

A Decade of Declining Fertility in Utah, the Intermountain West, and the Nation: 2010-2020

By Emily Harris, Senior Demographer

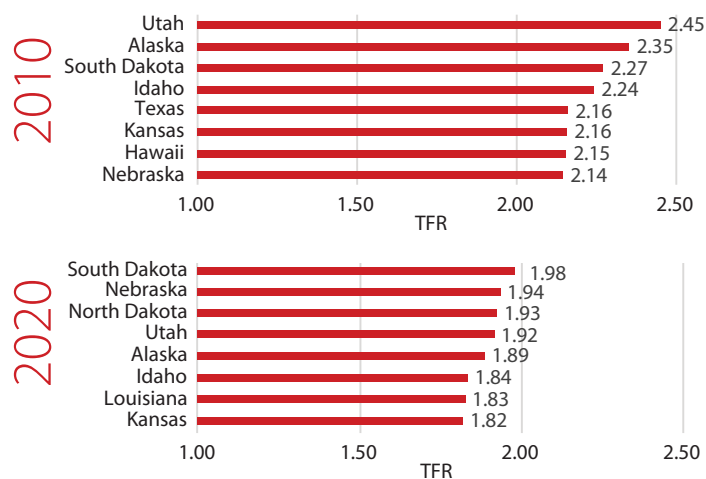
Utah's declining fertility rate made state headlines in 2016 when it no longer ranked highest in the country. Since then, Utah's total fertility rate of 1.92 births per woman has declined nationally from highest to fourth highest, with rates in South Dakota (1.98), Nebraska (1.94), and North Dakota (1.93) exceeding Utah's.^{1,2}

Utah's decline since 2010 mirrors a decadal decline in fertility in every U.S. region, state, and Washington, D.C. The Intermountain West and Pacific divisions experienced the sharpest declines. Interestingly, the preliminary national birth data for 2021 reveal the U.S. total fertility rate increased for the first time since 2014 and age-specific rates from ages 24-44 also increased.³ Analysts will continue monitoring fertility data to see if states also experience a rebound.

Key Findings in Decadal Total Fertility Rate Trends

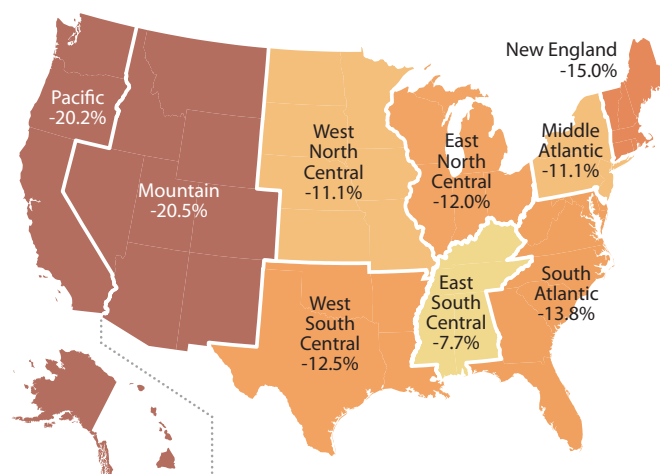
- **Declines in every state** – The fertility rate declined in all states and divisions over the past decade.
- **Western region experiences largest declines** – The Intermountain West and Pacific divisions' fertility rates declined the fastest out of all divisions.
- **Utah drops from first to fourth** – Utah's fertility rate declined from 2010 to 2020 from highest to fourth highest nationally but remained the highest in the Intermountain West. South Dakota, Nebraska, and North Dakota have higher fertility rates than Utah.
- **Utah's drop ranks seventh fastest** – Utah's fertility rate declined by almost 22%, the seventh fastest decline in the nation.
- **Declines in fertility rates from ages 15 to 29** – Every division and region of the country experienced fertility declines in the age groups 15-17, 18-19, 20-24, and 25-29, signaling a decline in teen pregnancies but also in the age groups considered as peak childbearing years.

Figure 1: Highest State Total Fertility Rates, 2010 and 2020



Source: National Center for Health Statistics

Figure 2: Division Total Fertility Rate Percentage Declines, 2010-2020



Note: Division TFRs were calculated by averaging the state-level TFRs within each division.
Source: National Center for Health Statistics, calculations by Kem C. Gardner Policy Institute.

What is a Total Fertility Rate?

The total fertility rate (TFR) is the average number of children a woman will have if she survives all her childbearing (or reproductive) years. It is also the sum of the age specific fertility rates (ASFR). A total fertility rate of 2.1 is generally considered the "Replacement" level of fertility, or the level at which the current population is replaced.⁴

Changes in Fertility Across the U.S.

Nationally, the TFR has steadily declined almost every year since 2007 (there was a slight increase in 2014). Although the TFR in the United States has experienced steady decline for over a decade, it is still higher than or equal to other similar countries across Europe and North America.⁵ But the extent of the TFR decline within the United States widely varies.

