

The Economic Role of Paid Child Care in the U.S.

A Report Series — Part 2: Labor Force Participation

April 2022



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Executive Summary

Paid Child Care and Labor Force Participation

This is the second report of a four-part series related to use of paid child care in the U.S. and the labor force participation of mothers. The first report focused on the use of paid child care, what percent of household income is spent on child care for those families who pay for it, and what characteristics are associated with families who pay for child care. This second report examines labor force participation in greater detail to better understand labor force attachment for mothers with children over time, as well as trends across gender, race, marital status, and women with and without children, to gain a better understanding of labor force trends in which mothers with children are a subset.

The ability of many working parents to participate in the labor force is highly dependent upon access to paid child care. Paid care has historically been used by working parents for approximately 20% of children in the U.S. under the age of 15.

The use of paid care is most closely associated with the labor force participation of mothers. Mothers traditionally perform most of the primary care duties for children, especially for younger children. Hence, the use of paid child care is closely tied to the decision of mothers to enter or exit the labor force. At the state level, the share of children in paid child care is highly correlated with the share of mothers participating in the labor force.

This report examines both long- and short-run trends in U.S. labor force participation. The two primary measures of labor force participation are defined and discussed, and key trends are examined. Many of the key labor force trends examined are related to the role of women in the labor force, particularly women with children. The influence of sex, race, income, and marital status on the participation rate is also examined, along with the variation in participation rates across the states.

How is Labor Force Attachment Measured?

Two primary measures of the degree of labor force involvement, or attachment, are used throughout the report. The labor force participation rate is the most widely cited measure and is calculated by dividing the number of persons in the labor force (either employed or unemployed) by the population. In other words, it captures the share of the population¹ that is either working (employed) or actively seeking work (unemployed). The inclusion of the unemployed is the key characteristic of the participation rate. This feature makes the labor force participation rate smooth-

er and far less volatile over time because it is designed to measure labor force involvement whether workers are employed or not.

An alternative measure of labor force attachment drops unemployed workers from the labor force and simply measures the ratio of employment to population. This measure is typically referred to as the employment to population ratio, or simply the employment ratio. The employment ratio focuses on the more basic notion of measuring the share of the population that is actively engaged in work. The employment ratio better reflects the behavior of employment in the short run and provides a far clearer view of just how volatile employment in the U.S. can be on a year-to-year basis.

Which measure is better? The better measure is the one that is more appropriate for the question or task at hand, with both used throughout the report.

What are the Key Long-Run Trends in U.S. Labor Force Attachment?

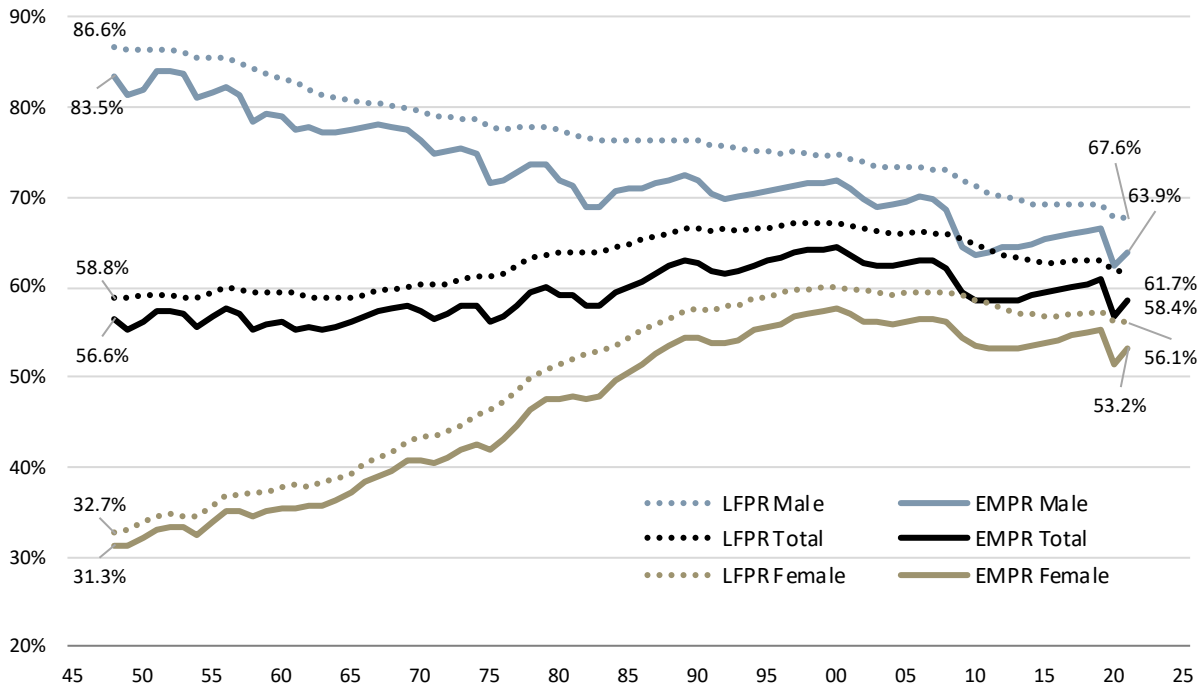
The U.S. labor force rose from 1948 to 2000, and then entered a period of decline to the present. The period with the fastest gains in overall U.S. participation extends from the mid-1960s to the late 1990s. These gains reflect the mass influx of women into the labor force in the period. The female rate surged from about 33% in 1948 to a peak of 60% by the mid-1990s.

Male vs. Female Participation

Participation rates for men have been locked in a long-run structural decline for approximately 75 years. As the long-run growth in female participation stalled in the late 1990s, both male and female rates contributed to a declining overall rate. The overall rate peaked at a post-War high of 67.1% in 1997.

The use of paid care is most closely associated with the labor force participation of mothers.

Measures of U.S. Labor Force Attachment by Sex



Note: All persons ages 16 and over. LFPR is labor force participation rate; EMPR is employment-population ratio. The estimates are annual averages of monthly values. The employment ratio better captures the magnitude of employment declines in major recessions such as the 1973-75, 1980-82, 2007-09, and 2020 time periods relative to the participation rate.
 Source: Bureau of Labor Statistics – Current Population Survey.

Overall Decline in Labor Force Attachment

Overall labor force attachment began to decline in the U.S. around 2000 and has decreased steadily since. The U.S. economy is now facing a structural decline in both male and female participation rates.

