A quiet driver of population change

Birth-death balance that powered growth is narrowing

By ERIC SANDBERG

Of the two factors that change the population count each year, net migration gets far more attention than natural increase.

Net migration, or in-movers minus out-movers, has a faster effect on housing and labor markets and is seen as an indicator of a place's desirability and economic health. It has also been a headline in Alaska for more than a decade, as the state has lost people through migration for the past 13 years in a row, a departure from historical norms.

Natural increase, or births minus deaths, is frequently overlooked. People tend to see births and deaths as part of individual life cycles rather than large demographic trends, and their consistent and routine yearly totals attract less attention than the wild swings that are common with net migration.

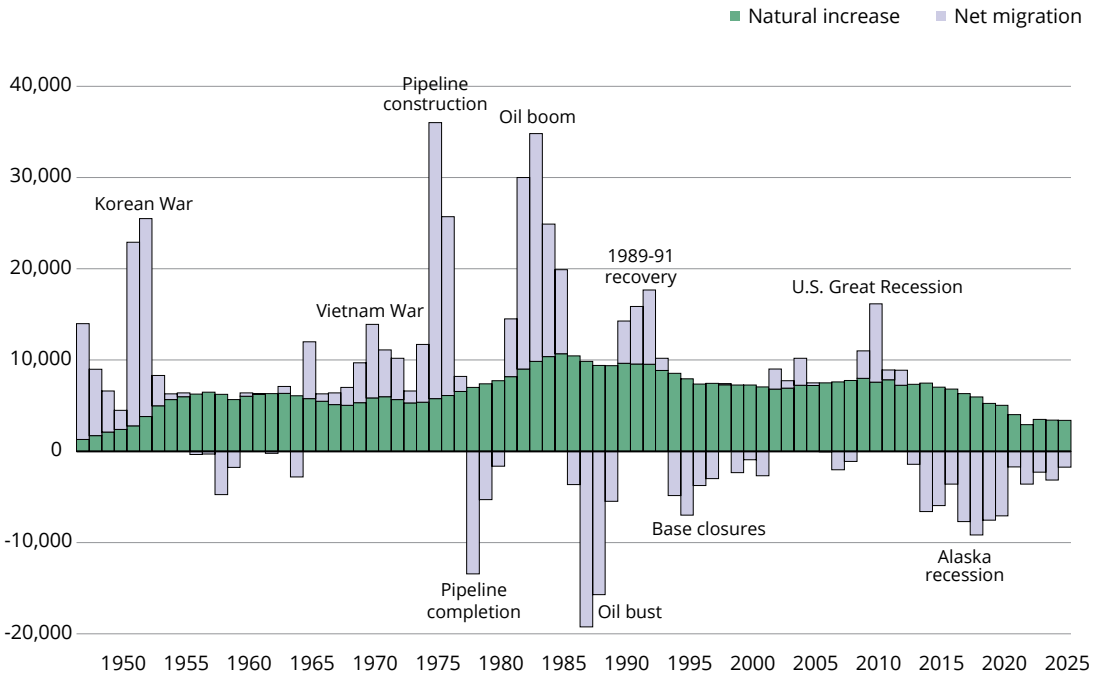
In Alaska, however, natural increase has been the main source of population growth over the long term, as the exhibit below shows.

Since statehood in 1959, Alaska has gained nearly nine times more people through natural increase than net migration. Even during Alaska's largest sustained migrant influx, when the population more than doubled between the mid-1960s and the mid-1980s, half of the growth came from natural increase. Since 1990, it's been all of it.

From 1990 to 2012, Alaska added 179,000 people, with 170,000 coming from natural increase. After 2012, when the state's net migration loss streak started, natural increase became the counterbalance to the constant outflow.

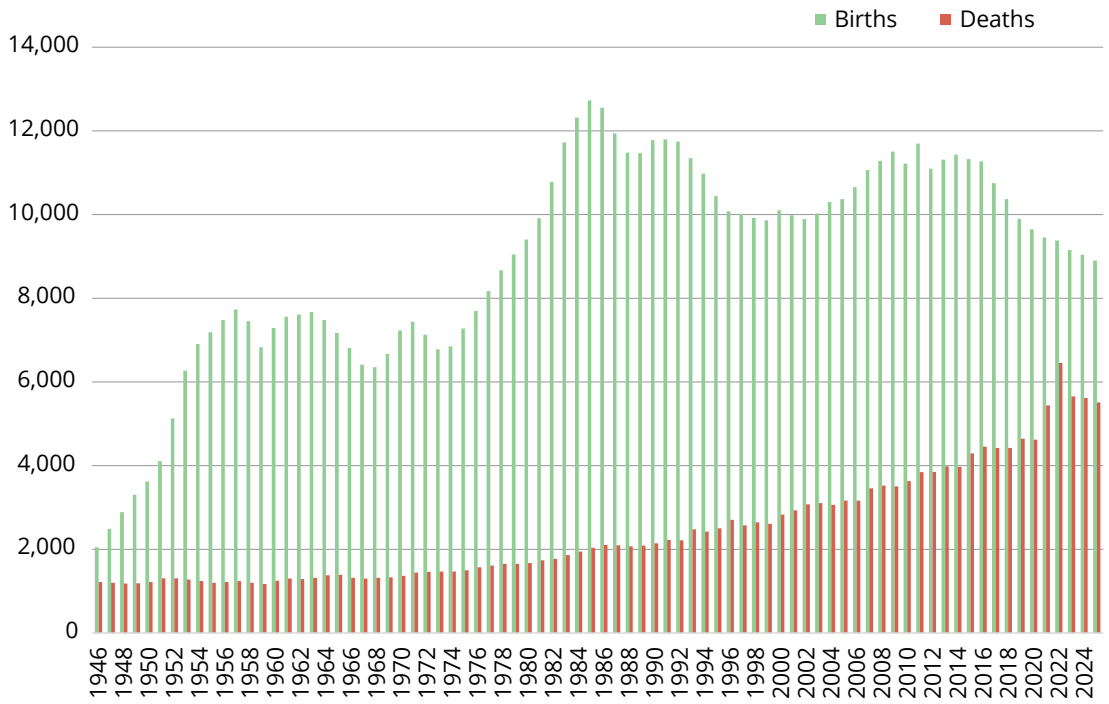
The population decreased overall for a couple of years during the late 2010s when net migration losses were too large for natural increase to offset, but otherwise, the latter has kept the state's population growing since 2012.

The history of population change in Alaska, 1947 to 2025



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

Total births and deaths in Alaska, 1946 to 2025



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

That cushion has been flattening over the past decade. The gap between births and deaths each year has steadily narrowed, pushing the yearly natural increase gain below 4,000 each year since 2021. Tighter margins make future population loss more likely, in the short term if net migration losses worsen or in the long term if deaths start to outnumber births.

Births and deaths have been moving in opposite directions

With the gap between births and deaths getting tighter, it is useful to look at the trends for each.

Both are reported to the Alaska Department of Health's Vital Records Section, which publishes detailed health data in their annual vital statistics report. From Vital Records, we receive basic, anonymized birth and death data to create our population estimates.

The exhibit on this page shows the numbers of births and deaths in Alaska since the mid-1940s. While it's true that they're independent, individual events, they tend to fall within a narrow band in the aggregate. Births depend on how many women are in their childbearing years, and deaths are linked to the entire population's age profile.

Births rose quickly in the early baby boom that followed World War II, then stayed between 6,000 and 8,000 per year until the late 1970s. After the Trans-Alaska Pipeline System was completed, the oil boom spurred an influx of new migrants that boosted births to an annual peak of more than 12,000 in the mid-1980s.