The Census Bureau divides the nation into four regions and nine divisions, all with varying demographic characteristics, cultures, and contexts (see Figure 11 at the end of the document). All Census Bureau divisions have experienced total fertility rate declines, but certain areas declined faster than others.

This report uses the term “Intermountain West” when referring to the Census Bureau’s Mountain division.

Total Fertility Rates

The Intermountain West had the highest fertility rate of the nine divisions in 2010 at 2.09 but dropped to 5th highest at 1.66 in 2020. The Pacific division also declined at a similar rate and moved from 4th highest to 3rd lowest over the ten-year period. See Table 1 for 2010 and 2020 ranking information.

Most divisions experienced changes in their national TFR rankings from 2010 to 2020. Two divisions were the exception: the West North Central division (which includes the three highest total fertility states, North Dakota, South Dakota, and Nebraska) maintained the highest TFR ranking from 2011 and on, while New England also maintained its ranking as lowest total fertility rate for the entire decade.

Another noteworthy trend is the sharp decline occurring in the second half of the decade, notably around 2016 and then again in 2019. The division that experienced the smallest decline is the East South Central division, declining by 8%.

Figure 2 displays the percentage decline in the divisional TFRs from 2010 to 2020, further illustrating the extent of the declines across the decade. The trend in declining fertility was most prominent in the Western portion of the nation: the Pacific division and Intermountain West declined the fastest by 20%, followed by New England at 15%. The East South Central (8%), West North Central (11%), and Middle Atlantic (11%) divisions experienced the least dramatic declines.

There is an additional way to compare how fertility rates among states and their respective divisions declined over the decade: consider the spread and range of that decline. Figure 4 displays each state’s percentage decline in TFR, clustered within each division. By visually examining the data this way, similar state declines are evident within and across divisions.

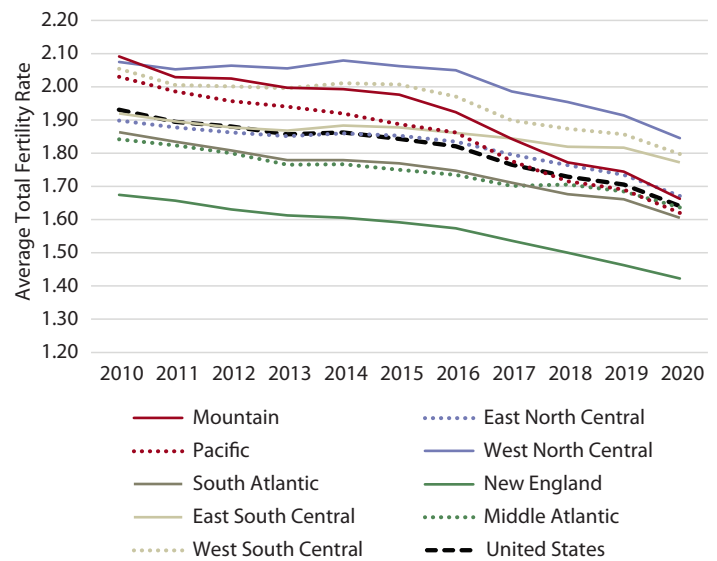
For example, in the South Atlantic division, most states declined between 9% and 16% except for Washington D.C., which fell by 23%, clearly an outlier for the division. Additionally, states within the Intermountain West and Pacific divisions

Table 1: Division Total Fertility Rates and Rankings, 2010 and 2020

| Division | 2010 | | 2020 | |
|--------------------|------|------|------|------|
| | TFR | Rank | TFR | Rank |
| United States | 1.93 | - | 1.64 | - |
| New England | 1.67 | 9 | 1.42 | 9 |
| Middle Atlantic | 1.84 | 8 | 1.64 | 6 |
| South Atlantic | 1.86 | 7 | 1.61 | 8 |
| East North Central | 1.90 | 6 | 1.67 | 4 |
| East South Central | 1.92 | 5 | 1.77 | 3 |
| West North Central | 2.07 | 2 | 1.85 | 1 |
| West South Central | 2.05 | 3 | 1.80 | 2 |
| Mountain | 2.09 | 1 | 1.66 | 5 |
| Pacific | 2.03 | 4 | 1.62 | 7 |

Note: Division TFRs were calculated by averaging the state-level TFRs within each division. Source: National Center for Health Statistics, calculations by Kem C. Gardner Policy Institute.