- Since 2000, the participation rate for the overall U.S. labor force has dropped from 67.1% in 2000 to 61.7% in 2021, a 5.4-percentage-point decline. The employment ratio similarly dropped from 64.4% in 2000 to 58.4% in 2021, a decline of 6 percentage points.
- Most recently, the overall rate dropped to only 61.7% in 2020 and 2021, the lowest overall participation rate for the U.S. labor force since 1976, when women’s rates were only about 45%.
- A return to the 2000 participation rate would equate to 14.1 million additional persons in the labor force in 2021.

The falling overall labor force participation rate has become an acute economic policy concern in the U.S. over the past few decades.

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Male vs. Female Participation in Recessions

Men have historically experienced far larger drops in employment during recessions than women. However, male and female outcomes were far closer to proportional during the recent pandemic-induced decline in labor force attachment. The employment ratio declined by 2.7 percentage points for men versus 2.2 percentage points for women (2.4 percentage points overall) between 2019 and 2021.

Changing labor market outcomes for both men and women suggest several policy concerns:

- Both male and female rates are now declining at approximately the same pace. This suggests that the same structural factors that have long weighed on male participation rates may now be driving a similar decline in female participation rates.
- Workers of both sexes are now showing a lower overall propensity to participate in the labor force. This suggests that policy concerns over declining participation

rates in the U.S. now extend equally to both sexes.

- The labor market is becoming just as volatile for women as men during recessionary periods. It also suggests that the use of paid child care as a mechanism allowing more women to participate in the labor force may be undergoing an important shift tied to changing labor market fundamentals.

Labor Force Gaps Faced by Women and Mothers

An ongoing policy concern is the long-run gap in participation experienced by women, especially mothers.

- In 2020 during the pandemic, the male participation rate of 67.7% was 11.5 percentage points above the 56.2% rate for females. The gap remains substantial but is the smallest gap in the post-War period.
- A stall in progress in closing the gap during the past two decades suggests that the current roughly 10 percentage point gap between the sexes may represent an effective floor.
- There is also a large and persistent gap in the participation rate between fathers and mothers. Beginning with the peak in female participation rates in the late 1990s, the gap has hovered between 22 and 25 percentage points.

Labor force participation among women of all races has mostly converged with the exception of Black women who exceed the average by 2.6 percentage points.

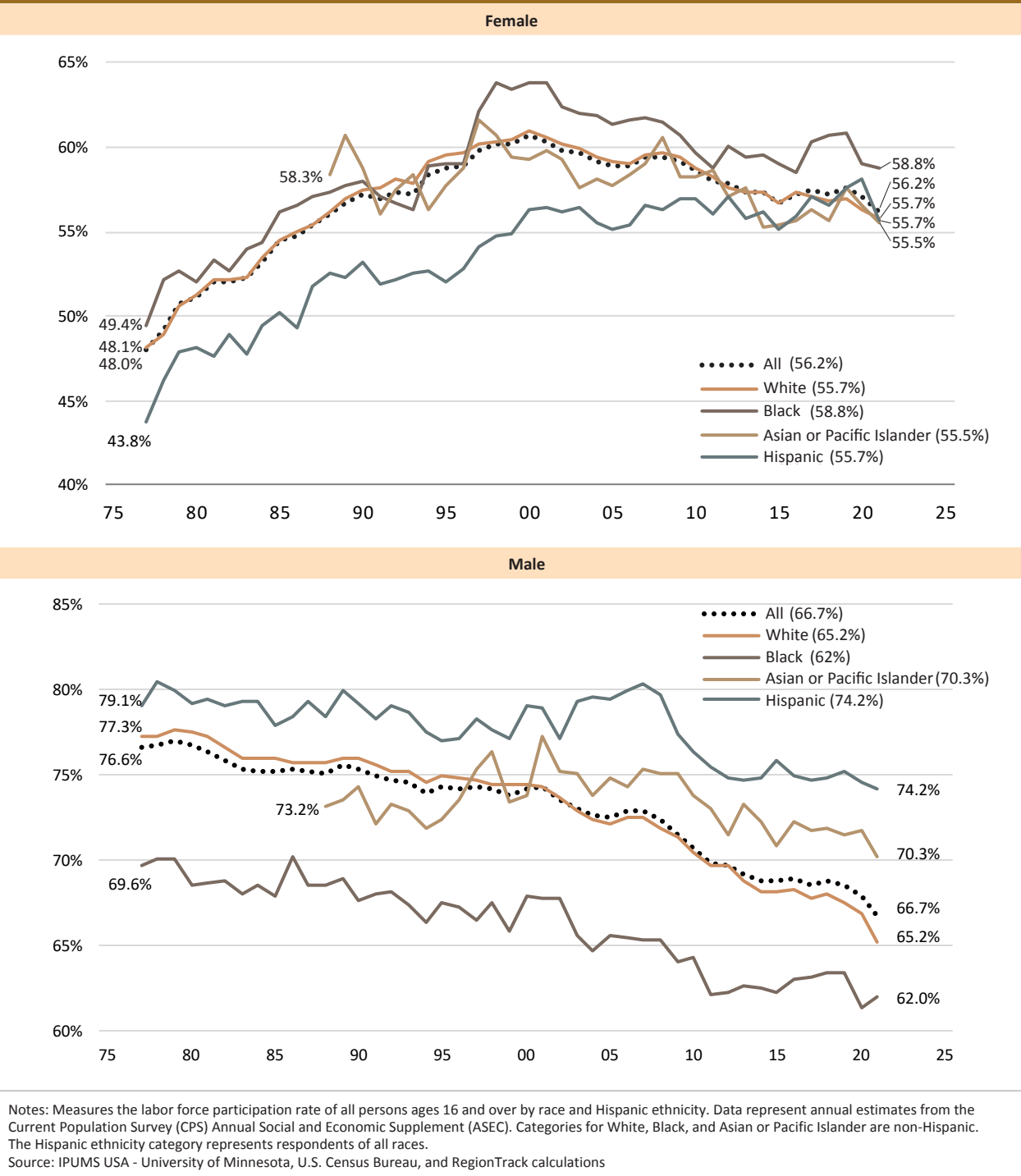
The employment ratio declined by 2.7 percentage points for men versus 2.2 percentage points for women (2.4 percentage points overall) between 2019 and 2021.