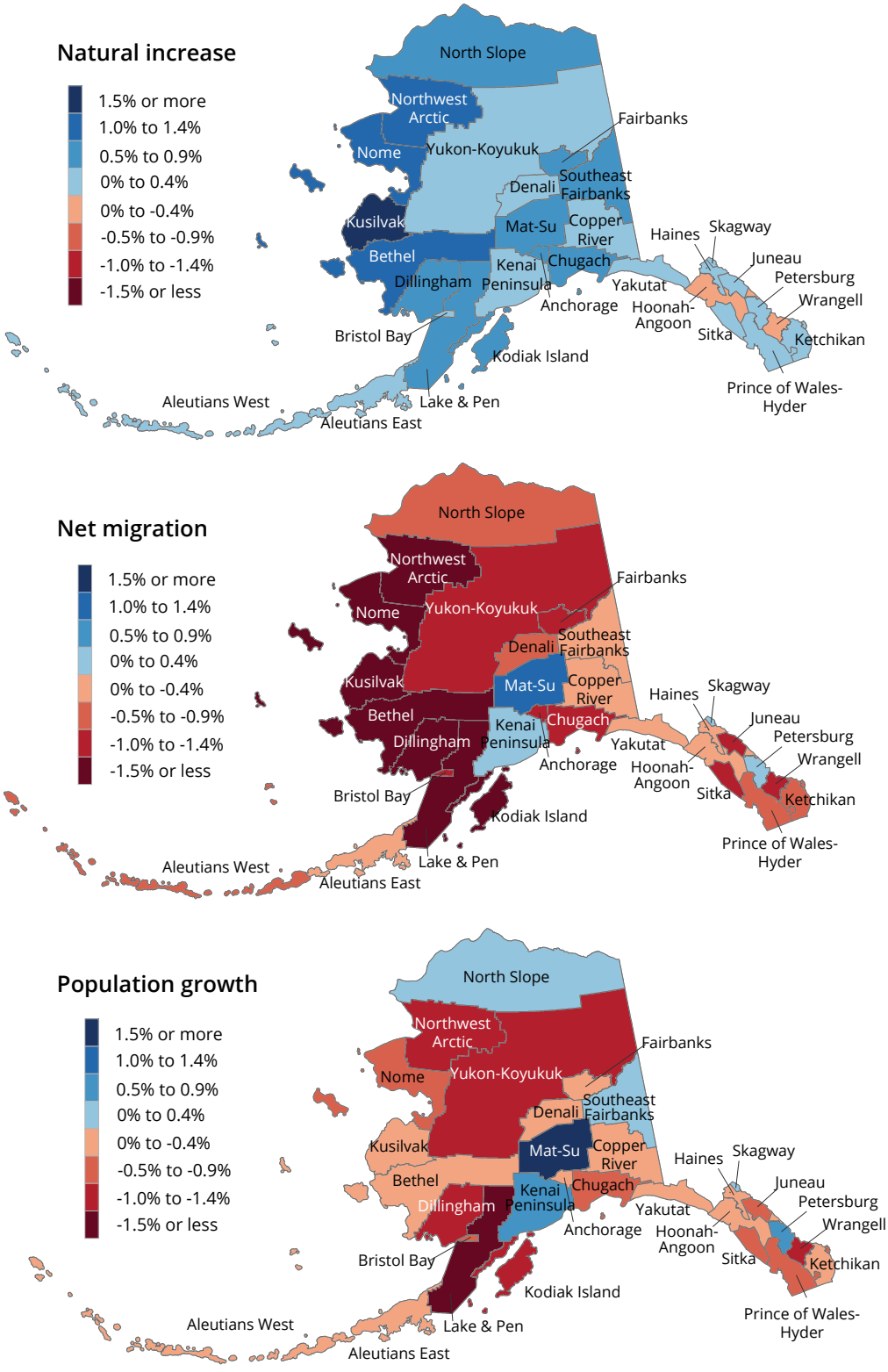
After that, births plateaued between roughly 10,000 and 12,000 a year for the next 30, until the late 2010s. The number of new babies began to slide as net migration losses ramped up and the state entered a recession, dropping below 10,000 in 2019 from 11,400 just five years earlier.

The decline slowed a bit after 2020, but it has continued. In 2025, fewer than 9,000 babies were born for the first time since 1978, a number 21 percent lower than the decade before.

Deaths, on the other hand, have been on a slow climb over the past 80 years. Because Alaska's population has always been young and in-migrants tend to be young adults, Alaska's death count hasn't surged through any of its growth periods. Instead, it has gradually risen as Alaska ages.

Deaths topped 2,000 for the first time in 1985, then

Average yearly rates of natural increase, net migration, and population change by Alaska area, 2015-2025



Note: Natural increase is the year's births minus deaths. Net migration is the number of people who moved to an area in given year minus the number who moved out.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

3,000 in 2002 and 4,000 in 2015. Despite that rise, the number of births was almost always at least 7,000 higher.

That changed during the COVID-19 pandemic, when deaths jumped to a high of 6,500 from a pre-pandemic level of 4,600 two years earlier. Last year, deaths dropped back below 5,600, but given the state's aging pattern, the rise will likely resume in the next few years.

These opposite trajectories continue to bring deaths and births closer together. A decade ago, Alaska's annual natural increase was more than 7,000, but in the most recent year, the net gain was only about 3,400. Of that drop, the decline in births accounted for about 60 percent and the rise in deaths made up the other 40 percent.

Until the last four years, Alaska hadn't seen natural increase below 4,000 since the early 1950s, when the state's population was about a quarter of its current size.

The patterns around Alaska

The statewide pattern is also common around Alaska. In most areas, natural increase adds to the population each year while net migration subtracts.

The maps on the previous page show the average yearly rates of natural increase, net migration, and total population change in the last decade. Because numbers vary widely by area, with some in the thousands and others in the single digits, rates are the best way to compare.

The rate is the number for natural increase or net migration divided by the underlying population, which gives the percentage of the area's population gained or lost each year. Because the two offset each other in most boroughs and census areas, the bottom map — total population change — illustrates which direction the population count has moved as a result.

For the state, the average yearly gains from natural increase in the past decade (0.6 percent) were the inverse of the average net migration losses (-0.6 percent), so they canceled each other out.

Alaska's natural increase and net migration rank at the opposite ends from each other on a national scale. Alaska's natural increase has been second-highest among states over the past 10 years, after Utah (0.8 percent), but our net migration rate was 50th. Illinois was 49th at -0.4 percent.

Most areas of Alaska had natural increase gains and net migration losses. Only two, Hoonah-Angoon and Wrangell, recorded natural *decrease* in the past decade — deaths outnumbering births.

Four boroughs (Matanuska-Susitna, Kenai, Petersburg, and Skagway) had positive net migration *and* natural increase. The remaining 24 areas had the two components moving in opposite directions.

Western Alaska, which is younger, has the highest natural increase rates. Every borough or census area with a rate above 1 percent a year is in that region, with Kusilvak topping 1.5 percent and Bethel coming in just below it.

The three most populous areas (Anchorage, Mat-Su, and Fairbanks) drive the statewide rate, for the most part, with natural increase rates between 0.5 percent and 1 percent. Areas below 0.5 percent have older populations; these include Kenai, Copper River, and all of Southeast Alaska.

The state's sharp negative turn in net migration is visible in the middle map on the previous page. Rates were lowest — below -1.5 percent per year — in much of western Alaska, from the Northwest Arctic Borough down through Bristol Bay and Kodiak. Anchorage, Fairbanks, and Juneau dipped below -1 percent each year over the last decade.

In total, 26 of Alaska's 30 borough equivalents had a net outflow of migrants. As a result, 24 areas lost population overall, up from seven in the previous 10-year period.

Natural increase declines span decades for many states

Even after a decline, Alaska has one of the highest rates of natural increase among states. While Alaska still consistently has more births than deaths, that's no longer a given in much of the country.

