 | -1.6 | -5.7 | -2.5 | 2.7 | .1 |
| 1995-2000 | .5 | -.6 | .0 | .5 | .3 | .9 |
| **Change** | **4.6** | **1.1** | **5.7** | **3.1** | **-2.3** | **.7** |
| **Missouri** | | | | | | |
| 1955-1960 | -1.0 | -.5 | -1.5 | -2.3 | .4 | -1.9 |
| 1995-2000 | 2.3 | .1 | 2.4 | .4 | .0 | .4 |
| **Change** | **3.3** | **.6** | **3.8** | **2.7** | **-.4** | **2.3** |
| **Kansas** | | | | | | |
| 1955-1960 | -4.6 | -.9 | -5.4 | -3.1 | 1.6 | -1.6 |
| 1995-2000 | -1.8 | -1.1 | -3.0 | .7 | .8 | 1.5 |
| **Change** | **2.7** | **-.3** | **2.5** | **3.8** | **-.8** | **3.0** |
| **Nebraska** | | | | | | |
| 1955-1960 | -6.7 | -1.8 | -8.5 | -1.0 | 3.5 | 2.5 |
| 1995-2000 | -.6 | -2.0 | -2.6 | -1.3 | 1.7 | .4 |
| **Change** | **6.1** | **-.2** | **5.9** | **-.3** | **-1.8** | **-2.1** |

Note: Data are for people aged 5 or older at the end of the period. Initial population is the number of people living in the area at the beginning of the period and living anywhere in the U.S. at the end of the period.

Source: Census Bureau

from other areas in 1995-2000, nonmetro areas of Oklahoma were no longer losing people, and nonmetro areas of Kansas and Nebraska were losing people at a much slower rate. That said, the total loss of people to other areas remained substantial in nonmetro areas of Kansas and Nebraska—more than 2.5 percent in both cases.

Why did so many people leave nonmetro areas of Plains states at the middle of the century, and why did these outflows lessen over the next 50 years? The initial outflow was due largely to advances in agricultural productivity (Levy). Mechanization and the increased use of pesticides and fertilizer raised the average size of farm and livestock operations and reduced the demand for farm labor.[7] As demand for farm labor declined, people migrated from small towns throughout the Plains to metro areas with greater employment opportunities. Compounding the reduction in demand for farm workers was the low level of natural amenities in the area. The relatively harsh climate, flat topography, and lack of lakes in

the Plains made the area good for farming, yet also less attractive to migrants (Walser and Anderlik). Despite these adverse factors, the loss of population through migration slowed as time went on. Although increases in farm productivity continued, they had less of an impact on employment in nonmetro areas because farming had shrunk as a proportion of total nonmetro employment. By the end of the century, many towns in the Plains had turned to alternative sources of employment, such as manufacturing, distribution, and in the case of Missouri, recreation.[8] While many nonmetro areas in the Plains states continued to suffer net outflows of people, these new employment opportunities helped slow the outflow considerably.

Although not discussed as extensively by demographers, metro areas of the Plains states also saw significant changes in migration over the last half-century. The last three columns of Table 2 show the same three measures as before but for metro areas—the net inflow from other states, the net inflow from other areas in the same state, and the net inflow from all areas. In three of the Plains states—Oklahoma, Missouri, and Kansas—net inflows to metro areas from outside the state started out negative but turned positive by the end of the century. Some of this increase in net inflows to metro areas from out of state may have been a direct consequence of the decrease in net inflows from nonmetro areas. The large influx of people from rural areas of Plains states in the 1950s may have increased competition for jobs in metro areas and induced people already living there to move out of state. As the influx of people from rural areas diminished in subsequent decades, the competition for jobs in these cities may have lessened, reducing the incentive for people to move out of state.[9]

Changes in economic conditions and quality of life in some metro areas of the Plains states may also have contributed to the improvement in net inflows from out of state. For example, job growth in Kansas City was held down in the 1950s by cutbacks in stockyards and meatpacking plants but rebounded in subsequent decades as the metro economy diversified (Larsen). Net inflows to Kansas City may also have been boosted later in the century by the development of suburbs with good schools, affordable housing, and other features attractive to out-of-state migrants. Finally, both Kansas and Missouri contain smaller metro areas that enjoyed rapid economic growth toward the end of the century.

These areas include Joplin and Springfield, which benefited from proximity to recreational areas in southern Missouri, and Lawrence and Columbia, which benefited from being university towns.

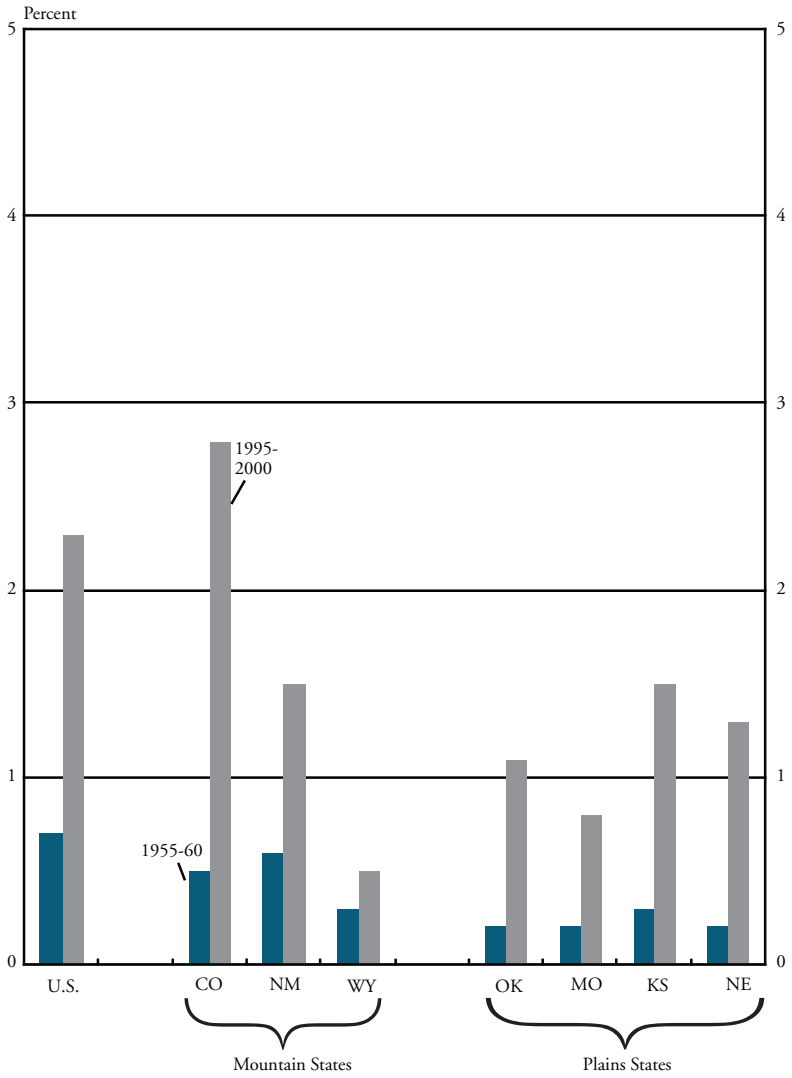
Nebraska was the only Plains state in which net inflows to metro areas from outside the state did not improve over the last half-century. As in the other Plains states, rural-urban migration started out strong and then declined relative to metro area population as time went on. However, in contrast to metro areas like Kansas City and Oklahoma City, Omaha experienced much of its economic growth early in the period, in the 1950s and 1960s. During that time, the location of the Strategic Air Command at a nearby air force base and expansion in industries such as insurance and transportation generated strong job growth. Because economic growth started out so strong in Omaha, the net inflow of people from other states was not as weak at the beginning of the period as in many other metro areas in the Plains states. But because economic growth also did not increase as much in Omaha over the last half-century, the net inflow of people from out of state did not improve as rural-urban migration declined.