Figure 3: Average Total Fertility Rates by Division, 2010-2020



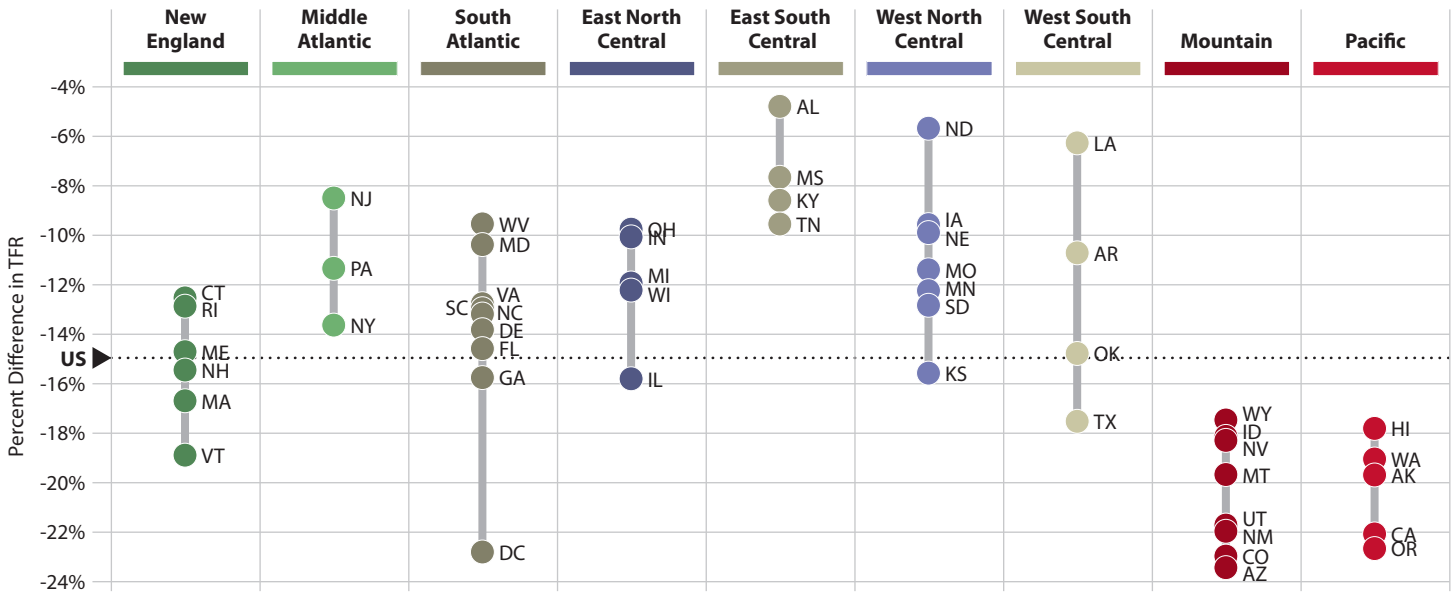
Note: Division TFRs were calculated by averaging the state-level TFRs within each division. Source: National Center for Health Statistics, calculations by Kem C. Gardner Policy Institute.

cluster similarly around very high declines in TFRs over the decade, whereas states in the East South Central division cluster around low TFR declines (relative to all states).