> Natural increase is births minus deaths, and it has long produced most of our population growth.

Every state's rate has fallen over time. The maps on the next page show the average annual natural increase rate by state for each decade going back to the 1960s. In that decade, at the tail end of the baby boom, 34 states and the District of Columbia had natural increase of 1 percent or more a year. No state was below 0.8 percent then, which is higher than any state this decade.

Births dropped nationwide in the 1970s, hitting a post-WWII low in 1973. That smaller generation, Generation X, marked a slowing of natural increase in all states. Only Utah, D.C., and Alaska had rates over 1.5 percent, and just a smattering of other western states topped 1 percent.

Births began to rise again in the 1980s, bumping natural increase rates up slightly. Alaska led the country at 2 percent. Most other Southwest or Mountain states were above 1 percent.

In the 1990s, Utah overtook Alaska for the highest rate, and Utah and Alaska have remained first and second, respectively, ever since. West Virginia is at the bottom, having fallen into natural decrease by the 2000s.

Nationally, the number of births declined after the Great Recession in the late 2000s as deaths continued to climb slowly. By the 2010s, only nine states,

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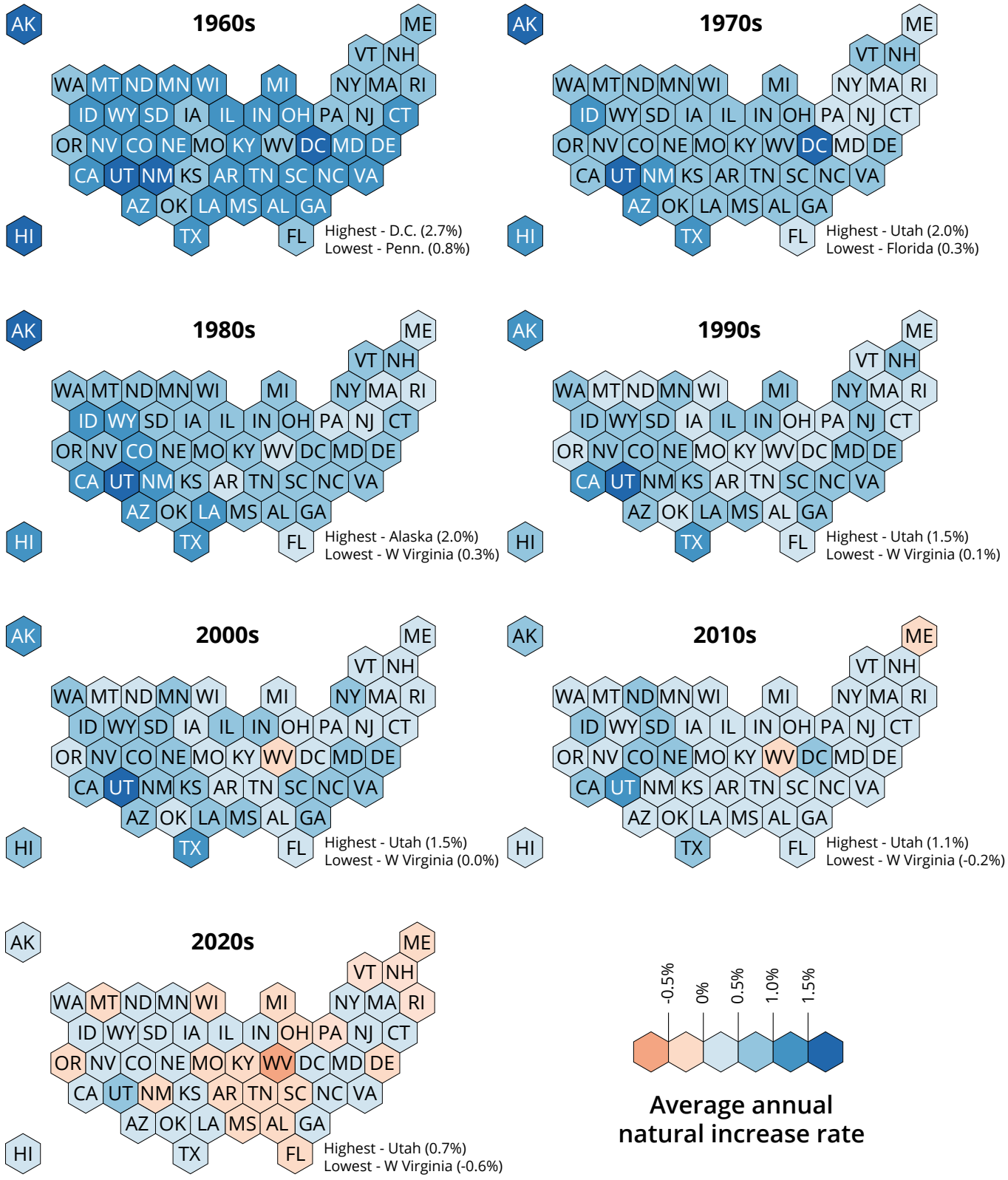
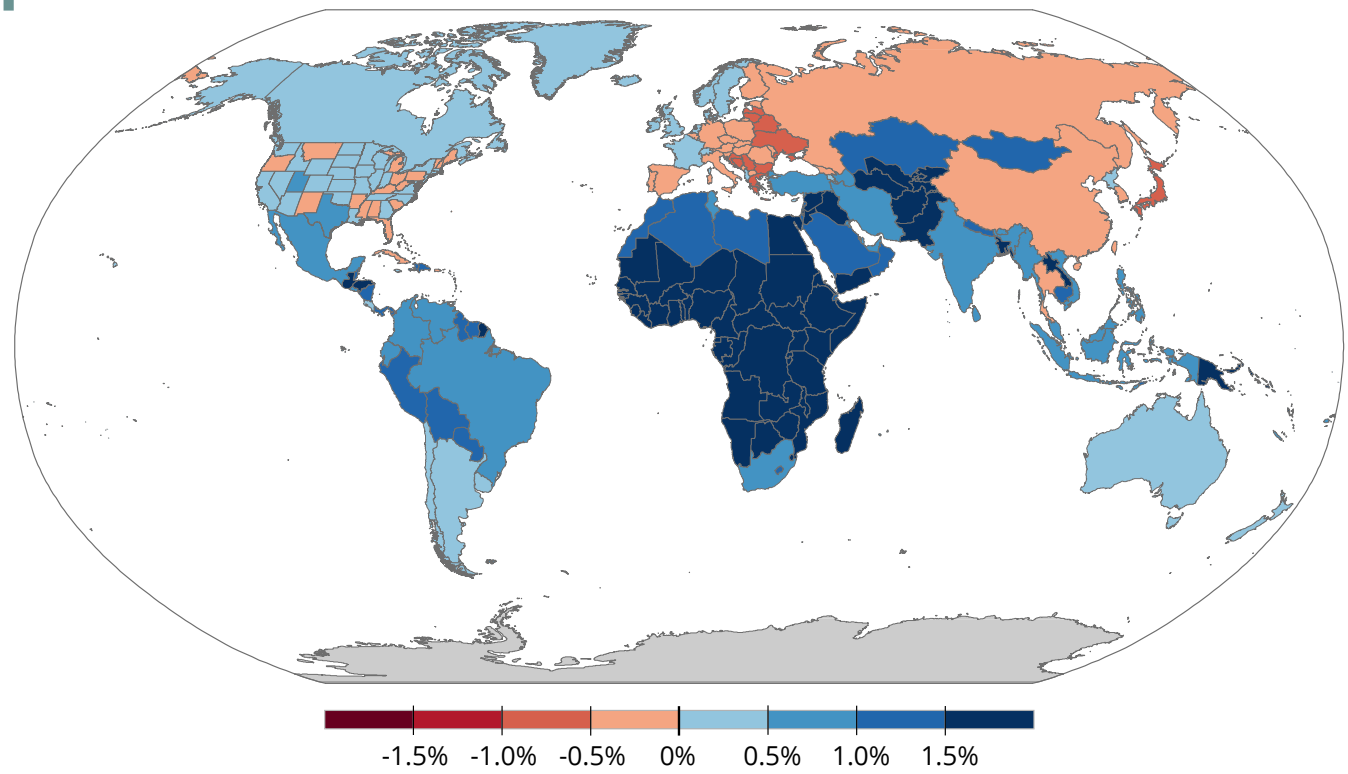
Average yearly rate of natural increase per decade, by state



Source: U.S. Census Bureau

International rates of natural increase in 2023



Source: U.S. Census Bureau, U.N. Population Division

including Alaska, and D.C. had natural increase above 0.5 percent a year. Two states had natural decrease, and 39 remained positive but under 0.5 percent.