*Fact No. 4: During the second half of the century, immigration increased in all district states. However, by the end of the century, it was still a smaller source of population growth than in the nation in all district states except Colorado.*

Table 1 and Chart 3 show that immigration was low in all district states at mid-century but rose to much higher levels by the end of the century. The gross inflow of immigrants from abroad during 1955-1960 was only 0.7 percent of the population in the U.S. and even smaller than that in the district. After a less-restrictive immigration law was passed by Congress in 1965, the inflow of immigrants from abroad began to grow more rapidly in both the U.S. and in the district (Borjas). Despite the growth, the inflow of immigrants from abroad remained lower than in the nation in all district states except Colorado. In 1995-2000, immigration from abroad represented 2.8 percent of population in Colorado, half a percentage point higher than in the

*Chart 3*

## RATES OF IMMIGRATION FROM ABROAD, 1955-60 VS. 1995-2000




Source: Census Bureau

nation. Among other district states, the inflow of immigrants was considerably lower, ranging from only 0.5 percent in Wyoming to 1.5 percent in New Mexico and Kansas.

The figures on immigration by state mask some important differences between metro and nonmetro areas within the district. As shown by the first column in Table 3, inflows of immigrants from abroad in 1995-2000 were generally a lower percentage of population in metro areas of the district than metro areas of the U.S. The only exception was in metro areas of Colorado, where immigration from abroad was 2.9 percent of initial population compared to 2.6 percent for metro areas nationwide. In contrast, immigrants from abroad moved to nonmetro areas at about the same rate in Oklahoma and Nebraska as the nation, and at a higher rate in Kansas, New Mexico, and Colorado than the nation. Like immigration to metro areas, immigration to nonmetro areas was especially high in Colorado—2 percent compared to 0.7 percent in the nation.

Immigrants to nonmetro areas tended to move to different types of communities in Colorado than in Kansas, Nebraska, and Oklahoma. Much of the nonmetro immigration to Colorado was to resort communities in the Rocky Mountains, where the demand for service workers was high. In contrast, most of the nonmetro immigration to Kansas, Nebraska, and Oklahoma was to towns with meatpacking plants—communities such as Garden City, Kan., Lexington, Neb., and Guymon, Okla. The surge in immigration to these towns reflected fundamental changes in the meatpacking industry over the last 30 years—changes such as greater reliance on unskilled labor and the movement of plants out of metro areas to smaller towns close to supplies of livestock and feed grains (Drabenstott and others).

To summarize, trends in total migration were generally favorable in Tenth District states during the past half-century, in the sense that most states either did not lose people to other areas (Colorado and New Mexico) or lost people at a steadily declining rate (the Plains states). Net in-migration from the rest of the country was either positive or improving, and by the end of the century, both metro and nonmetro areas were receiving substantial numbers of immigrants from abroad. The only downside was that net inflows from the rest of the country remained modestly negative in two of the Plains states, Kansas and

*Table 3*

IMMIGRATION FROM ABROAD IN METRO AND NONMETRO AREAS, 1995-2000

*Percent of initial population*

| | Metro areas | Nonmetro areas |
|---|---|---|
| **Mountain states** | | |
| Colorado | 2.9 | 2.0 |
| New Mexico | 1.7 | 1.2 |
| Wyoming | .5 | .5 |
| **Plains states** | | |
| Oklahoma | 1.4 | .7 |
| Missouri | 1.0 | .4 |
| Kansas | 1.6 | 1.2 |
| Nebraska | 1.8 | .8 |
| **U.S.** | 2.6 | .7 |

Note: Data are for people 5 years or older at the end of the period. Initial population is the number of people living in the area at the beginning of the period and living anywhere in the U.S. at the end of the period.

Source: Census Bureau

Nebraska. Finally, both inflows and outflows of people were higher in the Mountain states, suggesting these states have more potential for population gain during favorable circumstances but also for population loss during unfavorable conditions.

## II. MIGRATION BY EDUCATION IN TENTH DISTRICT STATES, 1990-2000

For Tenth District states to compete successfully with other states for employers, they must not only have a large enough total supply of workers but also the right kinds of workers. For example, some economists argue that the spread of computers and information technology have changed the nature of work in the United States. According to this view, the new technology has resulted in a "hollowing out" of the distribution of jobs across occupations, with demand increasing for highly educated workers at the top but also for unskilled workers at the bottom (Levy and Murnane; Autor and others)[10] This section examines the movement of people of different education levels into and out of

Tenth District states. The focus is on the 1990s, partly because this period sheds the most light on current trends and partly because more complete data is available for the 1990s than for earlier periods.

The same census data used to measure total migration into and out of states can be used to measure migration by level of education. In Table 4, migrants are grouped into four educational categories—no high school degree, high school degree only, some college, and a college or advanced degree. The rows under each state correspond to three different types of migration flows during the period 1995-2000—the net inflow from other states of people born in the U.S., the net inflow from other states of immigrants already living in the U.S., and the gross inflow of immigrants directly from abroad. Migrants are categorized by their educational status at the end of the period because the decennial census only collects information on current educational status. Also, only people aged 25 and over at the time of the census are included in the data because college graduates do not usually obtain their degrees until close to that age. Finally, each change is expressed as a percentage of the total number of people in the educational category who lived in the state in 1995, the beginning of the period.[11]

### *Key facts about migration by education in the 1990s*

Inflows and outflows by level of education varied across the seven district states. Nevertheless, two key facts about the educational composition of migration flows during the second half of the 1990s can be identified from Table 4.

#### *Fact No. 1: Colorado experienced a substantial net inflow of college graduates from other states in the second half of the 1990s, but all other district states suffered net outflows of graduates to other states. These outflows were only partially offset by inflows of college graduates from abroad.*

As shown in Table 4 and Chart 4, many more people with college degrees in 2000 moved into Colorado from other states during the period 1995-2000 than moved out of the state. Relative to the initial number of college graduates in the state, the net inflow was 6.8