Labor Force Participation by Sex, Race, and Income

There are several key long-run trends in labor force participation along the dimensions of race and sex:

- The ongoing general decline in overall U.S. participation rates since 2000 is visible across both sexes and nearly all races.
- The overall participation rate for all workers closely follows the rate for White workers, both male and female. This reflects the relatively large size of the population of White respondents in the U.S., with slightly more than 60% reporting as white non-Hispanic in 2021.
- Male participation rates for all race groupings have generally declined across the full period. Men identified as Asian or Pacific Islanders posted gains in the 1990s before declines began around 2000.
- For females, participation rates for all races follow the general trend of rising rates through 2000, followed by a slowing or decline from 2000 to the present. Rates for White, Black, and Asian or Pacific Islander female respondents have fallen steadily since 2000.
- Black participation rates are highest among females and have been well above overall average rates and White rates since the late 1990s. In fact, Black females represent the only major female race group with participation rates above the overall average. The gap between Black females relative to White females has averaged nearly 2.5 percentage points since 2000.
- Labor force participation among women of all races has mostly converged with the exception of Black women who exceed the average by 2.6 percentage points.
- All groups of men by race and ethnicity have higher labor force participation rates than women. The smallest male-female participation gap is for Black men (3.2 percentage points gap in 2021). The White gap was slightly larger at 5 percentage points in 2021. The largest male-female participation gap is for Hispanics of all races (18.5 percentage points in 2021).

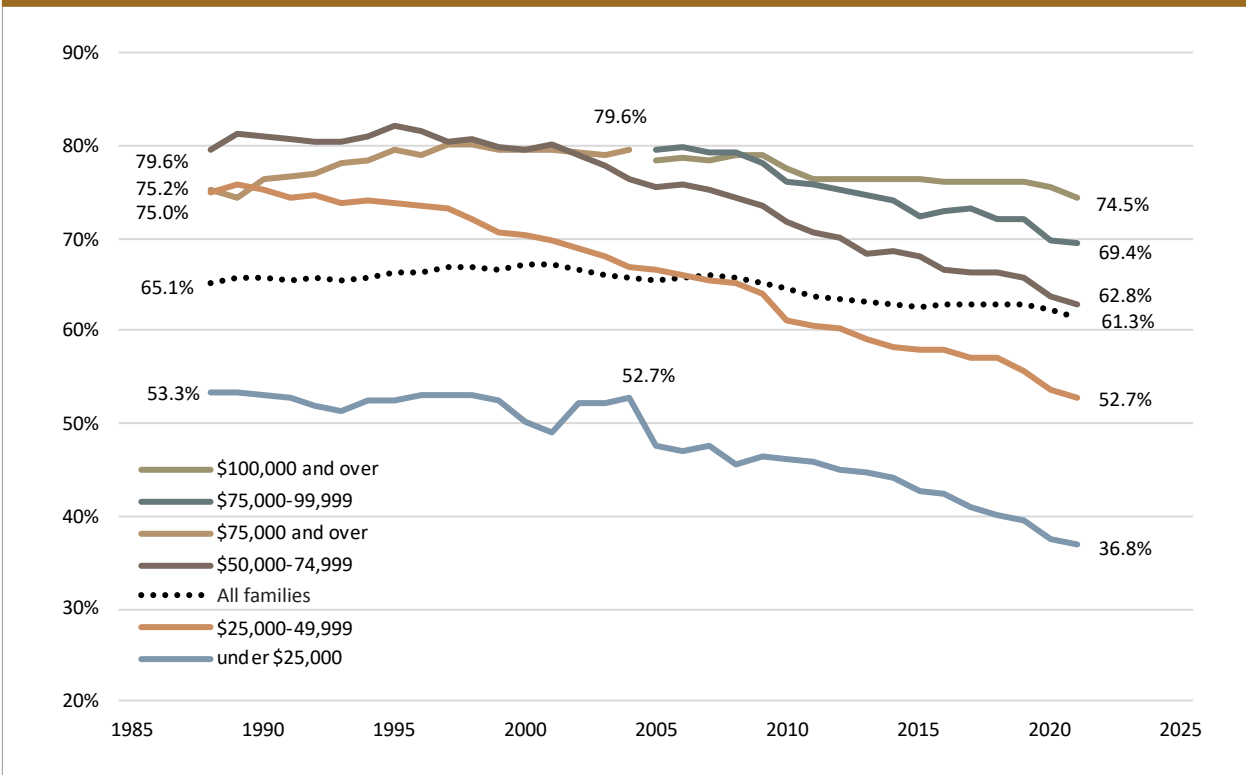
Labor Force Participation Rate Ages 16+ by Sex and Race



Three dominant trends are present in the U.S. data on labor force participation by income bracket.

- Participation rates remain far higher for those in the highest income families. Based on the two extreme income brackets, the participation rate for persons in families with income of \$100,000 or more (74.5%) is more than double the rate for those in families with income under \$25,000 (36.8%).
- Consistent with the national trend, participation rates are falling across all income groups.
- The long-run decline in participation has generally been greatest for those in lower income households.

U.S. Labor Force Participation Rate by Family Income Bracket



Notes: Persons ages 16 and over. Data represent annual point-in-time estimates derived from the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC). Brackets are based on average family income. Data on the two highest income brackets are available beginning in 2005. The \$100,000 and over bracket is combined with the \$75,000-99,999 bracket in the CPS prior to 2005. Source: IPUMS USA - University of Minnesota, U.S. Census Bureau, and RegionTrack calculations

The ongoing decline in U.S. labor force participation is spread broadly across nearly all segments of the labor force by sex, race, and income. Trends within each demographic measure suggest that the greatest policy concerns now center on declining participation for both sexes, persistent male-female and father-mother participation gaps, some racial gaps, and steep participation declines in the lowest income brackets.

How Is Maternal Labor Force Participation Affecting Paid Child Care Usage?

The labor force participation of women and mothers continues to be influenced by important trends in the population of women of working and childbearing age.

1. The population of women ages 18 to 54 stalled at about 78 million in the past decade, limiting the natural growth in the number of working mothers.
2. The number of mothers ages 18 to 54 with a child under the age of 15 stalled more than a decade ago and has declined by 2.2 million (9.3%) since 2007. The number of mothers with a child under the age of 5 declined by 1.1 million (11.3%) since 2007. This has directly reduced the demand for all forms of child care.
3. The share of all women ages 18 to 54 who are mothers with a child under age 15 continues to fall, reaching 37% in 2021 for those with a child under 15 and 15% for those with a child under 5. This decline in the share of women who are mothers reflects the extended period of falling fertility rates in the U.S.
4. The labor force participation rate for women ages 18 to 54 has fallen over the past two decades for all subgroups of women except mothers with young children under 5. Mothers with young children represent one of the strongest sources of new entrants to the labor force in recent years.
5. The number of women ages 18 to 54 with no children at home continues to rise rapidly, reaching 38.6 million in 2021. This represents almost half of all women ages 18 to 54 and is weighing on overall female participation rates.
6. After experiencing falling labor force participation rates from 2000 to 2010, women with no children showed strong signs of returning to the labor force prior to the pandemic. Their participation rates declined far more steeply in 2020 and 2021 in response to the pandemic than participation rates for mothers.