Deaths jumped at the start of the 2020s with the pandemic, and at this point in the decade, with fewer babies born each year, 21 states now have more deaths each year than births. Those states include upper parts of New England and the Great Lakes along with the Mississippi Valley and a few western states such as Montana and Oregon.

Alaska's gap with the rest of the country has also narrowed. In the 1980s, Alaska's natural increase rate was 1.3 percentage points above the U.S., which dropped to four-tenths of a percentage point in the 2020s.

With so many states just above zero or even in natural decrease, net migration is now a bigger factor in determining whether a population grows.

Deaths outnumber births in more than 50 countries

Large parts of the developed world are already in natural decrease. The map above shows U.N. population division estimates-based natural increase rates by country for 2023, the most recent year available. The U.S., at 0.1 percent, is further divided by state. Alaska's rate in 2023 was just under 0.5 percent, second that year to Utah and Texas.

More than 50 countries had more deaths than births in 2023, up from only seven in 1990. Fourteen countries are at -0.5 percent or lower, including not just war-torn Ukraine but parts of the Baltics and Balkan countries of Europe as well as Japan. Most of Europe has more deaths than births; the exceptions are mostly in Western Europe and Scandanavia. In East Asia, several countries including China, South Korea, and Thailand have natural decrease.

Alaska's natural increase rate remains high relative to the rest of the developed world but far below the developing world. Most Latin American countries gain between 0.5 percent and 1.5 percent a year, levels Alaska had until the current decade.

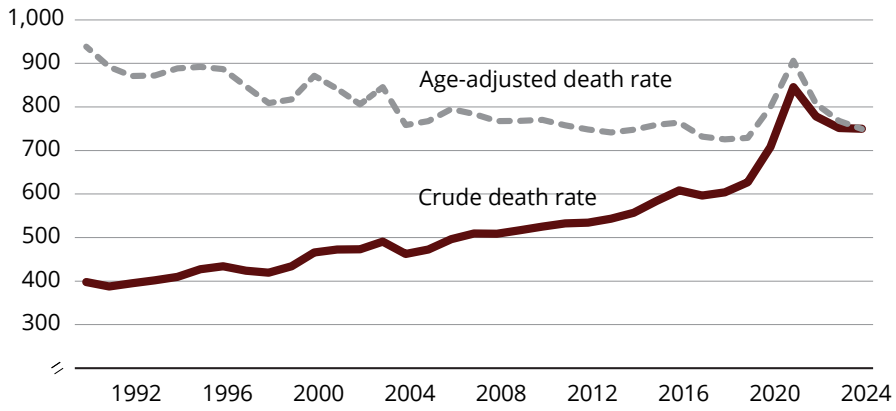
Africa, with its young population and high birth rates, has the highest natural increase rates by far. The Middle East and Central Asia also contain multiple countries with natural increase above 1.5 percent a year.

Trends differ when death rates are adjusted for age

To understand what's going on with natural increase, it's important to look at the wider trends in births and deaths beyond the totals. Other factors come into play, including shifting age structure, lifestyles, and societal trends.

Deaths are easier to explain. Just like natural increase is the more stable of the two population change components, deaths are more predictable and inevitable than births, and the numbers depend on age structure.

Death rates* in Alaska, 1990 to 2024



*The **crude death rate** measures the number of deaths each year per 100,000 people.

The age-adjusted death rate weights the death rates using a single standard age distribution. The result removes the effect of aging population and allows a more fair comparison of relative mortality risk.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

The graph on this page shows crude and age-adjusted death rates for Alaska between 1990 and 2024. The crude death rate is the number of deaths each year per 100,000 people.

Mirroring the total *number* of deaths, the death rate has climbed steadily. In 1990, Alaska's crude death rate was just under 400 people per 100,000. This rose to around 500 by the mid-2000s and 600 in the late 2010s.

The pandemic caused the 2021 crude death rate to spike by 35 percent, to around 850 per 100,000. It's fallen since 2021 to roughly 750, which is still elevated from pre-pandemic levels.

Looking at the age-adjusted death rate tells a different story. Age-adjusting removes the distortion of different age distributions by weighting the numbers to fit a single standard age structure. Using one common age structure allows us to more fairly compare mortality risk from all other factors over time and between places.

Apart from the pandemic years, the age-adjusted death rate has largely been on a slow decline. Even during COVID, the age-adjusted rate was lower than in 1990.

While crude rates remain elevated post-COVID, the age-adjusted rate has dropped back near pre-pandemic levels. This means that while the death count is climbing, the relative risk of dying in a given year has declined slightly over time across all ages.

Improvements in life expectancy, safety, public health, and medical science as well as less smoking all play a role. Aside from the pandemic period, most if not all of Alaska's rising number of deaths can be attributed to an older population.

Death rate trends similar to U.S.

The maps on the next page show death rates since 1990 by state, with crude death rates on the left and age-adjusted rates on the right.

In 1990, Alaska had the lowest crude death rate of any state, which held through 2010 as Alaska remained the youngest state through the 2000s. Adjusted for age, however, Alaska had the second-highest death rate among western states in 1990, after Nevada. The highest were and have remained in Appalachia and the Lower South.

Every state's *age-adjusted* death rate declined between 1990 and 2010 as smoking rates fell and health outcomes improved. By 2019, the last pre-COVID year, age-adjusted rates remained lower than earlier decades even as crude rates climbed with aging populations.

A year after the pandemic began, crude death rates jumped and age-adjusted rates reversed their long decline across the country. Among states, 32 had

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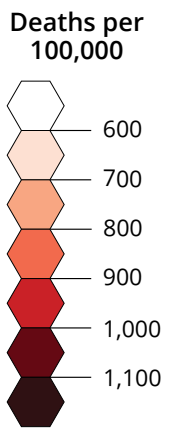
Yearly death rates* by state, 1990 to 2024



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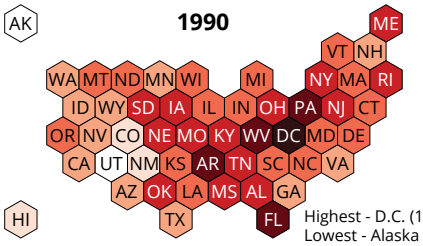
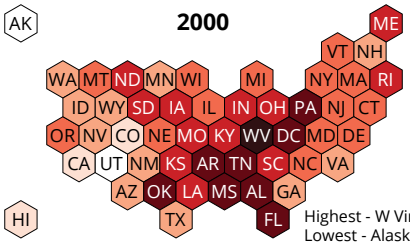
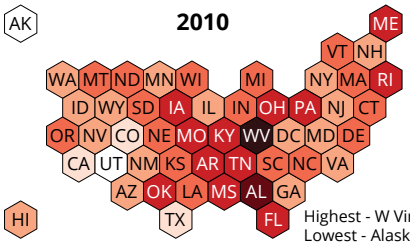
The age-adjusted death rate weights the death rates using a single standard age distribution. The result removes the effect of aging population and allows a more fair comparison of relative mortality risk.