Age Specific Fertility Rates

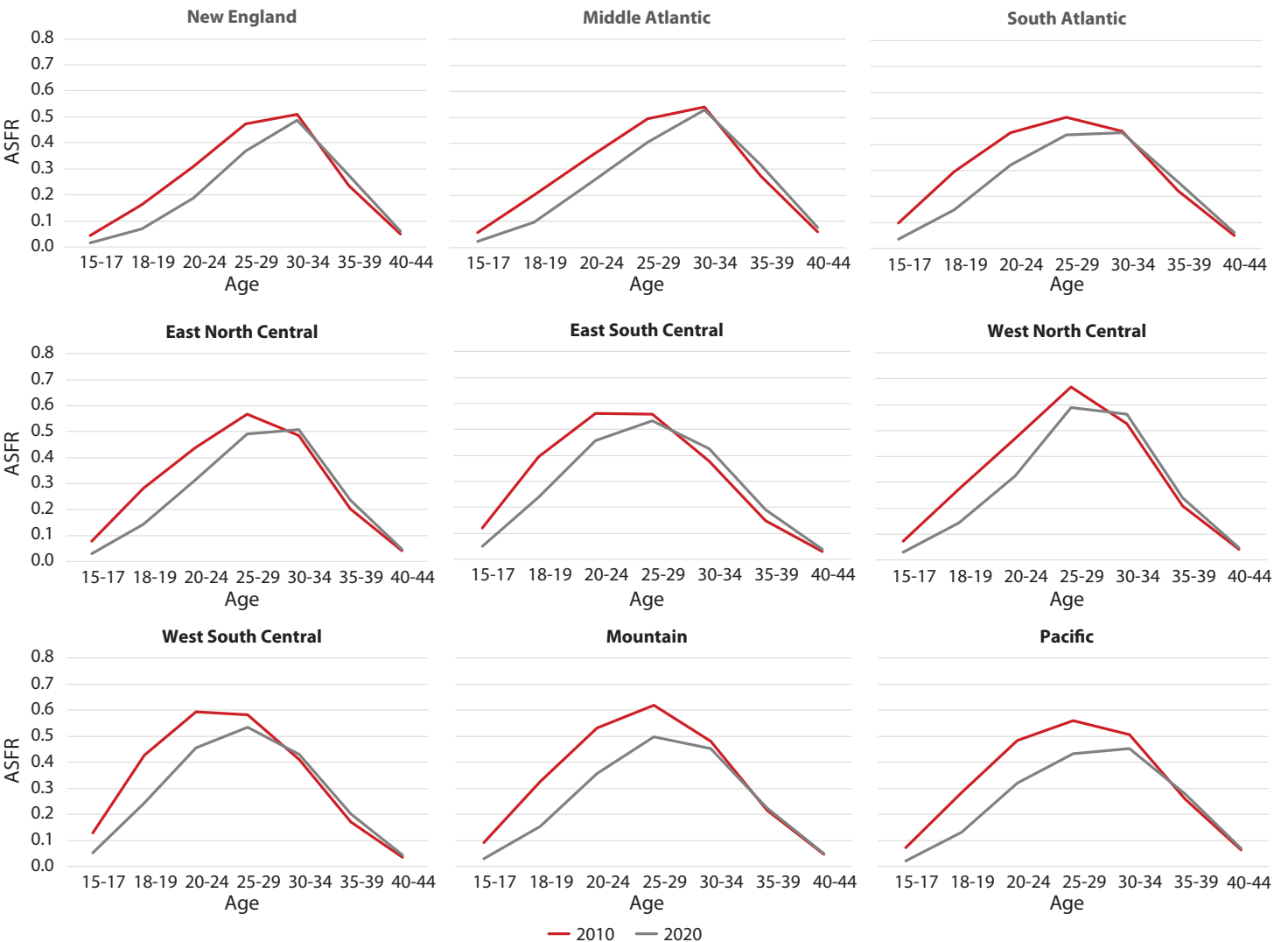
Total fertility rates are the sum of age specific fertility rates (ASFR). Examining ASFRs can help us isolate where fertility is declining across the course of a woman’s life. Figure 5 indicates that all divisions are experiencing meaningful ASFR declines in the age groups 15-17, 18-19, 20-24, and 25-29. However, from age 30 and older, we see different trends occurring across divisions. All divisions except those in the West (Intermountain West and Pacific) are experiencing no change or slight increases in fertility rates for the 30-34 age group and small increases in the 35-39 and 40-44 age groups. The Intermountain West and

Figure 4: Percent Decline in Total Fertility Rate by State (grouped within divisions), 2010-2020



Source: National Center for Health Statistics, calculations by Kem C. Gardner Policy Institute.

Figure 5: Division Age Specific Fertility Rates, 2010 and 2020



Note: Division ASFRs were calculated by averaging the state-level TFRs within each division.
 Source: National Center for Health Statistics, calculations by Kem C. Gardner Policy Institute.

Pacific divisions are experiencing slight declines in the 30-34 age group and no increase in the 35-39 and 40-44 age groups. This lack of rebound in the older age groups partially contributes to the sharp declines in the Western region's TFRs.

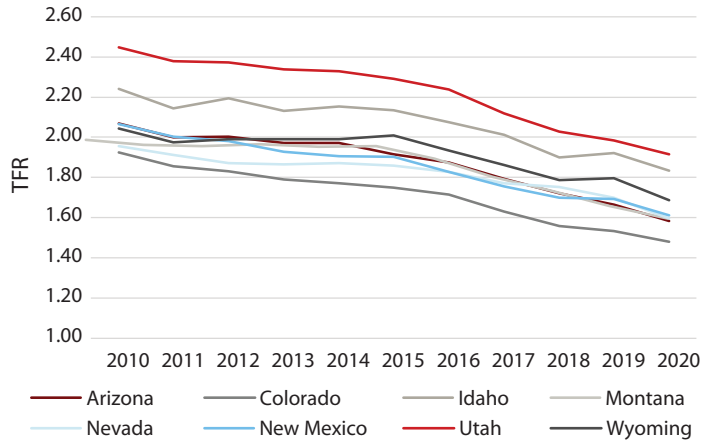
What is Happening to Fertility within the Intermountain West?

Data in the previous section indicates that the Intermountain West TFR is declining faster than most of the other divisions, but what about the states within the Intermountain West? And how does Utah compare to other states within the division?