The findings on female and maternal labor force participation suggest several findings relevant for paid child care usage:

1. The pool of women ages 18 to 54 of both work and child-bearing age continues to diminish in size. Given trends of a declining birth rate and a declining share of women having children, the underlying demand for paid child care is poised to fall in the future.
2. Mothers (versus women with no children in the household) now offer far less potential as a source of new labor force entrants. Mothers have nearly closed the overall participation gap on women with no children. Mothers with older children (ages 5-14) already have higher labor force participation rates than women with no children. Mothers with young children have only a 7.6% gap remaining in 2021, down from more than 30% in the late 1970s. This suggests that the efficacy of using paid child care to attract mothers to the labor force may be diminished relative to attracting women with no children.
3. The group of unmarried mothers offers far less potential as a source of new labor force entrants than married mothers. Married mothers outnumber unmarried mothers more than two to one and have lower participation rates. Following welfare reform measures in the 1990s, unmarried mothers have since raised their labor force participation rate above that of married mothers. Child care support can help both married and unmarried mothers participate in the labor force. Because labor force participation is higher for unmarried mothers compared to married mothers, it could be that child care assistance could be used to support more married mothers to work.
4. Mothers with young children posted the strongest gains in labor force participation among all major groups of women the past two decades. While participation for mothers with older children has fallen along with the overall rate, mothers with younger children have offset much of the decline. A continuation of this trend suggests that demand for paid care will be relatively stronger for mothers with younger children versus those with older children.
5. Mothers with young children are not the underlying cause of the ongoing decline in female labor force participation in the U.S. Instead, it is women with no children who are dropping out of the labor force far faster than women with children and have more than offset any gains by mothers with younger children in recent years.

Marital Status and the Labor Force Participation of Mothers

Labor force participation for mothers is also closely tied to marital status. Approximately two-thirds of all mothers ages 18 to 54 with a child under the age of 15 are married (Figure 10). However, those in the far smaller group of unmarried mothers are now more likely to participate in the labor force, with a participation rate roughly 2.5 percentage points higher relative to married mothers the past two decades.

How Do Labor Force Participation Rates Vary Across the States?

State labor markets are not precise microcosms of the national labor market. Participation rates for various segments of the labor force vary greatly across the states. Participation rates also vary greatly within a state. This variation suggests that any policy efforts within a state to raise labor force participation rates must consider the unique characteristics of the labor market in each state.

There are stark differences in labor force participation rates across the states:

- Overall participation rates in 2019 vary from a low of 72.5% in West Virginia to 86.5% in Wisconsin.
- Thus, state rates range about 7 percentage points above and below the U.S. participation rate of 79.1% in 2019.
- Iowa has the highest rate for males (90.7%), while Mississippi has the lowest male rate (75.9%), a range of about 15 percentage points.
- South Dakota has the highest rate for females (83.7%), while West Virginia has the lowest female rate (68.0%), a range of about 16 percentage points.
- There is a wide divergence in the rankings between the sexes in many states. For example, the greatest variation in 2019 is found in Idaho, where males rank fifth in participation but females rank forty-first. Conversely, Maine ranks forty-sixth for males but thirteenth for females, while Massachusetts similarly ranks forty-fourth for males and eleventh for females.
- The participation rate of mothers is more volatile across the states than both female rates and overall rates. Wisconsin has the highest participation rate for working mothers with children ages 0 to 4 (84.6%), while Alaska has the lowest (56.0%). South Dakota has the highest participation rate for mothers with children ages 0 to 14 (86.4%), versus a low of only 63.1% in Alaska.
- Nationally, unmarried mothers are far more likely to be attached to the labor force than married mothers. The participation rate is 3.3 percentage points higher for unmarried mothers with a child aged 0 to 4, and 5.7 percentage points higher for unmarried mothers with a child aged 0 to 14.
- Several states have a significantly higher share of unmarried mothers in the labor force. Those with a rate at least 10 percentage points higher for unmarried versus married mothers with a child aged 0 to 4 include Arizona, Colorado, Delaware, Georgia, Idaho, Illinois, Indiana, Minnesota, Nevada, New Mexico, Rhode Island, Wisconsin, and Wyoming.
- Both the overall participation rate and the female participation rate in most states is closely correlated with the participation rate of women with no children in the household.

Reports in the Series

This report is the second of a four-part series related to use of paid child care in the U.S. and labor force participation of mothers. The first report focused on the use of paid child care and related characteristics of families using paid child care. This second report examines the labor force participation of mothers in greater detail. A third report will explore economic growth associated with increasing levels of maternal labor force participation and access to paid child care. The final report in the series will provide a data primer for those interested in learning more about the U.S. Census Bureau's Current Population Survey data utilization.

More detailed tables, figures, bar charts, and state information can be found on CED's web site at <https://www.ced.org/paidchildcare>. The data can be filtered by year, variable (such as labor force participation rate of mothers with young children or children age 0-14), and by state.

Trends in U.S. Labor Force Participation

The labor force participation of parents is a key factor underlying the use of paid child care services. Paid care has historically been used by working parents for approximately 20% of children in the U.S. under the age of 15.

The participation of many working parents in the labor force is highly dependent upon ready access to paid child care. Access to paid care is most closely associated with the labor force participation of mothers. Mothers traditionally perform most of the primary care duties for children, especially for younger children. Hence, the use of paid child care is believed to be closely tied to the decision of mothers to enter or exit the labor force. Across the states, the share of children in paid child care is highly correlated with the share of mothers participating in the labor force.

This report examines both long- and short-run trends in U.S. labor force participation. The two primary measures of labor force attachment are defined and discussed, and key trends are examined. Many of the key labor force trends examined are related to the role of women in the labor force, particularly women with children. The influence of sex, race, income, and marital status on the participation rate is also examined, along with the variation in participation rates at the state level.