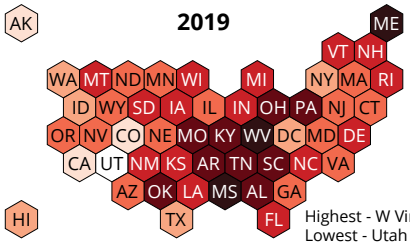
Source: Centers for Disease Control

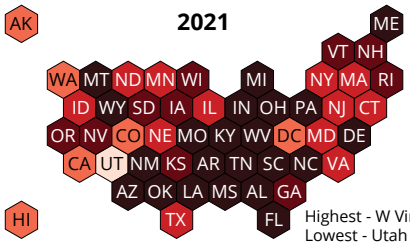
Crude death rate

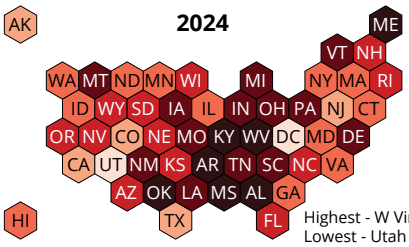




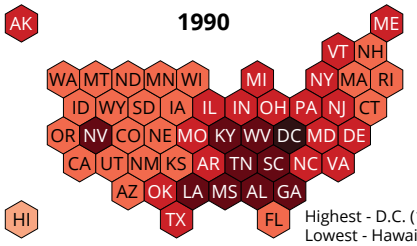


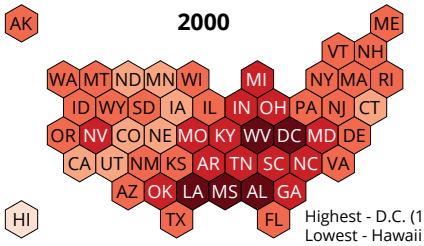


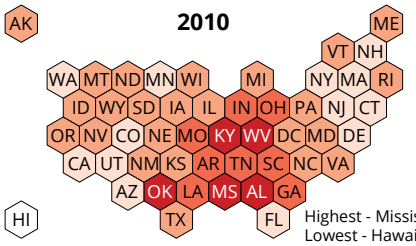


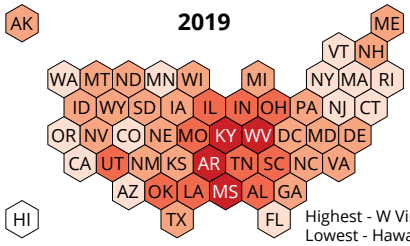


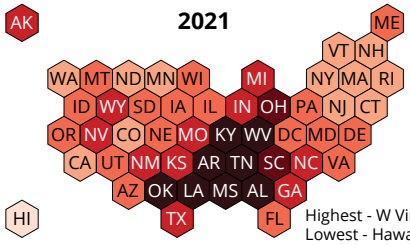
Age-adjusted death rate

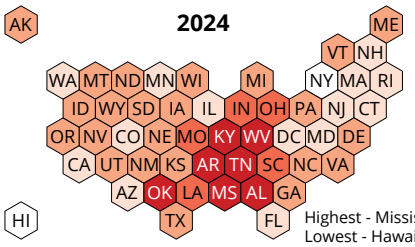




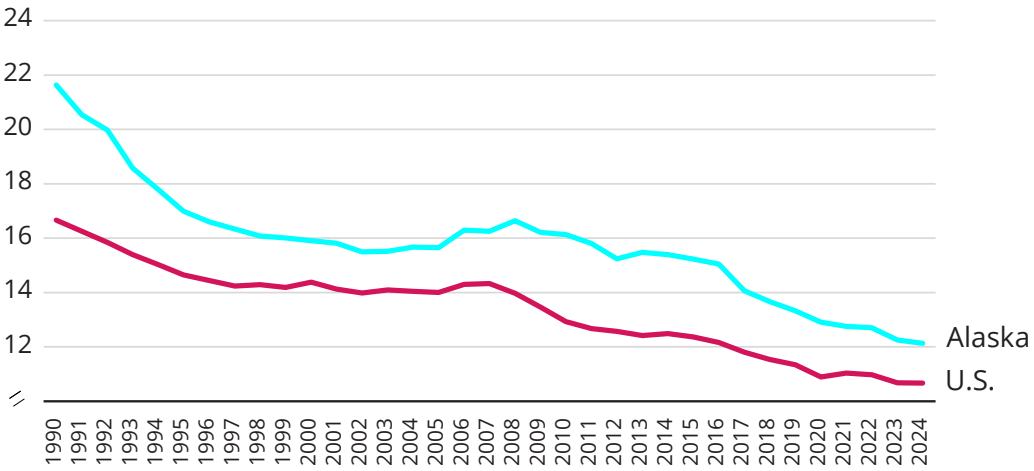








Births per 1,000 people in Alaska and the U.S., 1990 to 2024



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

crude rates above 1,000 deaths per 100,000 people, and 10 of those were over 1,000 even when adjusted for age. Even during the surge of deaths during the pandemic, however, age-adjusted rates for most states and the U.S. were lower than in 1990.

Removing age as a factor shows the risk of dying in a given year in most of the country has declined from previous decades. But crude death rates in Alaska and elsewhere will continue to rise as the population gets older.

Birth rates are on a long decline

What's caused births to decline in the long term is less clear. Economic factors such as the cost of living and child care, more education and labor force participation among women, delays in starting and then having smaller families, and fewer unplanned pregnancies have all been cited as influences.

The graph above shows birth rates, which are the number of births each year per 1,000 people, for Alaska and the U.S. since 1990. Rates fell in the early 1990s as the large baby boomer generation aged out of their child-bearing years and the smaller Gen X group entered.

By the mid-1990s, Alaska and the U.S. leveled off around 16 and 14 births per 1,000 people, respectively. Alaska then increased slightly in the mid-2000s.

The housing-bubble-induced Great Recession of the late 2000s appears to be a national inflection point. After 2007, the U.S. birth rate began to slide, and it didn't reverse even as the economy recovered. From 2007 to 2024, the birth rate declined by about 25 percent, decreasing every year except 2021.

Alaska's birth rate didn't skid as fast during the national recession, which barely brushed the state, but it did decline. By 2016, as Alaska was in a recession of its own, the state's birth rate was down to 15.1 per 1,000 and has declined every year since. Even when the economy began to recover from the COVID plunge, Alaska's rate didn't get a bump. The 2024 rate of 12.1 represented a nearly 20 percent decrease since 2016.