*Table 4*

## NET INFLOW DURING 1995-2000 OF PEOPLE 25 YEARS OR OLDER IN 2000

*Percent of initial population in education category*

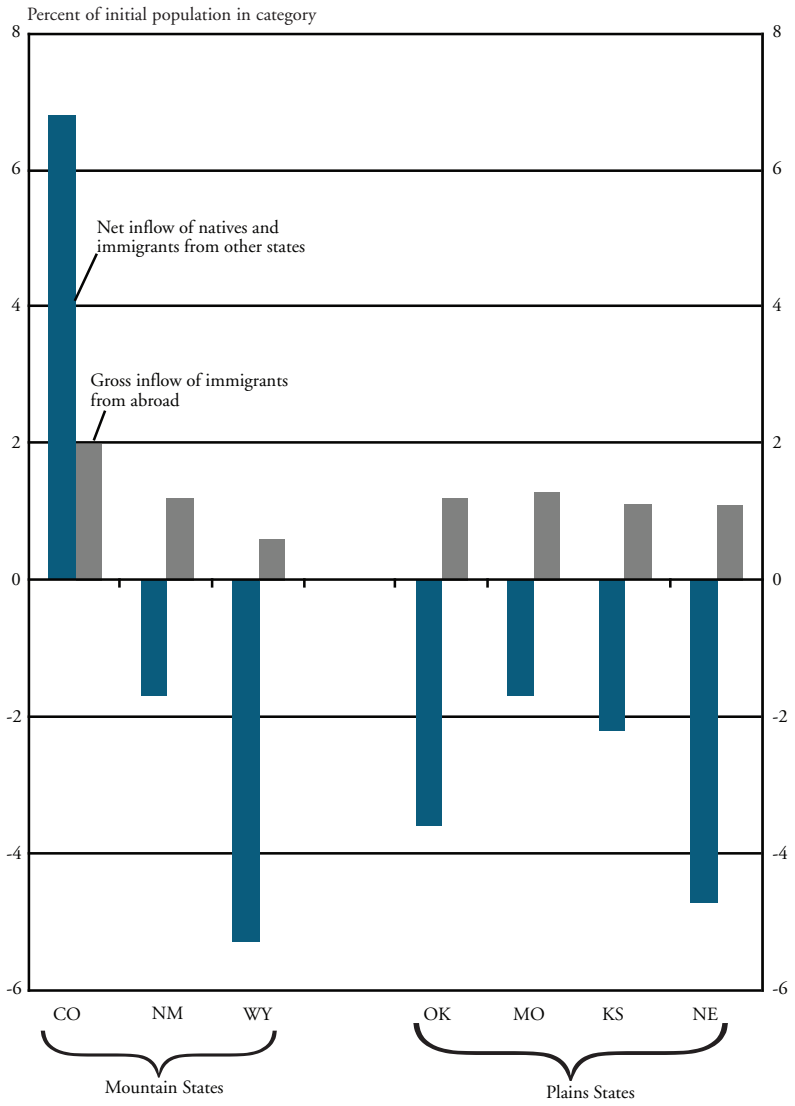
| | Educational status in 2000 | | | |
|---|---|---|---|---|
| | No high school degree | High school degree only | Some college | College or advanced degree |
| **Mountain states:** | | | | |
| **Colorado** | **10.5** | **2.5** | **3.7** | **8.7** |
| U.S. born from other states | .2 | .6 | 2.3 | 6.3 |
| Foreign-born from other states | 3.6 | .7 | .4 | 0.5 |
| Foreign-born from abroad | 6.7 | 1.3 | .9 | 2.0 |
| **New Mexico** | **3.2** | **.5** | **-1.1** | **-.5** |
| U.S. born from other states | -.1 | -.3 | -1.5 | -1.5 |
| Foreign-born from other states | .4 | .0 | -.1 | -.2 |
| Foreign-born from abroad | 2.9 | .8 | .5 | 1.2 |
| **Wyoming** | **.1** | **.2** | **-1.7** | **-4.8** |
| U.S. born from other states | -.5 | .0 | -1.9 | -4.9 |
| Foreign-born from other states | -.4 | .0 | -.1 | -.4 |
| Foreign-born from abroad | 1.0 | .3 | .2 | .6 |
| **Plains states:** | | | | |
| **Oklahoma** | **3.8** | **1.8** | **1.1** | **-2.4** |
| U.S. born from other states | 1.4 | 1.3 | .6 | -3.0 |
| Foreign-born from other states | .7 | .1 | .1 | -.6 |
| Foreign-born from abroad | 1.8 | .5 | .4 | 1.2 |
| **Missouri** | **2.3** | **2.0** | **2.1** | **-.4** |
| U.S. born from other states | .9 | 1.4 | 1.7 | -1.6 |
| Foreign-born from other states | .3 | .1 | .1 | -.1 |
| Foreign-born from abroad | 1.0 | .4 | .4 | 1.3 |
| **Kansas** | **5.9** | **.6** | **-.3** | **-1.1** |
| U.S. born from other states | .6 | -.2 | -.7 | -1.8 |
| Foreign-born from other states | 1.7 | .2 | .0 | -.4 |
| Foreign-born from abroad | 3.6 | .6 | .4 | 1.1 |
| **Nebraska** | **5.9** | **.6** | **-.6** | **-3.6** |
| U.S. born from other states | -.3 | -.1 | -1.0 | -4.3 |
| Foreign-born from other states | 2.3 | .2 | .1 | -.4 |
| Foreign-born from abroad | 3.9 | .4 | .3 | 1.1 |
| **U.S.** | | | | |
| Foreign-born from abroad | 3.2 | 1.1 | 1.0 | 2.7 |

Note: Initial population of a category is the number of people in the category who lived in the area at the beginning of the period and lived anywhere in the U.S. at the end of the period.

Source: Census Bureau

*Chart 4*

## MIGRATION RATES FOR COLLEGE GRADUATES, 1995-2000




Note: Data are for people who were 25 years or older in 2000 and had a college degree at that time.

Source: Census Bureau

percent—6.3 percentage points from U.S. born graduates and 0.5 percentage points from foreign-born graduates already living in the U.S. In sharp contrast to Colorado, other district states experienced net outflows of graduates to other states, ranging from 1.7 percent in New Mexico and Missouri to 4.7 percent in Nebraska. Though not shown in Table 4, most of the states that suffered net outflows of college graduates to other states in 1995-2000 also experienced net outflows in 1985-1990, the only other period for which these data are available. The one exception was New Mexico, which enjoyed a substantial net inflow of graduates in the earlier period, 4.0 percent. This inflow of graduates in 1985-1990, along with the net outflow in most educational categories in 1995-2000, suggests that the state's loss of graduates in 1995-2000 may have had more to do with the cooling of the local economy in that period than a persistent inability to attract and retain highly educated people.

Although all district states except Colorado suffered a net outflow of college graduates in the second half of the 1990s, these outflows were partially offset by inflows of college graduates from abroad. In most district states, the inflow of graduates represented about 1 percent of the initial population of college graduates; in Colorado, the inflow was twice that amount. Immigration from abroad reinforced the net inflow of graduates from other states in Colorado, but only partly offset the net outflow of graduates to other states in the rest of the district. Taking into account both immigrants and natives, the total "brain drain" in these states ranged from -0.4 percent in Missouri to -4.8 percent in Wyoming.

While all states but Colorado suffered a brain drain in 1995-2000, this effect was far outweighed during the decade as a whole by increases in college graduates due to two other factors (Table 5). First, the number of college graduates was boosted during the 1990s by the "cohort replacement" effect. For many decades, each generation in the U.S. had a higher level of education than the generation before it. As a result of these past increases in education, the number of college graduates in the working-age population has tended to increase each year as older, less-educated cohorts are replaced by younger, more highly educated cohorts. The second factor tending to raise the number of college graduates during the 1990s was a continued increase in college graduation rates within cohorts. Most of this increase came from the newest

*Table 5*

## GROWTH DURING 1990-2000 OF RESIDENTS AGED 25-64, BY EDUCATIONAL CATEGORY

Percent

| | All | No high school degree | High school degree only | Some college | College degree |
|---|---|---|---|---|---|
| **Mountain states** | | | | | |
| Colorado | 32.6 | 23.4 | 12.3 | 30.0 | 57.2 |
| New Mexico | 21.8 | 4.8 | 9.5 | 34.8 | 37.9 |
| Wyoming | 12.5 | -19.9 | .9 | 27.3 | 27.9 |
| **Plains states** | | | | | |
| Oklahoma | 11.3 | -10.5 | 10.8 | 17.7 | 23.8 |
| Missouri | 11.9 | -18.3 | 2.6 | 28.9 | 34.6 |
| Kansas | 9.8 | -11.1 | -5.3 | 18.9 | 30.3 |
| Nebraska | 10.7 | -7.5 | -10.5 | 22.6 | 37.6 |
| U.S. | 15.6 | -4.1 | 5.4 | 24.5 | 35.3 |

Source: Census Bureau

generation of young people having somewhat more education than the previous generation of young people. But some of the increase came from people in older generations going back to college to complete their degrees or enrolling in college for the first time. As a result of these factors, the number of college graduates aged 25 to 64 rose at double digit rates in all district states from 1990 to 2000, despite the net outflow of graduates from most of the states. As shown by the last column in Table 5, these increases in the number of college graduates ranged from 24 percent in Oklahoma to 57 percent in Colorado, versus 35 percent in the U.S. as a whole.