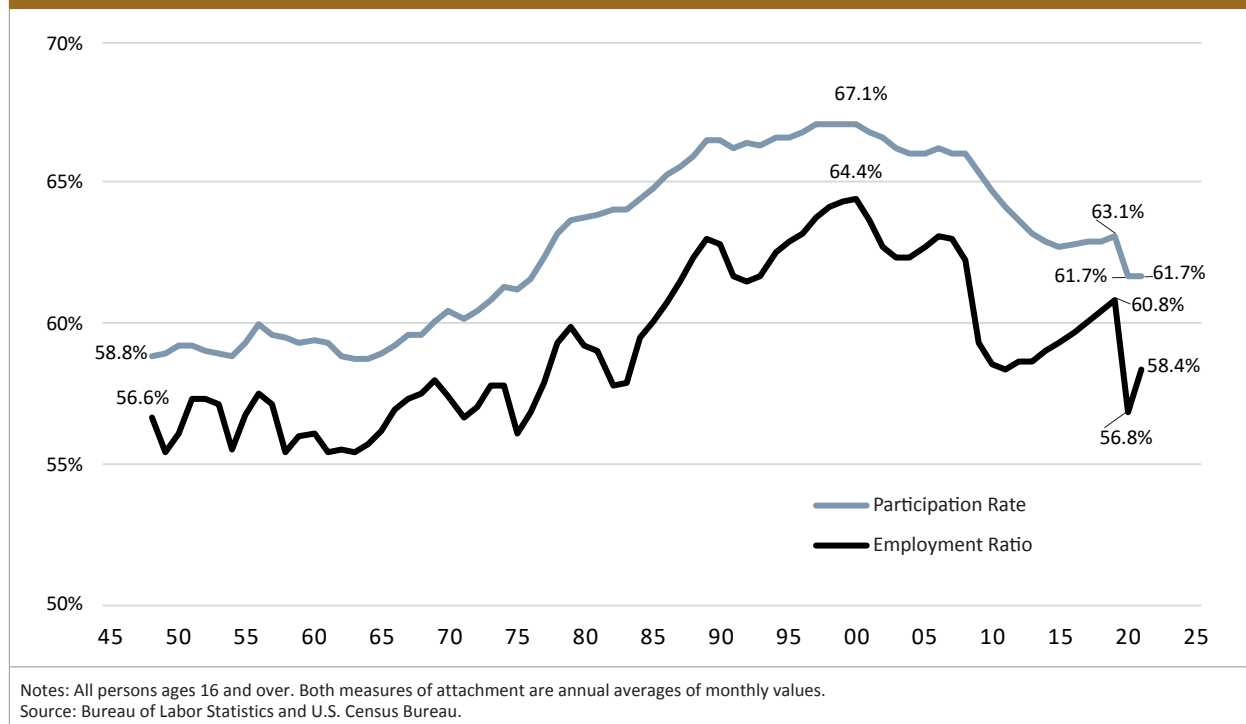
Measuring Labor Force Attachment

There are two primary measures of the degree of labor force involvement, or attachment, of population groups within a region. The labor force participation rate is the most widely cited measure and is calculated by dividing the number of persons in the labor force (either employed or unemployed) by the population.² In other words, it captures the percentage of the population that is either working (employed) or actively seeking work (unemployed). The inclusion of the unemployed is a key characteristic of the participation rate.

An alternative measure of labor force attachment drops unemployed workers from the labor force and simply measures the ratio of employment to population. This measure is typically referred to as the employment to population ratio, or simply the employment ratio. The employment ratio focuses on the more basic notion of measuring the share of the population that is actively engaged in work.

Participation Rate or Employment Ratio? Figure 1 compares the historical path of both the participation rate and employment ratio in the U.S. in the 1948 to 2021 period. Both measures capture a similar long-run trend in labor force attachment but exhibit much different economic be-

Figure 1. Primary Measures of U.S. Labor Force Attachment



havior in the short run. The employment ratio is far more volatile as it reflects the year-to-year volatility of employment during periods of expansion and recession.

The labor force participation rate is far less volatile because it is designed to measure labor force involvement whether workers are employed or not. During recessions, the shift in the status of workers from employed to unemployed results in no net change in the labor force, which in turn results in no change in the participation rate. This smooths much of the cyclical variation in the series over time. Only workers who stop searching for work entirely are captured as a change in the labor force and, consequently, in the participation rate. Thus, the labor force participation rate can provide a misleading suggestion of smoothness and stability in the workforce during periods of recession.

The employment ratio, on the other hand, is often the preferred measure of labor force attachment in economic research because the level of employment is a basic determinant of the level of both economic output in the economy and earned income in the household sector. Unemployed workers typically generate neither economic output nor earned income, at least in the formal economy.

The employment ratio also provides a clearer view of how volatile employment in the U.S. can be on a year-to-year basis. The employment ratio captures the magnitude of the especially steep drop in employment during the 1980, 1981-82, 2007-09, and 2020 recessions relative to other recessions. In contrast, the participation rate suggests far more stability in the labor force in these periods. The changing gap between the two measures reflects the expansion and contraction of the unemployment rate as the economy moves through the business cycle. A wider gap typically reflects recessionary conditions of falling employment and rising unemployment.

Trends in U.S. Labor Force Attachment. U.S. labor force participation increased from 1948 through 2000 and was then followed by a period of decline to the present. The period with the fastest gains in participation extends from the mid-1960s to the late 1990s. These gains reflect the mass influx of women into the labor force.

Declining labor force attachment has become an acute economic policy concern in the U.S. over the past two decades. Both measures of labor force attachment peaked in the U.S. around 2000 and have decreased steadily since. The participation rate for the overall U.S. labor force dropped from 67.1% in 2000 to 61.7% in 2021, a 5.4 percentage point decline. The employment ratio similarly dropped from 64.4% in 2000 to 58.4% in 2021, a decline of 6 percentage points. A return to the 2000 participation rate would equate to 14.1 million additional persons in the labor force in 2021.

The recent steep decline in both measures of attachment during the pandemic period intensified concerns over growing long-run tightness in the U.S. labor market. The employment ratio dropped 4 full percentage points from 60.8% in 2019 to 56.8% in 2020, reflecting the steep decline in employment in the period. The employment ratio rebounded sharply to 58.4% in 2021 as employment growth quickly resumed in the initial stages of the recovery. The labor force participation rate fell by only 1.4 percentage points from 2019 to 2020 but showed little sign of rebound in 2021. Both measures of labor force attachment remain near levels last seen in the late 1960s and early 1970s.