Maternal age has shifted older

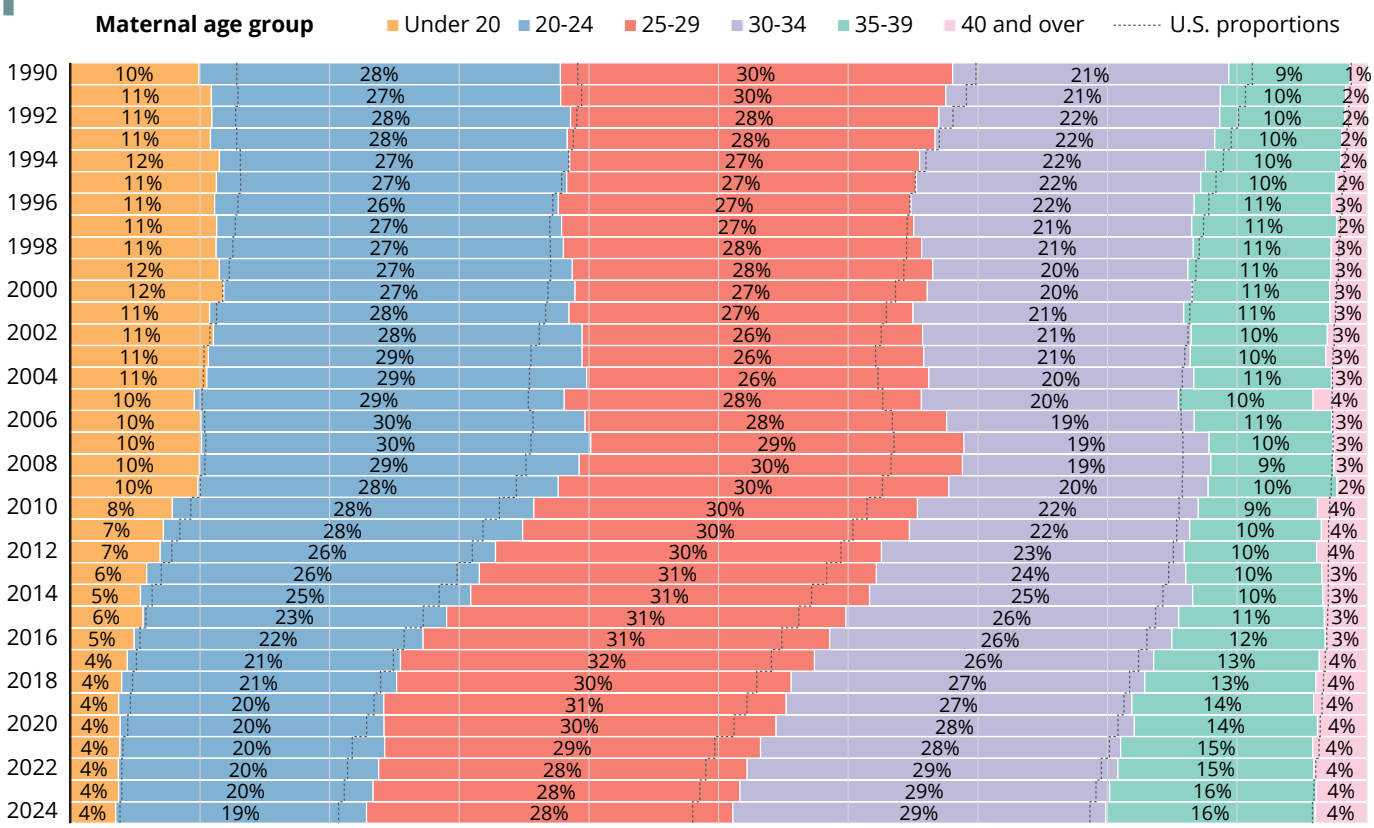
Over the past three decades, the age of mothers giving birth has steadily risen in Alaska and the nation, and a much larger proportion is over 30. As with birth rates, 2007 marks a clear shift for maternal age.

The exhibit on the next page shows the percentage of all births by the mother's age group for Alaska between 1990 and 2024. The dotted lines represent the comparable U.S. proportions.

In 1990, 10 percent of Alaska babies were born to teen mothers. The share remained between 10 and 12 percent until 2009 and then fell off sharply. In 2024, teenagers accounted for only 4 percent of births in Alaska and nationwide, the same percentage as mothers over 40.

The proportion of mothers in their early 20s has

Proportion of births by mother's age in Alaska and the U.S., 1990 to 2024



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

also gotten smaller. For most of the 1990s and 2000s, they represented 26 to 30 percent of births. From 2001 to 2007, they were the largest maternal age group. Since 2007, their share has fallen from 30 percent of all births to 19 percent.

Combined with the teen drop, the proportion of babies born to women under 25 has nearly halved, from 40 percent to 23 percent.

Since 1990, mothers in their *late* 20s have usually been the largest group. Their proportion has stayed about the same (26 to 31 percent).

By 2024, women over 30 gave birth to nearly half of all new babies in Alaska, up from 32 percent in 1990, and *more* than half nationally.

The largest maternal age group is now women in their early 30s, in Alaska and nationwide (29 and 31 percent of all births, respectively).

Mothers over 35 have almost doubled as a proportion of Alaska births since 1990 and are now at 20 percent. The proportion in their 40s has remained roughly the same since 2000, but mothers in their late 30s have increased from 11 percent that year to 16 percent of births in 2024.

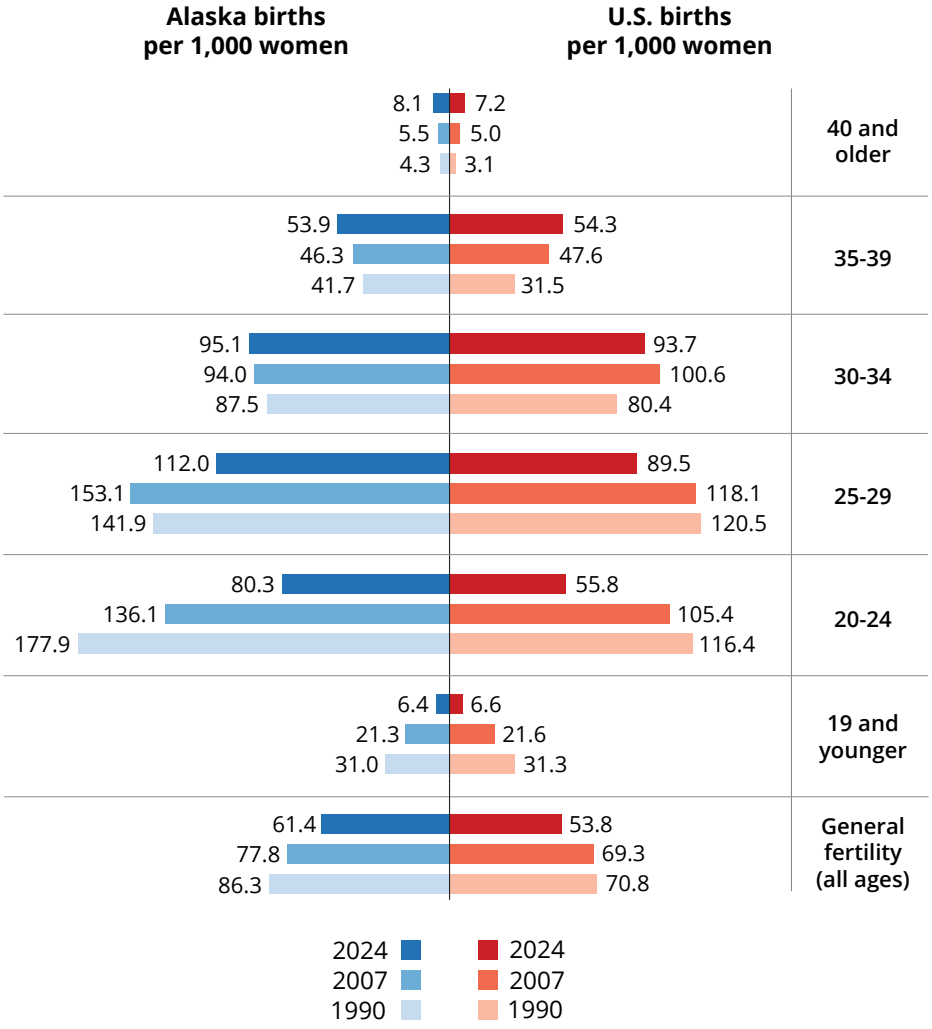
Fewer babies are born per woman

Mothers are getting older, and they're also having fewer children. While birth rates measure births relative to the total population, fertility rates measure births by the number of women in their child-bearing years (usually ages 15 to 44).

Fertility rates help explain what's behind the decline in births. The two possibilities are: 1) women are having fewer children; or 2) women in their child-bearing years are having the same numbers of children, but there are just fewer of those women. In this case, no. 1 is the correct conclusion.