Although the strong growth in college graduates in district states during the 1990s would seem to suggest that the brain drain was not a serious problem, the loss of graduates to other states could become more of an issue as the cohort replacement effect diminishes. From the decennial census data, it is not possible to quantify the effects of increased college enrollment and cohort replacement for "stayers," the people who were living in a state at the beginning of the decade and were still there at the end of the decade. However, it is possible to estimate the effects of increased college enrollment and cohort replacement for all people born in a state, including those living outside the state. These estimates, reported in Table A3 of the appendix, imply that about half of the increase in college graduates among people born in Tenth

District states was due to the cohort replacement effect. Because growth in college enrollment in the U.S. slowed sharply after 1970, the cohort replacement effect will become much less important in the next 20 or 30 years. As that happens, the growth in college graduates will likely slow, and a continued brain drain on the scale seen in the 1990s may become more of a concern.[12]

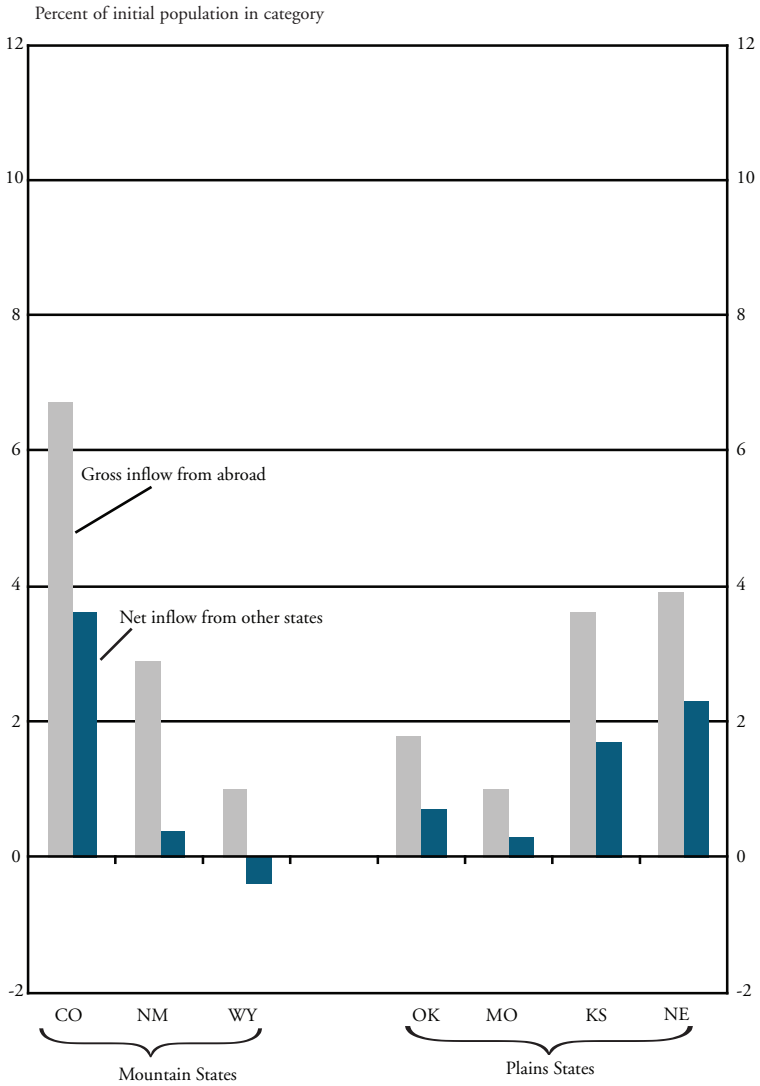
*Fact No. 2: During the second half of the 1990s, all district states received inflows of less-educated immigrants from abroad—those without high school degrees. These inflows were greatest in Colorado, Kansas, and Nebraska, all of which also received substantial net inflows of less-educated immigrants from other states.*

According to Table 4 and Chart 5, the inflow from abroad of immigrants without high school degrees reached 3.6 percent or more in the period 1995-2000 in three district states—Colorado, Kansas, and Nebraska. Other district states also received inflows of less-educated immigrants from abroad during the period, but on a somewhat smaller scale. Among these states, the lowest inflows were in Missouri and Wyoming, with a rate of 1.0 percent, while the highest inflow was in New Mexico, with a rate of 2.9 percent. Table 4 and Chart 5 also show that the three states with the greatest inflows of less-educated immigrants from abroad also had the greatest net inflows of less-educated immigrants from other states—3.6 percent in Colorado, 2.3 percent in Nebraska, and 1.7 percent in Kansas. All other states, except Wyoming, also received net inflows of less-educated immigrants from other states, but less than 1 percent in each case.

Although Colorado, Kansas, and Nebraska all received large inflows of less-educated immigrants in the second half of the 1990s, these immigrants took somewhat different jobs in Colorado than in Kansas and Nebraska. As noted earlier, much of the inflow of immigrants to Kansas and Nebraska in the second half of the 1990s was to smaller towns with meatpacking plants, and most of these immigrants were undoubtedly people with little education. While many immigrants to Colorado during this period also moved to smaller towns, especially resort communities, a much higher percentage than in Kansas and Nebraska moved to metro areas—especially Denver. Many of these

*Chart 5*

## MIGRATION RATES FOR IMMIGRANTS WITHOUT HIGH SCHOOL DEGREES, 1995-2000




Note: Data are for people who were 25 years or older in 2000 and did not have a high school degree at that time.

Source: Census Bureau

*Table 6*

## DISTRIBUTION ACROSS INDUSTRIES OF FOREIGN-BORN WORKERS WITHOUT HIGH SCHOOL DEGREES, 2000

Percent of total

| | | Mountain states | | | Plains states | | | |
|---|---|---|---|---|---|---|---|---|
| | U.S. | CO | NM | WY | OK | MO | KS | NE |
| Construction | 12.5 | 24.6 | 18.9 | 15.7 | 16.8 | 5.6 | 12.6 | 8.7 |
| Restaurants | 11.0 | 14.7 | 11.1 | 14.8 | 15.5 | 17.4 | 11.5 | 8.8 |
| Retailers | 6.3 | 4.3 | 6.2 | 6.6 | 4.7 | 5.6 | 3.5 | 2.8 |
| Agriculture | 5.0 | 3.7 | 9.7 | 8.5 | 5.1 | 2.7 | 5.1 | 3.7 |
| Landscaping | 2.9 | 3.1 | 2.5 | 2.9 | 3.6 | 1.7 | 2.2 | 0.3 |
| Traveler accom. | 2.6 | 4.0 | 2.6 | 6.5 | 3.1 | 3.8 | 2.0 | 1.7 |
| Janitorial | 2.5 | 4.0 | 2.4 | 3.6 | 1.1 | 1.6 | 1.2 | 1.6 |
| Meatpacking | 1.5 | 2.8 | 0.6 | 0.0 | 7.0 | 7.7 | 21.4 | 37.3 |
| Other man. | 20.2 | 11.7 | 12.4 | 6.8 | 19.9 | 20.6 | 16.2 | 15.1 |
| All other | 35.5 | 27.1 | 33.6 | 34.5 | 23.4 | 33.2 | 24.3 | 20.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Census Bureau

immigrants were people with little education who took unskilled jobs generated by the strong overall growth in the local economy. Consistent with this story, the share of less-educated immigrants working in the meatpacking industry in 2000 was much lower in Colorado than in Kansas and Nebraska (Table 6). Conversely, the share of less-educated immigrants working in mostly urban industries, such as construction, restaurants, landscaping, and janitorial services, was considerably higher in Colorado than in Kansas and Nebraska.