Total Fertility Rates

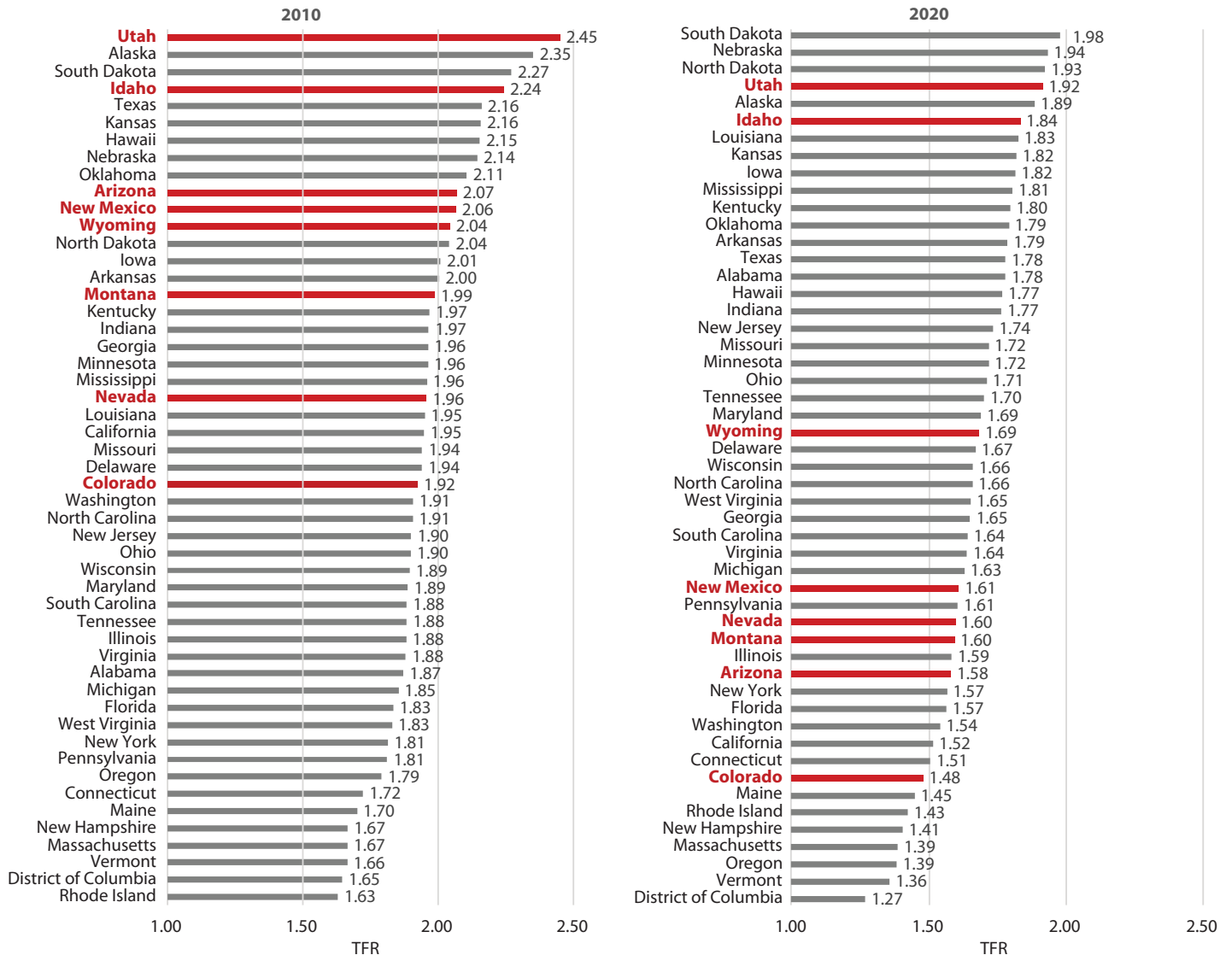
Despite declining from 2.45 to 1.92, Utah maintained the highest fertility rate within the Intermountain West over the entire decade (see Figure 6). However, this decline resulted in

Figure 6: State Total Fertility Rates in the Intermountain West, 2010-2020



Source: National Center for Health Statistics

Figure 7: State Total Fertility Rates Ranked, 2010 and 2020



Note: All states in red are Intermountain West states
Source: National Center for Health Statistics

a drop nationally from the highest fertility rate to the fourth highest. Idaho has the second highest fertility rate in the division but did not decline as sharply as Utah over the decade, closing the gap between the two states' fertility rates between 2010 and 2020. Colorado maintained the lowest fertility rate within the division over the entire decade, declining from 1.92 to 1.48.