The exhibit on the next page shows the age specific fertility rates — births per 1,000 women in each age group — for Alaska and the U.S. in 1990, 2007, and 2024. Over those years, the fertility rate across all ages in Alaska dropped from about 86 births per 1,000 to 61. In the U.S., it fell from 71 to 54.

Fertility rates by age group in Alaska and the U.S. over time



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

Alaska's patterns are similar to the nation. Fertility rates have fallen sharply among women under 30 while rising just slightly for those over 30. This suggests the growing share of births to older mothers has more to do with the decline among younger women. Rates for older mothers have risen slightly, but not enough to offset younger groups' declines.

The largest drop has been among teens; their yearly fertility rate has fallen nearly 80 percent since 1990 and it's now lower than women in their 40s.

In 1990, women in their early 20s were the highest-fertility group in Alaska, at about 178 births per 1,000 women. That rate has halved, to 80 in 2024, and is now lower than women 5-10 years older.

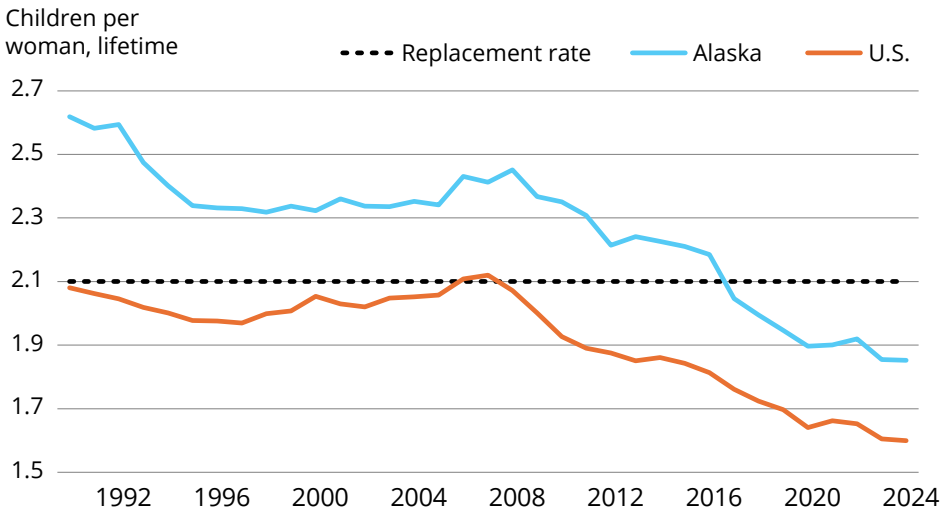
Now, Alaska women in their late 20s have the highest fertility rate, at about 112 births per 1,000 women, although that's down from 153 in 2007. Nationally, women in their late 20s had the highest fertility rates in 1990 and 2007 but are now below women in their early 30s.

Among women over 30, rates have ticked up since 1990. Nationally, women in their early 30s are now the highest-fertility age group. In Alaska, this group has risen from 88 to 96 births per 1,000. Women in their late 30s have seen fertility rise from 42 to 54 births per 1,000.

Lifetime fertility rates also down

Another way to look at fertility is the total fertility

Total fertility rates for Alaska and the U.S., 1990-2024



Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

rate, which is the average number of children each woman would have over her child-bearing years, given the age group rates. Like life expectancy, the total fertility rate is a lifetime statistic that's calculated every year, so it's a snapshot of yearly fertility rates rather than a prediction of future children. Still, it shows whether enough children are being born to sustain population size.

A total fertility rate of 2.1 children per woman is the minimum needed to replace the current population. That figures in two kids to replace both parents plus one-tenth to account for child mortality. A place with a rate under 2.1 for an extended time, without enough in-migration, will often see population growth slow for a couple of decades and then decline.

Alaska's total fertility rate has historically been above 2.1. It was 2.6 children per woman in 1990 — well above the U.S. rate, which sat right at replacement level. Alaska and U.S. fertility rates moved in unison through a slight decline in the 1990s and a minor increase through the mid-2000s.

At the start of the Great Recession in 2008, the national total fertility rate was still 2.1, and Alaska was at 2.5. Then the U.S. rate started a long decline, hitting 1.6 in 2024.

Alaska leveled off around 2.2 in the mid-2010s, but started to slide a few years later during the statewide recession. The rate dropped below replacement level in 2017 and under two children in 2019. It's now 1.9.

All states below replacement level

This trend also extends far beyond Alaska. The maps on the next page show the shifts in total fertility rate by state over the last 34 years, with states above the 2.1 children per woman replacement level in green and below it in pink.

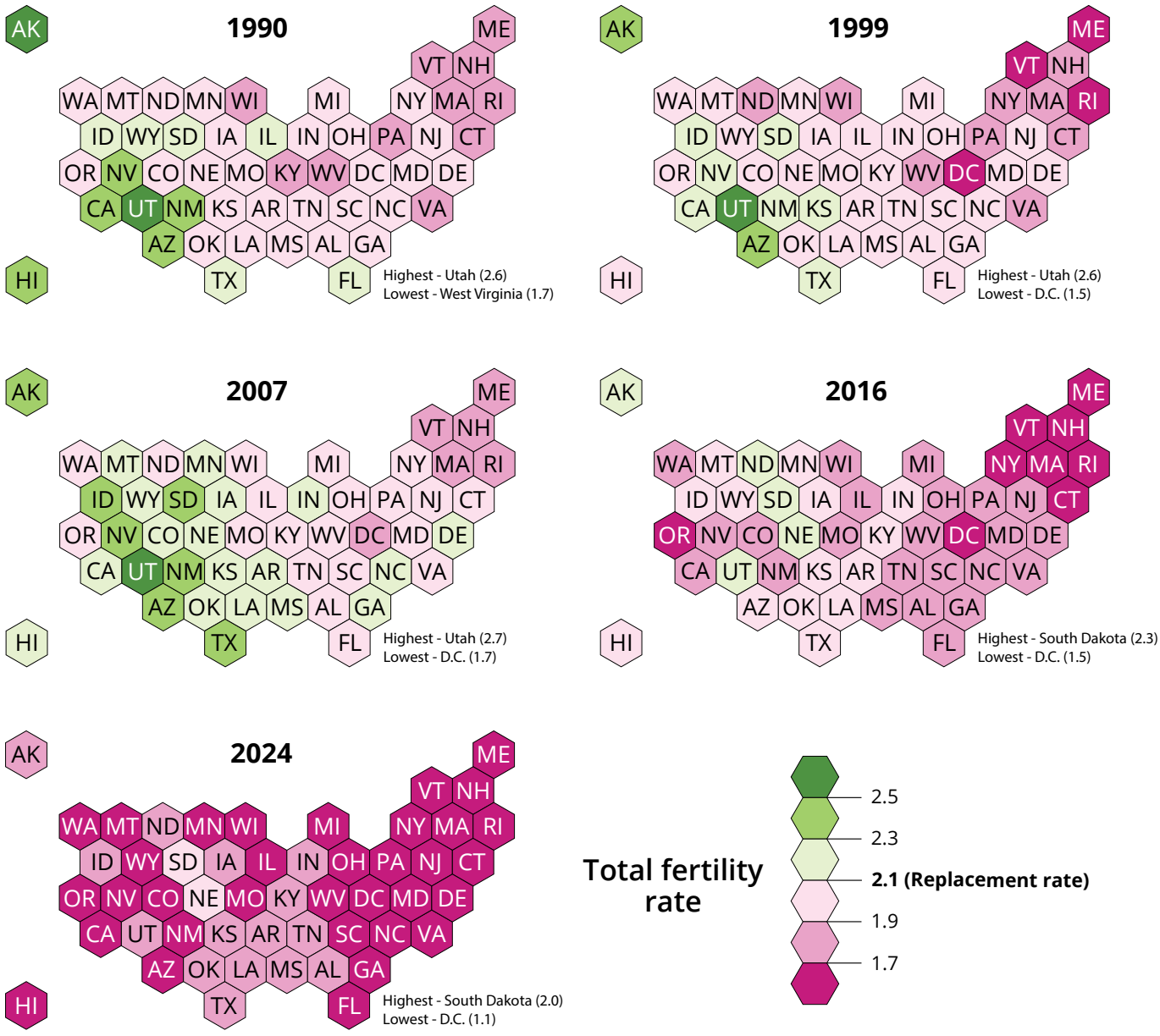
In 1990, Alaska's rate of 2.6 was about even with Utah as the top two states. Eleven others were above replacement level, with the higher rates in the Southwest. The lowest rates were mainly in the Northeast.