Factors Influencing U.S. Labor Force Attachment

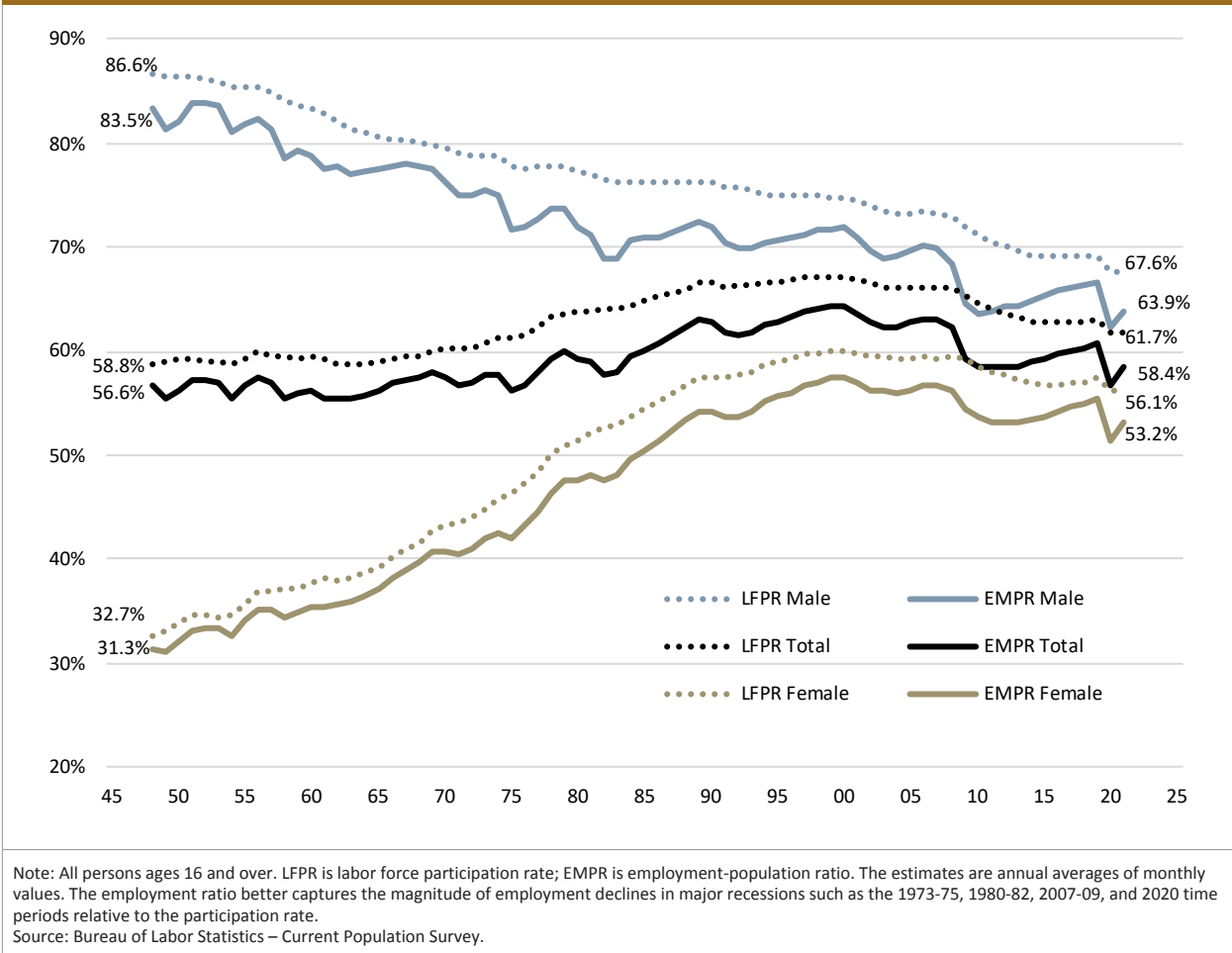
U.S. labor force attachment varies considerably when viewed across several key demographic factors. Both short- and long-run changes continue to take place along the dimensions of sex, race, and income. Related policy concerns include the participation gap between males and females and between fathers and mothers. The influence of each of these factors on labor force participation is reviewed in this section.

Male vs. Female Labor Force Participation

Major trends in overall U.S. labor force participation the past several decades have been closely tied to trends in the participation of men versus women. Figure 2 compares the historical path of both the participation rate and employment ratio for both men and women in the 1948 to 2021 period. The U.S. has long faced concerns over falling male participation rates, but policymakers are now focused on the current simultaneous decline in both male and female rates.

Structural Decline in Male Participation. Declining male participation is not a new problem. Participation rates for men have been locked in a long-run structural decline for approximately 75 years. Nearly 87% of men ages 16 and over were in the labor force in 1948, but the share has dropped steadily since, falling below 68% for the first time in 2020 during the pandemic. The decline is equivalent to two of every ten men dropping out of the labor force in the period. Policymakers have attempted to slow or reverse this decline for decades but have made little tangible progress.

Figure 2. Measures of U.S. Labor Force Attachment by Sex



Peak and Decline in Female Participation. Falling female participation is a far more recent problem that has intensified concerns over the long-declining male participation rate. From the 1940s through the mid-1990s, a steady rise in the female participation rate mitigated concerns over the declining share of men in the labor force. The female rate surged from about 33% in 1948 to a peak of 60% by the late 1990s. In fact, rising female participation more than offset declining male participation and pushed the overall U.S. rate steadily higher. As long-run growth in female participation stalled in the late 1990s, the overall participation rate peaked at a post-War high of 67.1% each year in the 1997 to 2000 period.

Both Male and Female Rates Now Declining. Since the stall in the decline in female participation, the U.S. economy has faced a simultaneous decline in both male and female participation rates. The decline in the overall rate to only 61.7% in 2020 and 2021 during the pandemic represents the lowest overall participation rate for the U.S. labor force since 1976, when women’s rates were only about 45%.

The continued weakness in both male and female participation presents a formidable challenge for federal, state,

and local policymakers. Not only are both male and female rates now declining, but they are also declining at approximately the same pace. This suggests that the same structural factors that have long weighed on male participation rates may now be driving a similar decline in female participation rates.

Male Participation Historically More Volatile. Women and men have traditionally experienced much different labor market outcomes over time. The historical path of the employment ratio illustrates the differing volatility in the labor force outcomes of men relative to women, especially during recessions (Figure 2).

Men have historically experienced far larger drops in employment during recessions than women. For example, note the steep decline in the employment ratio for men following the double-dip recessions in 1980 and 1981-82, but no decline for women. This pattern is typical of recessions prior to the 2001 slowdown, with men experiencing much sharper declines in employment shares than women. Much of the added labor market volatility for men is traced to their relatively larger employment share in blue-collar industries.³ Women have tended to work in industries that are less sen-

sitive to economic cycles and, in turn, produce fewer layoffs during recessions.

The 2001 recession is noteworthy in that it marked the first time in the modern era that the female employment ratio posted steep and extended declines during a recession. Even when the female employment ratio declined briefly in prior recessions (e.g., 1954 and 1974-75), it was far less severe than the decline in male participation. The drop in the female employment ratio was typically only about half as large.

The 2020 pandemic-induced recession is of further note in that both male and female outcomes have been nearly proportional. The employment ratio declined 2.7 percentage points for men versus 2.2 percentage points for women (2.4 percentage points overall) in the two-year period. Much like the convergence in the long-run patterns of male and female participation since the late 1990s, the most recent economic cycle suggests that the labor force attachment of both sexes is now moving in a similar pattern in the short-run as well. We will identify and address such structural factors in the next (third) report in the series about economic growth.