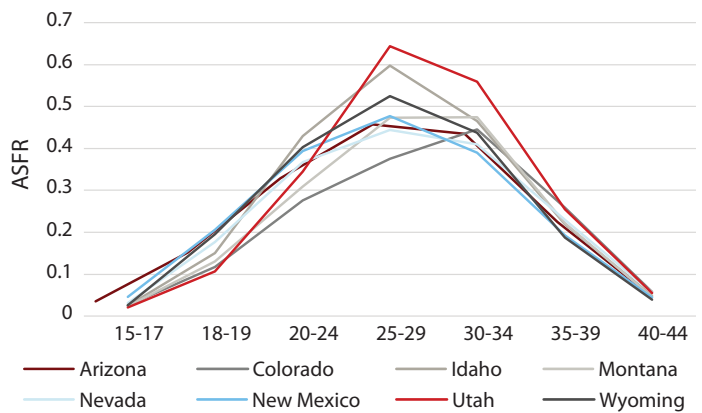
Figure 7 details the ranking of all TFRs in the nation for 2010 and 2020, with Intermountain West states highlighted in red. In 2010, most states in the region clustered in the top third of all states. By 2020, Utah and Idaho remained high in the national rankings (4th and 6th), with most Intermountain West states now clustered in the bottom third of all TFRs.

Arizona saw the largest drop in its TFR and national ranking, moving from the 10th highest fertility rate in 2010 to the 38th highest in 2020. New Mexico is closely behind, dropping from 11th highest fertility in 2010 to 33rd highest in 2020.

Age Specific Fertility Rates

Fertility rates by age can vary across states, even among those in the same division. Utah may have the highest TFR in the Intermountain West, but that pattern doesn't hold for every ASFR. Utah's ASFRs are generally higher in ages 25-49 but are very low or in the middle of the rankings from ages 15-24 (see Figure 8). Colorado has a unique fertility curve amongst the