As in the case of the brain drain, the impact of immigration on the supply of people without high school degrees was far outweighed in most district states by other factors tending to decrease the number of such people (Table 5). Despite substantial inflows of less-educated immigrants, the number of people aged 25 to 64 without high school degrees declined in all district states except Colorado and New Mexico during the 1990s. As shown in Table A4 in the appendix, the main reason the total supply of people without high school degrees declined in the Plains states was that large numbers of older people without high school degrees were being replaced in the labor force by young people with a high school degree or more. This cohort replacement effect was considerably smaller in Colorado and New Mexico because the number of old people close to retirement age in such fast growing states tends to

be small relative to the number of young people just joining the working age population. The smaller cohort replacement effect in Colorado and New Mexico, along with the higher inflow of less-educated immigrants, explains why the total supply of residents without high school degrees rose in these two states in the 1990s while falling everywhere else.

In summary, the educational composition of migration flows does not appear to be a major cause for concern in most district states but bears careful watching in the years ahead. One potential concern is the supply of highly educated workers, who are increasingly needed to work with the new technology. On the negative side, all states except Colorado suffered a net outflow of college graduates to the rest of the country during the second half of the decade. On the positive side, however, this brain drain has been far outweighed up till now by increased college attendance and the replacement of older workers by better-educated young workers. The growth in the total supply of college graduates is good news for district states. However, it would be a mistake to take too much comfort from this news because the growth in college graduates is likely to slow as the difference in education between old and young workers diminishes.

A second potential concern is the supply of less-educated workers, those without a high school degree. The recent surge in immigration has tended to boost the supply of such workers. In most district states, however, the increase in less-educated immigrant workers has been more than offset by the decline in less-educated native-born workers, due to increased schooling and cohort replacement. The lack of growth in the overall supply of unskilled workers, together with the continued demand for unskilled workers to perform menial jobs that cannot be automated, suggest that up till now, immigration has not adversely affected the composition of the workforce.

## III. MIGRATION IN THE CURRENT DECADE: SOME PRELIMINARY EVIDENCE

The first section of this article showed that over the last 50 years, net inflows of people from other states have been consistently high in Colorado, close to zero in New Mexico, and improving in most other

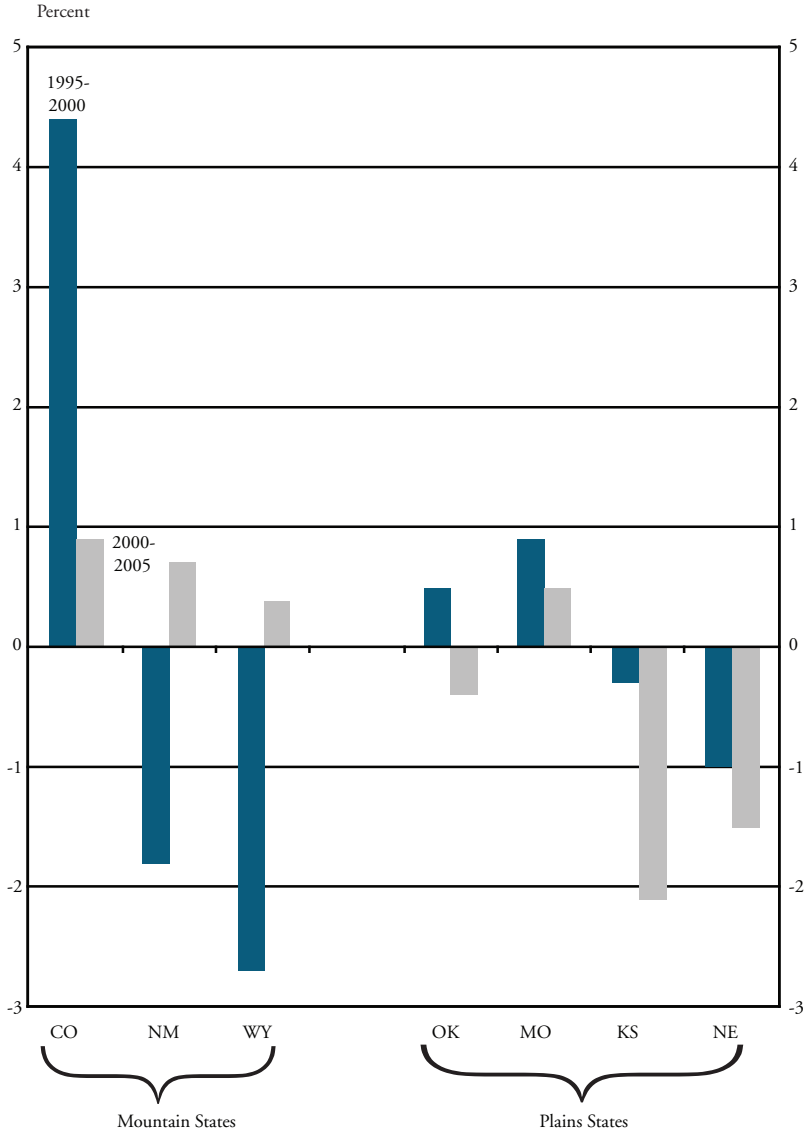
district states. To determine whether these trends have continued into the current decade, this section examines estimates from the Census Bureau on interstate migration flows during the period from April 2000 to July 2005. These estimates, which are based on annual tax returns, are considered less accurate than the migration data presented earlier, which are based on responses to the decennial census. Also, for this period, reliable data at the state level are not available on immigration from abroad.[13] The estimates on migration within the United States during 2000-2005 are still informative, however, helping fill the gap in migration data between the decennial censuses.

The migration data for 2000-2005 show a decline in net inflows from other areas of the U.S. for all district states except New Mexico and Wyoming, both of which experienced a marked improvement in such flows (Chart 6). For each district state, the chart compares the net inflow of people from other states in 2000-2005 with the net inflow in 1995-2000. The biggest declines in net in-migration were in Colorado, where net inflows fell from 4.4 percent of initial population to 0.9 percent, and in Kansas, where net inflows decreased from -0.3 percent of initial population to -2.1 percent. Net inflows also fell in the other three Plains states, but by smaller amounts—a percentage point in Oklahoma and half a percentage point in Missouri and Nebraska. Just as striking as the deterioration in net inflows in Colorado in the first half of this decade was the improvement in net inflows in the other two Mountain states. In 1995-2000, net outflows were close to 2 percent of population in New Mexico and 3 percent in Wyoming. By 2000-2005, these substantial net outflows had turned into modest net inflows in both states. Though not shown in Chart 6, both metro and nonmetro areas appear to have contributed to these changes in net inflows to district states, including both the improvement in New Mexico and Wyoming and the deterioration in Colorado and the Plains states.[14]

At first glance, the deterioration in net in-migration in five of seven district states might seem to be a cause for concern. However, much of this deterioration, as well as the turnaround in New Mexico and Wyoming, appears to have been due to temporary changes in economic conditions. One reason net inflows to Colorado were strong during the second half of the 1990s and net inflows to New Mexico and Wyoming were weak was that the Colorado economy was outperforming the

*Chart 6*

## NET IN-MIGRATION RATES, 1995-2000 VS. 2000-2005




Notes: The 2000-2005 rates are for April 2000 to July 2005 (5.25 years) but are expressed as 5-year rates to make them comparable to the 1995-2000 rates, which are for April 1995 to April 2000. The 2000-2005 data are from the Census Bureau's annual population estimates, while the 1995-2000 data are from the 2000 Census. See text for details.