The contrasting use of both the participation rate and the employment ratio to examine labor force attachment illustrates two important findings: 1) workers of both sexes are now showing a lower overall propensity to participate in the labor force, and 2) the labor market is becoming just as volatile for women as men during recessionary periods. This suggests that policy concerns over declining participation rates in the U.S. now extend equally to both sexes. It also suggests that the use of paid child care as a mechanism allowing more women to participate in the labor force may be

undergoing an important shift tied to changing labor market fundamentals.

Female Participation Gap. A related policy concern is the long-run gap between male and female labor force participation rates (Figure 3). Male participation rates have traditionally far exceeded those for females, but the rates have converged considerably since the 1940s. The gap was more than 50% in the late 1940s but dropped steadily to 20% as recently as 1987. Reductions in the participation gap were steady until the late 1990s as female participation rates peaked and gains in the overall rate stalled.

Far less progress has been made the past two decades, with the gap closing by only about 3 percentage points. Most recently in 2021, the male participation rate of 67.6% was 11.5 percentage points above the 56.1% rate for females. This is the smallest female participation gap in the post-War period. Small gains were also made during the pandemic, as the female gap declined slightly from 11.8% in 2019 to 11.5% in 2021.

Floor in the Female Participation Gap? The slowing pace of improvement based on both measures of the female participation gap suggests that further progress may be limited (Figure 3). The stall in progress the past two decades suggests that the current roughly 10 percentage point gap between the sexes may represent an effective floor.

A floor would largely reflect the long-run role played by motherhood in limiting female labor force attachment and a preference by some women for parental care. It could also reflect preferences by women for household production versus market production.

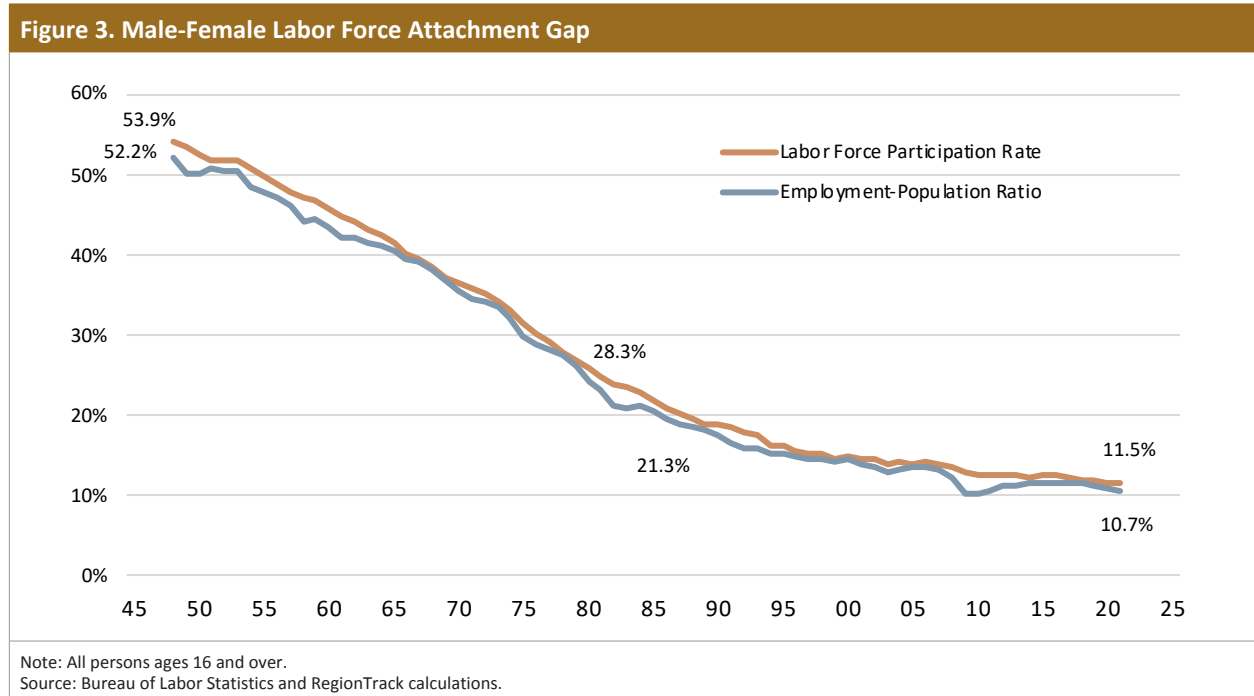
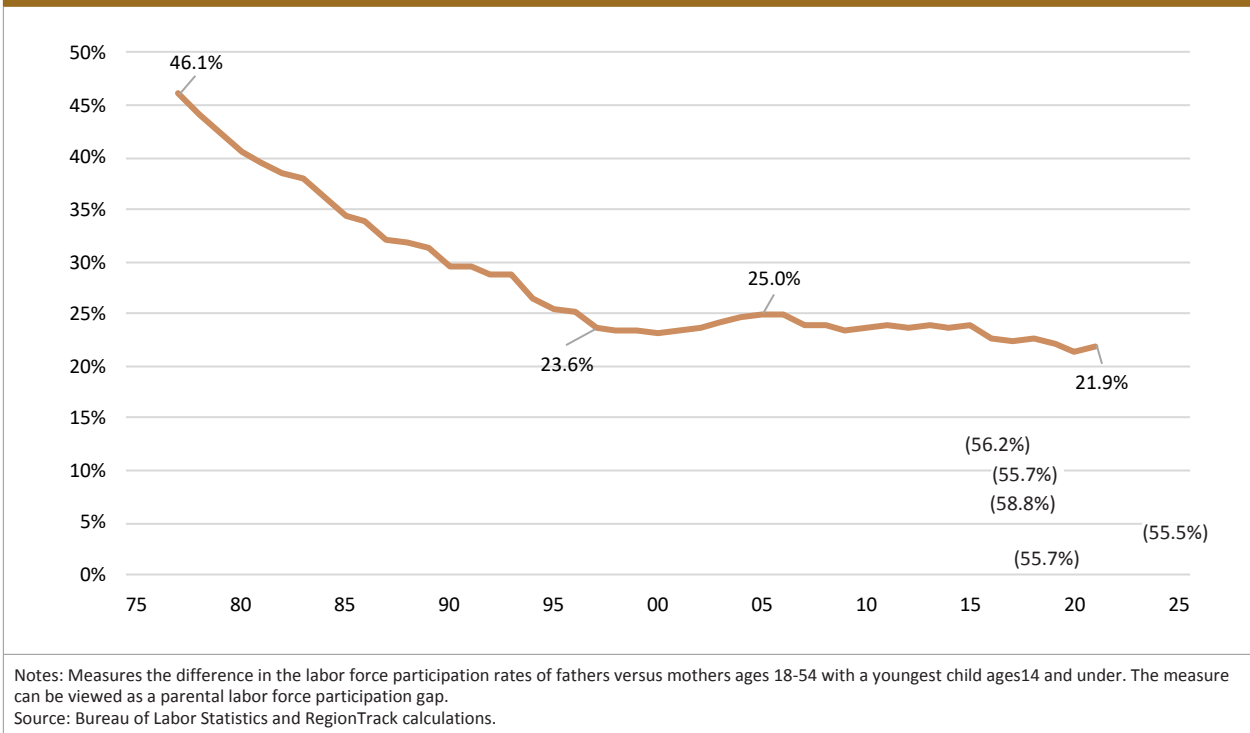