Figure 8: Age Specific Fertility Rates in the Intermountain West, 2020

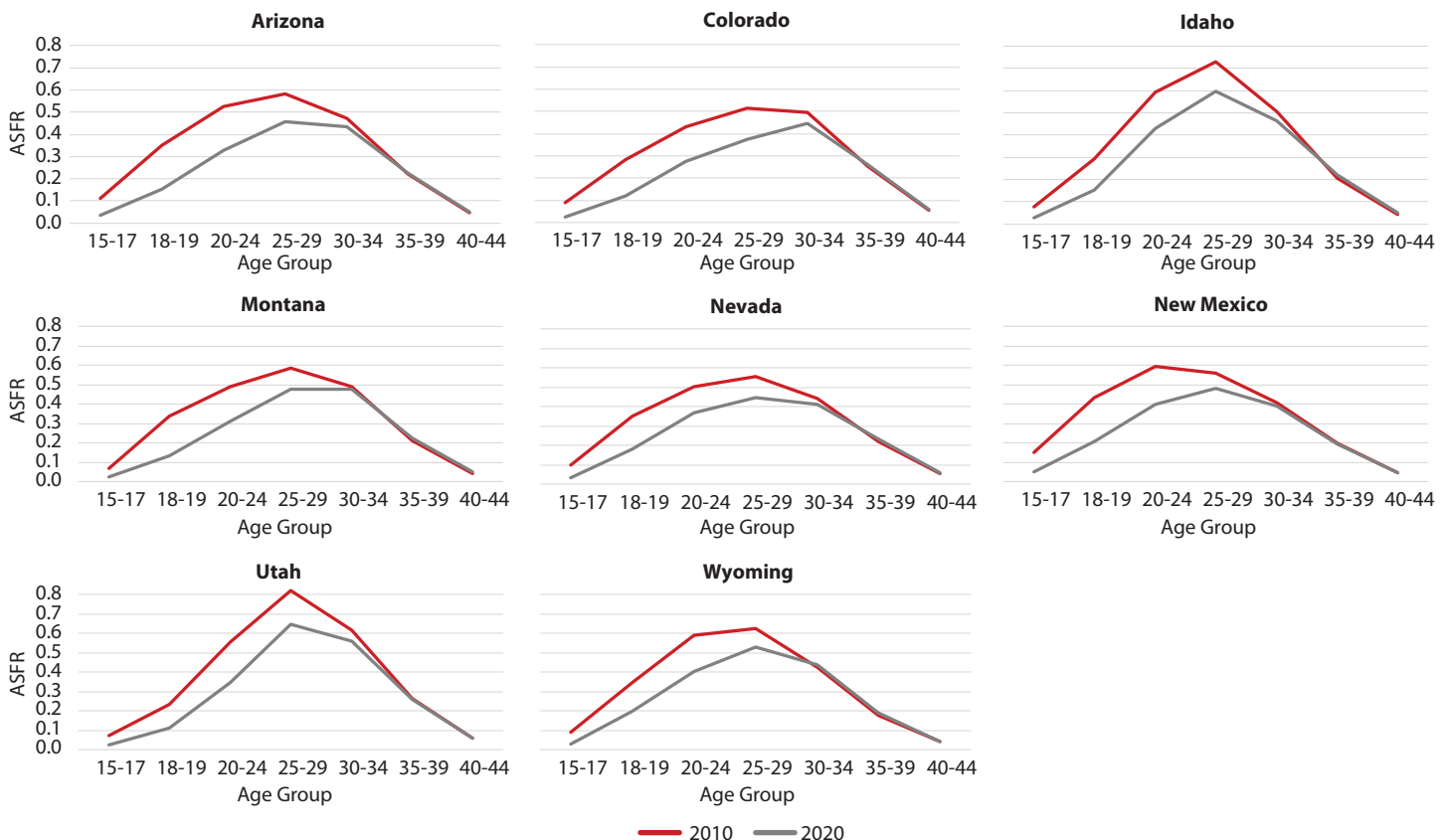


Source: National Center for Health Statistics

Intermountain West states, with its peak fertility occurring in the 30-34 age group, rather than the 25-29 age group like the other Intermountain West states. This mirrors a fertility pattern much more common in the coastal divisions like New England and the Middle Atlantic.

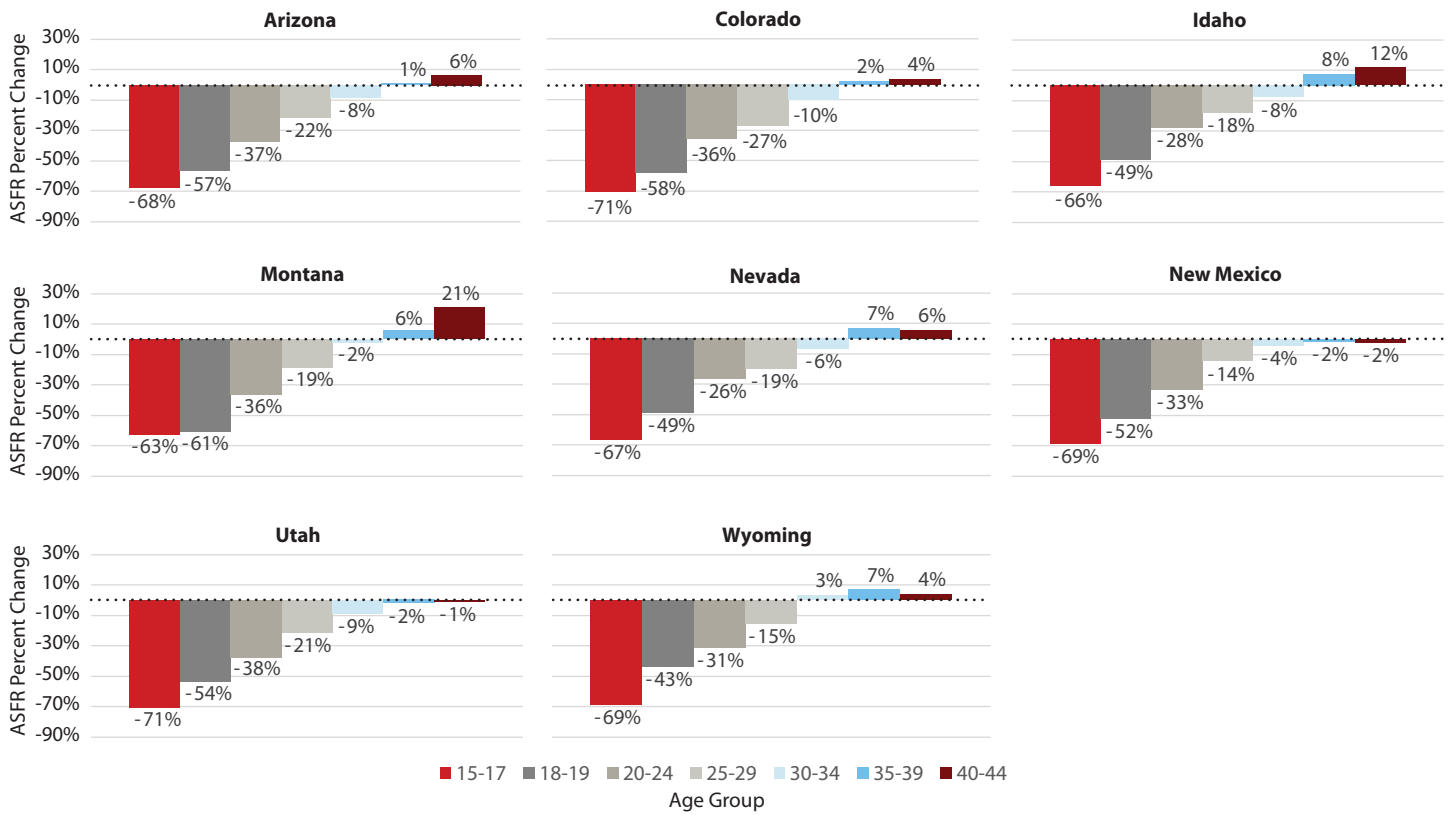
Figure 9 shows the ASFRs in each Intermountain West state for 2010 and 2020, illustrating the standard drop in ASFRs for ages 15-29 across the division. Fertility for the older age groups

Figure 9: Age Specific Fertility Rates in the Intermountain West, 2010 and 2020



Source: National Center for Health Statistics

Figure 10: Age Specific Fertility Rate Percent Changes in the Intermountain West, 2010-2020



Source: National Center for Health Statistics, calculations by Kem C. Gardner Policy Institute.