Source: Census Bureau

national economy, while the New Mexico and Wyoming economies were lagging behind (Chart 7). During the first half of the current decade, the situation was reversed—Colorado was hit even harder by the 2000-2001 recession than the nation as a whole, while New Mexico and Wyoming were relatively unscathed. Given these changes in relative economic performance, it comes as no surprise that net inflows to Colorado declined in 2000-2005 and net inflows to New Mexico and Wyoming rose. Changes in relative economic performance would also appear to explain much of the deterioration in net inflows in Kansas and Oklahoma—as shown in Chart 7, jobs grew faster than in the nation in both states in the second half of the 1990s, but slower than in the nation in the first half of the 2000s.[15]

In most of the states that lagged the nation in the first half of the decade, job growth has rebounded strongly, suggesting that net in-migration from the rest of the country may also recover. By mid-2006, year-over-year job growth was higher than in nation in all states, except Kansas and Missouri, and one private forecasting firm was predicting that job growth for all of 2006 would match or exceed the nation in all district states except Kansas (Dismal Scientist).

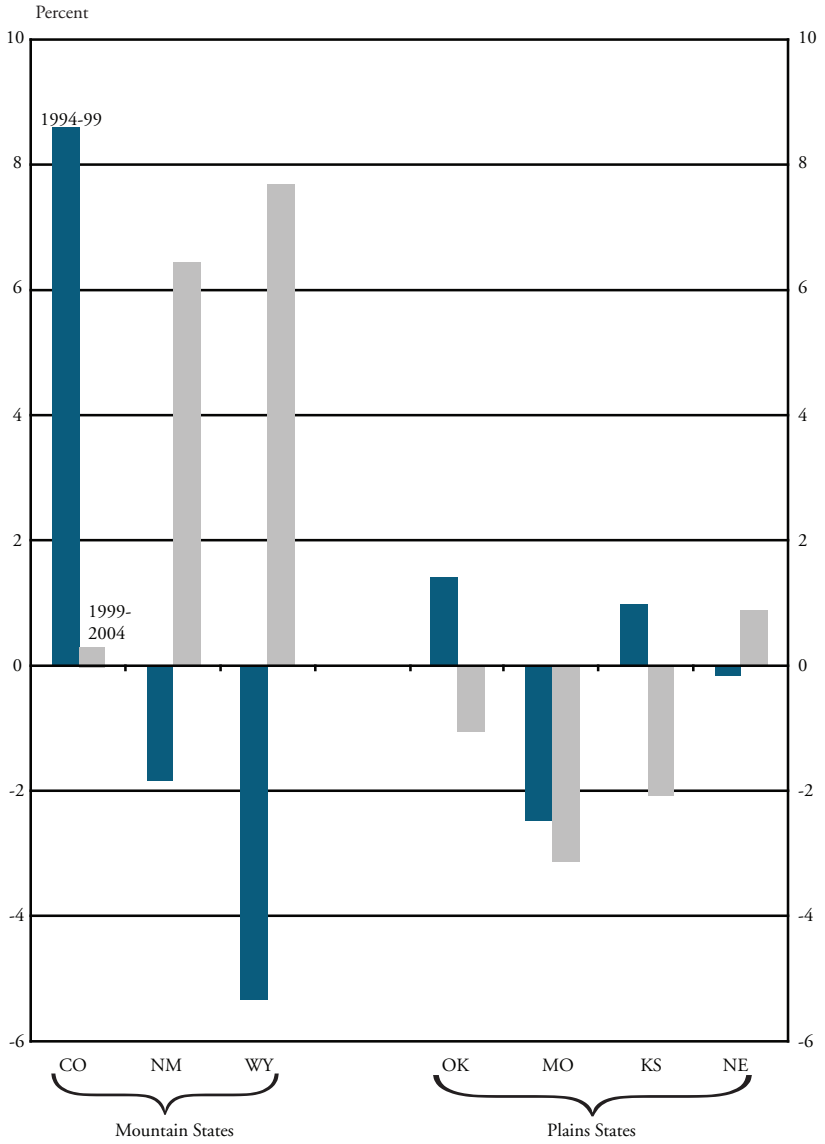
Another reason for expecting net in-migration in the Plains states to improve is that housing costs in those states have fallen considerably relative to the rest of the nation. From 1999 to 2005, quality-adjusted home prices rose only half as fast in the four Plains states as in the nation. As a result, the ratio of median home prices to median family income moved even further below the national average.[16] Previous studies of migration confirm that people tend to move from areas with high housing costs to areas with low housing costs, other things equal (Gabriel and others). This tendency should reinforce the effect of stronger job growth on net in-migration to the Plains states, restoring the overall favorable trend observed in the last half-century.

## IV. CONCLUSIONS

Since the middle of the last century, migration flows in the Tenth District have varied considerably, not only across states but also across decades. Overall, however, the data suggest that trends in total migration have been favorable, in the sense that most states either did not lose

*Chart 7*

## STATE JOB GROWTH MINUS NATIONAL JOB GROWTH, 1994-99 VS. 1999-2004




Source: Bureau of Labor Statistics

people to other areas (Colorado and New Mexico) or lost people at a steadily declining rate (the Plains states). Data on migration by level of education show that most district states have been losing highly educated workers to the rest of the country and gaining unskilled workers from abroad. So far, however, these changes have been outweighed by improvements in education for the population at large. Finally, less complete data for the current decade show some decline in net inflows of people from the rest of the country, but this decline was likely a temporary response to the unusually sluggish economic growth in most of the district during the early 1990s.

# APPENDIX

## *Alternative migration measures based on place of birth vs. place of residence*

The migration measures presented in the first section of this article are based on the difference between a person's place of residence at the time of the decennial census and the person's reported residence five years earlier. As noted earlier, one drawback of this measure is that it only covers migration during the second half of each decade. As a result, demographers often look at an alternative set of migration measures based on the difference between a person's place of residence and place of birth, which is sometimes referred to as lifetime migration.

These alternative migration measures are reported in Tables A1 and A2 for each decade during the last half-century. The first column shows the change in lifetime in-migration to a state during the decade—the change in the number of people who live in the state but were born outside the state. The second column shows the change in lifetime out-migration from the state during the decade—the change in the number of people who were born in the state but live outside the state. The third column shows the change in net lifetime in-migration to the state, which is just the first column minus the second. Finally, the last column shows the change in lifetime immigration to the state from abroad—the change in the number of people who live in the state but were born abroad. All measures are expressed as a percentage of initial population to make them comparable across states.