The country as a whole hovered around 2.1 because above-replacement fertility in populous states such as California and Texas offset low rates in most smaller states. This broad pattern held through 2007.

Alaska's total fertility rate declined over that time but remained among the highest. After national fertility rates began to fall with the national recession, the list of states above replacement level dwindled. By 2016, Alaska was among just a handful that topped 2.1, along with Utah and the northern Great Plains. The Northeast, Oregon, and Washington, D.C. dropped below 1.7.

The most recent data show a rapidly expanding list of states below 1.7: 34 states plus D.C. Most of the Atlantic seaboard, the upper Midwest, and the West are now below 1.7. D.C. is lowest in the country at 1.1, and Vermont is the lowest state at

Average number of children per woman in a lifetime, by state, 1990-2024



*Total fertility rate is the average number of children each woman would have during her child-bearing years given the contemporary age group rates.

Source: Centers for Disease Control

1.3. California's rate has fallen furthest since 1990, from 2.5 to 1.5. Alaska is below replacement at 1.9 but still the third highest. Only South Dakota and Nebraska are higher, though both are also below replacement level.

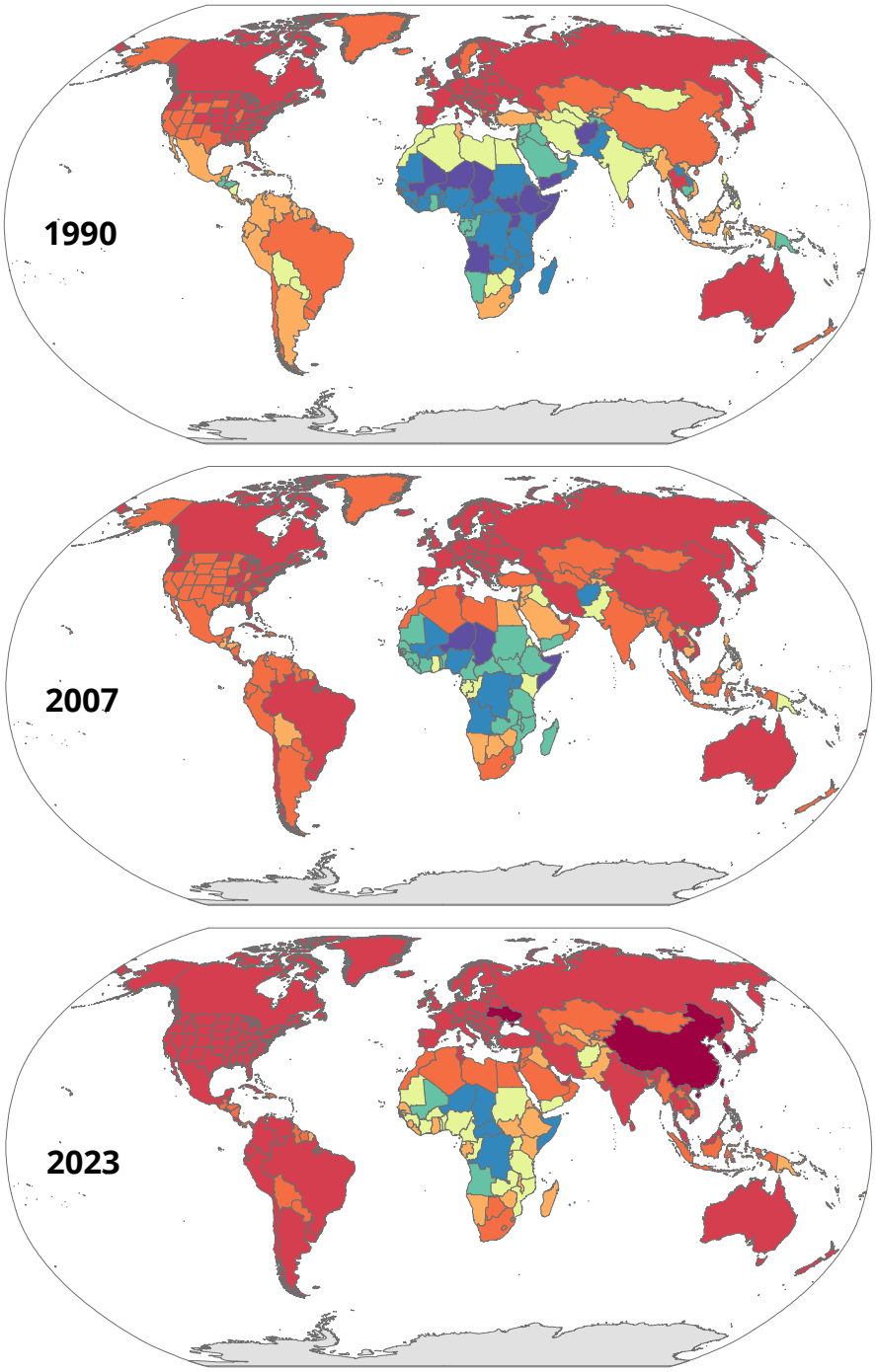
Many of the current decade's natural decrease states have also consistently been below replacement level for fertility since 1990, including West Virginia, Maine, and Oregon.

The fertility decline is worldwide

The fertility rate decline isn't even unique to the

Text continues on page 22

International fertility rates* in 1990, 2007, and 2023



*Total fertility rate is the average number of children each woman would have during her child-bearing years given the contemporary age group rates.

Sources: U.S. Census Bureau, U.N. Population Division; and Centers for Disease Control

NATURAL INCREASE

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United States or the developed world. Many countries and regions have seen their rates drop in the last few decades. Since 1990, the worldwide total fertility rate has declined from 3.3 to 2.3.

The maps on page 17 show total fertility rates by country for 1990, 2007, and 2023. In 1990, much of Europe, Canada, Australia, South Korea, Japan, and Thailand were below replacement level. Most of the developing world was above 3, and Africa was widely above 6 children per woman.

Most countries were above replacement level in 2007, but rates had declined. China, Brazil, and Iran had dropped below replacement, and regions such as Latin America, North Africa, and Southeast Asia were lower than they'd been in 1990. Sub-Saharan Africa remained the highest that year, but fewer countries were above 6.

As of 2023, a majority of countries had fallen below replacement level fertility. This includes every country from 2007 plus newcomers such as India, the Philippines, Turkey, Mexico, and much of Latin America.

The lowest rates are in East Asia, where Singapore, South Korea, and China are below a single child per woman. China’s decline stands out because it was above replacement level in 1990. Even in countries above 2.1, the trend since 2007 has been to have fewer children.

Most countries in natural decrease in 2023 were those that had been below replacement level since 1990. The effect can take a generation, but lower fertility rates eventually lead to population declines without more migration.

Places like Alaska, which only recently dropped below replacement level, still have more births each year than deaths — but other states and countries show it eventually leads to overall decline, a scenario that may be hard to avoid given that the trends are global.

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