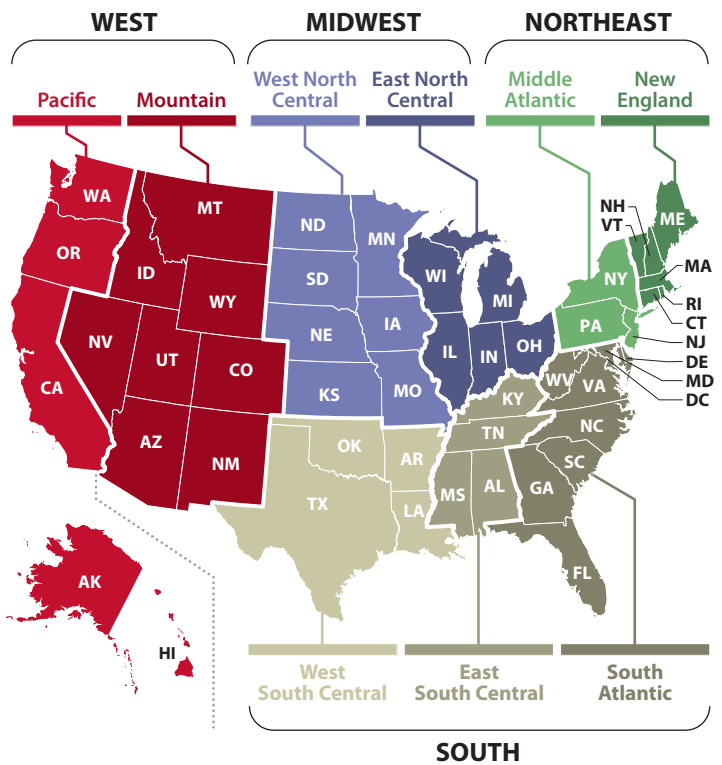
has remained mostly unchanged or even increased slightly, indicating that women are having fewer children or delaying childbearing until they are older.

Figure 10 calculates the percentage change in ASFRs across all Intermountain West states between 2010 and 2020. All states have very similar declines in the younger ages, experiencing up to 70% declines in the teen rates but declining more gradually as fertility moves into subsequent age groups. The last age group to see a fertility reduction is 30-34 (except for Wyoming), ranging from 10% to 2.5% declines across the remaining eight states.

Only two of the eight states do not have increased fertility in the two oldest age groups —Utah and New Mexico. It is unclear why this is the case. Still, this older age fertility stagnation and sharply decreasing fertility in the under 30 population contribute to Utah and New Mexico’s higher TFR declines than other states in the Intermountain West.

It is also important to note that the ASFRs from ages 15-17, 18-19, and 40-44 are very low. Small absolute changes in these rates can result in large percentage changes, just as large absolute changes in the higher fertility ages such as 20-24, 25-29, and 30-34 can result in much more moderate percentage changes. If these differences were considered in terms of absolute change, peak differences would be apparent in the primary childbearing ages rather than the young ages.

Figure 11: Census Bureau Regions and Divisions



Endnotes

1. Osterman, M.; Hamilton, B.; Martin, J.; Driscoll, A.; Valenzuela, C. (2022). Births : final data for 2020. National Vital Statistics Reports; vol 70 no 17. Hyattsville, MD: National Center for Health Statistics. DOI: <https://dx.doi.org/10.15620/cdc:112078>
2. Harris, E. (2022). Blog: Utah's 2020 Fertility Update: How Low Can it Go? Kem C. Gardner Policy Institute. Retrieved from <https://gardner.utah.edu/blog-utahs-2020-fertility-update-how-low-can-it-go/>
3. Hamilton, B.; Martin, J.; Osterman, M. (2022). Births: Provisional Data for 2021. Vital Statistics Rapid Release; no 20. Hyattsville, MD: National Center for Health Statistics. DOI: <https://dx.doi.org/10.15620/cdc:116027>
4. Total fertility rates can be calculated as a point in time measure (period fertility) or for a completed time period (completed or cohort fertility). Most TFR discussions, including those in this report, reference the period TFR which does not account for delays in childbearing that might result in births occurring later in life. This can ultimately lead to higher completed fertility rates for a cohort than the current period TFRs.
5. OECD (2022), Fertility rates (indicator). doi: 10.1787/8272fb01-en (Accessed on 05 July 2022)

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