While the migration measures in Tables A1 and A2 have the advantage of covering the entire decade, they also have a major disadvantage—they reflect not only how many people left or returned to their place of birth during the decade, but also the survival rate of people who left their place of birth in previous decades. For example, many people in their 20s and 30s left the Plains states during the drought and dust storms of the 1930s. By the 1990s, these past migrants were beginning to die off, tending to reduce the measure of out-migration shown in the second column. Similarly, the number of residents of a state who were born abroad could decrease not because of a reduced inflow of immigrants

*Table A1*

## CHANGES IN LIFETIME MIGRATION DURING EACH DECADE—MOUNTAIN STATES

*Percent of initial population*

| | Change in people living in state but born in a different state | Change in people born in state but living in a different state | Difference (net inflow of people living outside state of birth) | Change in people living in state but born in a foreign country |
|---|---|---|---|---|
| **Colorado** | | | | |
| 1950s | 14.8 | 9.6 | 5.3 | -.1 |
| 1960s | 12.2 | 6.3 | 6.0 | .0 |
| 1970s | 23.1 | 8.1 | 15.0 | 2.4 |
| 1980s | 4.8 | 5.5 | -.8 | 1.0 |
| 1990s | 13.0 | 2.5 | 10.4 | 6.9 |
| **Average** | **13.6** | **6.4** | **7.2** | **2.1** |
| **New Mexico** | | | | |
| 1950s | 21.1 | 13.2 | 7.9 | .6 |
| 1960s | -3.0 | 9.9 | -12.8 | .1 |
| 1970s | 16.3 | 13.6 | 2.7 | 2.9 |
| 1980s | 5.2 | 2.2 | 3.0 | 2.2 |
| 1990s | 5.3 | 4.7 | .6 | 4.6 |
| **Average** | **9.0** | **8.7** | **.3** | **2.1** |
| **Wyoming** | | | | |
| 1950s | 3.9 | 13.8 | -9.9 | -1.3 |
| 1960s | -3.1 | 13.1 | -16.3 | -.8 |
| 1970s | 33.7 | 7.7 | 26.0 | .8 |
| 1980s | -5.8 | 8.6 | -14.3 | -.4 |
| 1990s | 4.4 | 6.0 | -1.6 | .8 |
| **Average** | **6.6** | **9.8** | **-3.2** | **-.2** |
| **U.S.** | | | | |
| 1950s | 6.3 | 6.3 | .0 | -.4 |
| 1960s | 3.9 | 3.9 | .0 | -.1 |
| 1970s | 6.8 | 6.8 | .0 | 2.2 |
| 1980s | 2.9 | 2.9 | .0 | 2.5 |
| 1990s | 2.4 | 2.4 | .0 | 4.6 |
| **Average** | **4.5** | **4.5** | **.0** | **1.8** |

Source: Census Bureau

from abroad or from other states, but because of the death of elderly immigrants who moved to the state much earlier. Despite this limitation, the migration measures in Tables A1 and A2 still serve as a useful check on the conclusions drawn from the other set of migration measures.[17]

Tables A1 and A2 generally support the four key facts about Tenth District migration presented in the first section. First, both in-migration rates and out-migration rates were considerably higher for the Mountain states than for the Plains states. Averaging over the five

*Table A2*

## CHANGES IN LIFETIME MIGRATION DURING EACH DECADE—PLAINS STATES

*Percent of initial population*

| | Change in people living in state but born in a different state | Change in people born in state but living in a different state | Difference (net inflow of people living outside state of birth) | Change in people living in state but born in a foreign country |
|---|---|---|---|---|
| **Oklahoma** | | | | |
| 1950s | -2.5 | 12.4 | -14.9 | .1 |
| 1960s | 1.3 | 2.5 | -1.2 | .0 |
| 1970s | 8.8 | 4.4 | 4.4 | 1.4 |
| 1980s | .4 | -.7 | 1.1 | .3 |
| 1990s | 2.4 | -2.8 | 5.2 | 2.1 |
| **Average** | **2.1** | **3.2** | **-1.1** | **0.8** |
| **Missouri** | | | | |
| 1950s | 2.0 | 4.0 | -2.0 | -.3 |
| 1960s | 1.8 | .0 | 1.8 | -.3 |
| 1970s | 5.4 | 4.1 | 1.3 | .4 |
| 1980s | 1.6 | .8 | .7 | .0 |
| 1990s | 3.5 | -1.0 | 4.5 | 1.3 |
| **Average** | **2.9** | **1.6** | **1.3** | **.2** |
| **Kansas** | | | | |
| 1950s | 5.2 | 6.5 | -1.2 | -.3 |
| 1960s | .7 | 2.1 | -1.4 | -.2 |
| 1970s | 4.6 | 6.0 | -1.3 | .9 |
| 1980s | 2.6 | -1.0 | 3.6 | .6 |
| 1990s | 2.3 | -.6 | 2.8 | 2.9 |
| **Average** | **3.1** | **2.6** | **.5** | **.8** |
| **Nebraska** | | | | |
| 1950s | 1.6 | 8.9 | -7.3 | -1.3 |
| 1960s | 1.5 | 1.4 | .1 | -.8 |
| 1970s | 5.5 | 4.2 | 1.3 | .1 |
| 1980s | .2 | .7 | -.6 | -.2 |
| 1990s | 2.9 | -1.7 | 4.6 | 2.9 |
| **Average** | **2.3** | **2.7** | **-.4** | **.2** |
| **U.S.** | | | | |
| 1950s | 6.3 | 6.3 | .0 | -.4 |
| 1960s | 3.9 | 3.9 | .0 | -.1 |
| 1970s | 6.8 | 6.8 | .0 | 2.2 |
| 1980s | 2.9 | 2.9 | .0 | 2.5 |
| 1990s | 2.4 | 2.4 | .0 | 4.6 |
| **Average** | **4.5** | **4.5** | **.0** | **1.8** |

Source: Census Bureau

decades, in-migration and out-migration exceeded the national migration rate of 4.5 percent in all three Mountain states but fell short of the national migration rate in all four Plains states.

Second, the average net in-migration rate was highly positive in Colorado (7.2 percent), negative in Wyoming (-3.2 percent), and close to zero in New Mexico (0.3 percent). The net in-migration rate in New Mexico also varied widely from decade to decade, falling from 7.9 percent in the 1950s to -12.8 percent in the 1960s and then rebounding to 2.7 percent in the 1970s.

Third, net in-migration improved in the Plains states, starting out negative in the 1950s and ending up solidly positive in all four states in the 1990s. It should be noted, however, that Table A2 probably overstates the improvement in net in-migration in the Plains states. The reason is that the out-migration measure was artificially reduced toward the end of the century by the death of people who were born in the Plains states but moved to other states during earlier decades.

Finally, the contribution of immigrants to population growth increased over the five decades but to differing degrees in the seven district states. In the 1990s, the immigrant contribution was less than the national average of 4.6 percentage points in the four Plains states, just equal to the national average in New Mexico, and above the national average in Colorado.

### *Estimates of cohort replacement effect for people born in district states*

From decennial census data, the effect of cohort replacement and increased education within each cohort can be estimated for all people born in a state.[18] In Table A3, the change in college graduates in the 1990s due to cohort replacement is defined as the change in graduates that would that would have resulted from replacing the old 55-64 age group with the new 25-34 age group if the latter group had the same share of graduates as the old 25-34 age group. It is calculated by multiplying the share of people in the 25-34 age group with a college degree in 1990 by the number of people in the 25-34 age group in 2000 and subtracting the number of graduates in the 55-64 age group in 1990. The change in college graduates due to an increased share of graduates in each cohort is then measured by the residual—the total growth in

*Table A3*

## SOURCES OF CHANGE IN THE 1990S IN COLLEGE GRADUATES AGED 25-64, BY PLACE OF BIRTH

Percentage points

| | Total change | Change due to cohort replacement | Change due to increased share of graduates in each cohort |
|---|---|---|---|
| **Mountain states** | | | |
| Colorado | 40.8 | 22.5 | 18.3 |
| New Mexico | 44.5 | 19.7 | 24.8 |
| Wyoming | 23.1 | 11.1 | 11.9 |
| **Plains states** | | | |
| Oklahoma | 14.4 | 4.9 | 9.5 |
| Missouri | 25.5 | 13.4 | 12.1 |
| Kansas | 20.9 | 7.4 | 13.6 |
| Nebraska | 26.4 | 8.8 | 17.5 |
| **U.S.** | 29.1 | 16.3 | 12.9 |

Source: Census Bureau and authors' calculations

*Table A4*

## SOURCES OF CHANGE IN THE 1990S IN PEOPLE AGED 25-64 WITHOUT A HIGH SCHOOL DEGREE, BY PLACE OF BIRTH

Percentage points

| | Total change | Change due to cohort replacement | Change due to decreased share of people without high school degree in each cohort |
|---|---|---|---|
| **Mountain states** | | | |
| Colorado | -12.5 | 2.7 | -15.1 |
| New Mexico | -17.3 | -6.4 | -11.0 |
| Wyoming | -10.2 | -8.1 | -2.0 |
| **Plains states** | | | |
| Oklahoma | -36.5 | -24.1 | -12.4 |
| Missouri | -25.5 | -13.2 | -12.3 |
| Kansas | -32.4 | -17.5 | -15.0 |
| Nebraska | -35.4 | -25.2 | -10.2 |
| **U.S.** | -20.1 | -8.1 | -12.1 |

Source: Census Bureau and authors' calculations

college graduates minus the cohort effect. In Table A3, the cohort replacement effect ranges from a low of 4.9 percent in Oklahoma to a high of 22.5 percent in Colorado. In general, states such as Colorado with rapid population growth tend to have big cohort replacement effects because the less-educated old cohort is small relative to the well-educated young cohort that replaces it.

For people without high school degrees, the effects of cohort replacement and increased education within cohorts are calculated in an analogous manner in Table A4. Specifically, the cohort replacement effect is calculated by multiplying the share of people in the 25-34 age group without a high school degree in 1990 by the number of people in the 25-34 age group in 2000 and subtracting the number of people without a high school degree in the 55-64 age group in 1990. As before, the change in people without a high school degree due to increased education in each cohort is then measured by the residual. In Table A4, the cohort replacement effect ranges from a low of -25.2 percent in Nebraska to a high of 2.7 percent in Colorado. In this case, states such as Nebraska with slow population growth tend to have a highly negative cohort replacement effect because the less-educated old cohort is large relative to the well-educated young cohort that replaces it.

## ENDNOTES

[1]For evidence that firms pay close attention to labor availability in deciding where to locate, see Dumais and others. States enjoying rapid population growth as a result of migration may be attractive to businesses for other reasons besides the greater availability of labor. For example, businesses selling nontradeable services may prefer to locate in such states because of their expanding markets. It should be noted, however, that rapid population growth through migration could also be harmful to a state in some circumstances—for example, if the growth led to overcrowding or if key industries in the state happened to be contracting.

[2]Some migration studies use an alternative set of data based on annual tax returns. See, for example, the earlier review of Tenth District migration trends by Miller.

[3]In the migration literature, this tendency is sometimes referred to as the "counterstream" effect (Hoover and Giarratani). It was first pointed out in the 1880s in a famous article by the British demographer E.G. Ravenstein.

[4] Another explanation sometimes given for the positive correlation between inflows and outflows is the nature of state boundaries (Bogue and others, p. 66). If two large metro areas are located near each other, there are likely to be substantial flows of people between them because the cost of moving varies inversely with distance. If the two metro areas happen to be located in different states—for example, Boston and Providence—the flows of people between the two metro areas will count as interstate migration. But if the two metro areas happen to be located in the same state—for example, Los Angeles and San Francisco—the flows between them will not count as interstate migration at all. This explanation for the positive correlation between inflows and outflows would not seem to apply to the Mountain states, because opportunities for intrastate migration do not appear any more limited in these states than in the Plains states.

[5]The large net inflow of people to New Mexico during the 1950s resulted in part from increased federal spending on nuclear weapons research at Los Alamos. Similarly, the large net outflow of people in the 1960s was partly due to the closure of a major air force base in Roswell and other reductions in defense spending (Kargacin; Adkisson and Peach).

[6]In Oklahoma, and to a lesser extent in Kansas, the impact of the agricultural slump was exacerbated by a simultaneous downturn in the energy sector.

[7] The decline in demand for farm labor due to technological progress began earlier in the century but picked up speed after 1950 (Huffman and Evenson).

[8]In 1995-2000, over a third of net inflows to nonmetro areas of Missouri were in the Lake of the Ozarks and Branson regions, which are heavily recreational. At the beginning of the period, these areas accounted for only 9 percent of total nonmetro population in the state.

[9]Another possibility is that some of the people who moved out of metro areas in 1955-1960 had moved into these areas from rural areas of the state in the first half of the decade—the phenomenon known as "chain migration" (Hoover and Giarratani).

[10]Levy and Murnane argue that demand for middle-level workers has declined due to the automation of factory assembly lines and the use of computers to perform routine clerical tasks. At the same time, demand for highly

educated workers has increased because such workers are needed to implement the new technology, and demand for unskilled workers has increased because there are still many menial jobs that cannot be automated.

[11]One limitation of the migration measures in Table 5 is that they can be distorted by young people attending college out of state. Some of the 25-and-over college graduates reported as having left a state during 1995-2000 could be young people who came to the state during the first half of the 1990s to attend college, graduated from college after 1995, and then returned to their home states or moved on to other states before 2000. If many more young people came to a state to attend college during the first half of the 1990s than left the state to attend college elsewhere, the net outflow of college graduates from the state could appear large even though the state was not really losing young college graduates to other states.

[12]It should be noted that the net outflow of college graduates from a state would not necessarily remain unchanged as the cohort replacement effect diminished and the total growth of college graduates slowed. If the brain drain reflected an excess supply of college graduates in the state, the slower growth in graduates could lead to a smaller brain drain. However, if the brain drain was due to other factors, such as a preference of young people for large urban areas, it might not diminish as the total growth of graduates slowed.

[13]The Census Bureau publishes annual estimates of immigration from abroad for each state along with the estimates of net in-migration from the rest of the U.S. However, the immigration estimates are not suitable for purposes of this article because they are obtained by taking the estimate of total immigration to the U.S. and distributing the total among states in the same proportions as the 1995-2000 inflows of immigrants reported in the 2000 Census.

[14]The only data available for 2000-2005 are for total net inflows to each area, including both net inflows from other states and net inflows from other areas of the same state. These data show that in three of the five states in which net in-migration declined—Colorado, Kansas, and Missouri—net inflows fell in both metro and non-metro areas but especially in the latter. In the other two states—Oklahoma and Nebraska—net inflows fell somewhat more in metro areas than non-metro areas. In the two states in which net in-migration improved sharply—New Mexico and Wyoming—both metro and non-metro areas shared in the turnaround but metro areas experienced the greater proportional gain.

[15]An alternative explanation for the positive relationship between migration and job growth in Charts 6 and 7 is that exogenous changes in the attractiveness of district states to migrants led to changes in migration, which then led to changes in job growth. While such causation from migration to job growth is plausible over the long run, it does not seem a likely explanation for the short-run changes in migration flows in Chart 6. For example, anecdotal evidence suggests that job growth declined in Colorado relative to the nation in the early 2000s because of the changing fortunes of the state's telecom and high-tech sectors and the impact of September 11 on the state's tourist sector, not because of a sudden shift in migrants' appreciation of the state's amenities (Kendall). Similar explanations exist for the increase in relative job growth in New Mexico and Wyoming in the early 2000s. For example, both states have large energy sectors and thus ben-

efited from the run-up in energy prices after 2003. Also, both states have large government sectors and small manufacturing sectors, tending to insulate them from the recession of 2000-2001 (Erickson; Waldman; Liu).

[16]In 2005, for example, median home prices were only 1.8 times median family income in Wichita and Topeka and only 2.3 times median family income in Kansas City. For the nation as a whole, by contrast, median home prices were 3.4 times median family income.

[17]For further discussion of the advantages and disadvantages of lifetime migration measures, see Long, pp. 27-28, and Rosenbloom and Sundstrom.

[18]These estimates are based on the Census Bureau's 5 percent Public Use Micro Data Samples for 1990 and 2000.

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