Figure 4. Father-Mother Participation Gap – Parents with Children Ages 0-14



Floor in the Parental Participation Gap. The presence of a floor in the female participation gap is consistent with the floor that emerged in the parental participation gap in the late 1990s (Figure 4). Measured as the difference in participation rates between fathers and mothers with a child ages 14 and under, the parental gap fell by half from 46.1% in 1977 to 23.6% in 1997.

Beginning with the peak in female participation rates in the late 1990s, the gap has since hovered between 22% and 25%. The stability in the gap for more than two decades will likely remain intact until the ongoing downward trends in both male and female participation rates diverge.

Labor Force Participation by Sex and Race

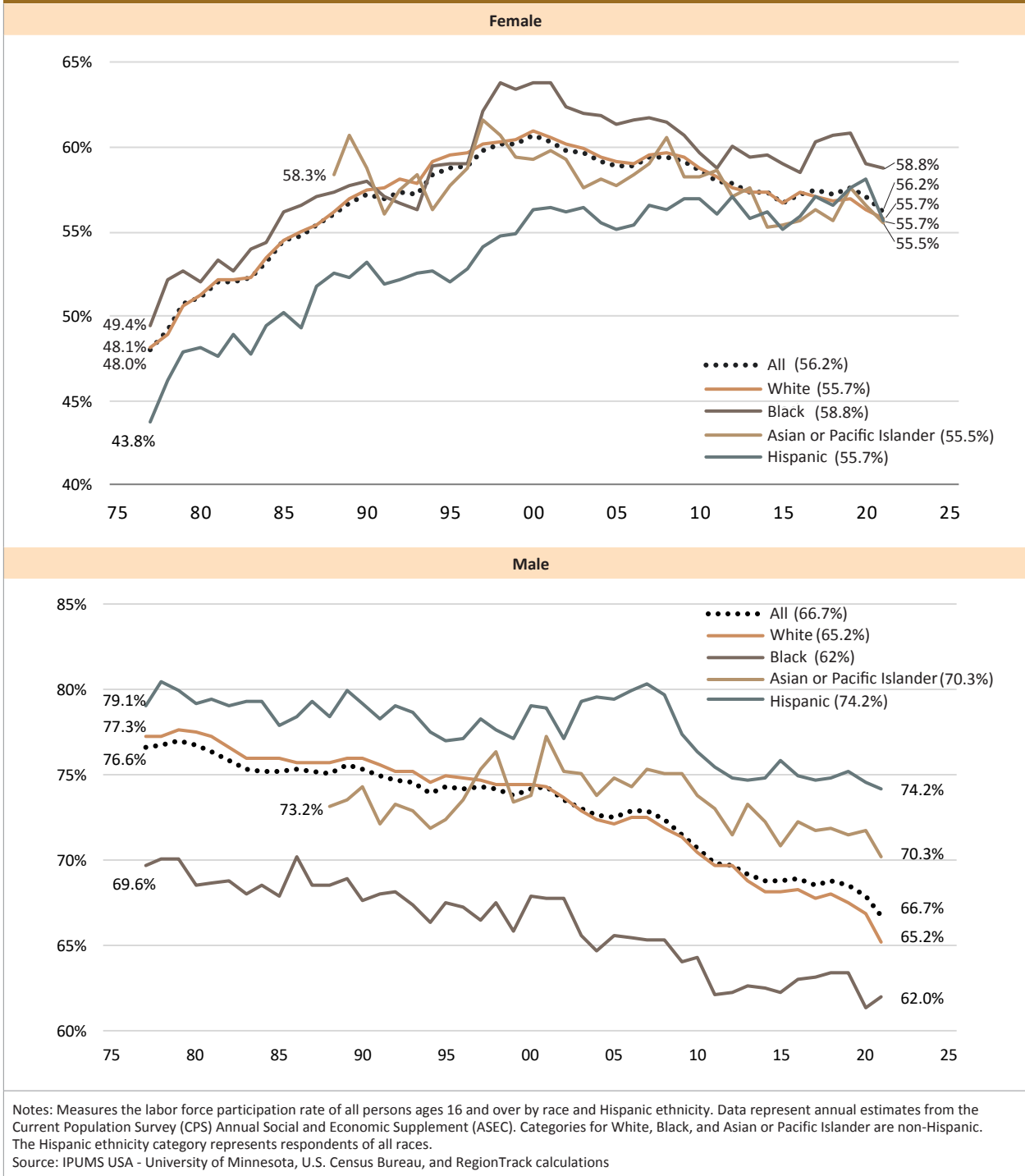
The U.S. continues to experience significant long-run changes in labor force attachment by race. The differences by race are closely intertwined with participation changes by sex. Figure 5 provides annual estimates of labor force participation by race for both sexes in the 1977 to 2021 period.

Estimates are provided for three major race categories of persons identifying as White, Black, and Asian or Pacific Islander. These categories include only non-Hispanic respondents. The group of persons identified as having Hispanic ethnicity in Figure 5 represents all races. The overall measure further includes those identifying as American Indian/Aleut/Eskimo or more than one race.

There are several key findings in the participation data by race and sex:

1. The ongoing general decline in overall U.S. participation rates since 2000 is visible across both sexes and nearly all races.
2. The overall participation rate for all workers closely follows the rate for White workers, both male and female. This reflects the relatively large size of the population of White respondents in the U.S., with slightly more than 60% reporting as white non-Hispanic in 2021.
3. Male participation rates for all race groupings have generally declined across the full period. Men identified as Asian or Pacific Islanders posted gains in the 1990s before declines began around 2000.
4. For females, participation rates for all races follow the general trend of rising rates through 2000, followed by a slowing or decline from 2000 to the present. Rates for White, Black, and Asian or Pacific Islander female respondents have fallen steadily since 2000.
5. Black participation rates are highest among females and have been well above overall average rates and White rates since the late 1990s. In fact, Black females represent the only major female race group with participation rates above the overall average. The gap between Black females relative to White females has averaged nearly 2.5 percentage points since 2000.

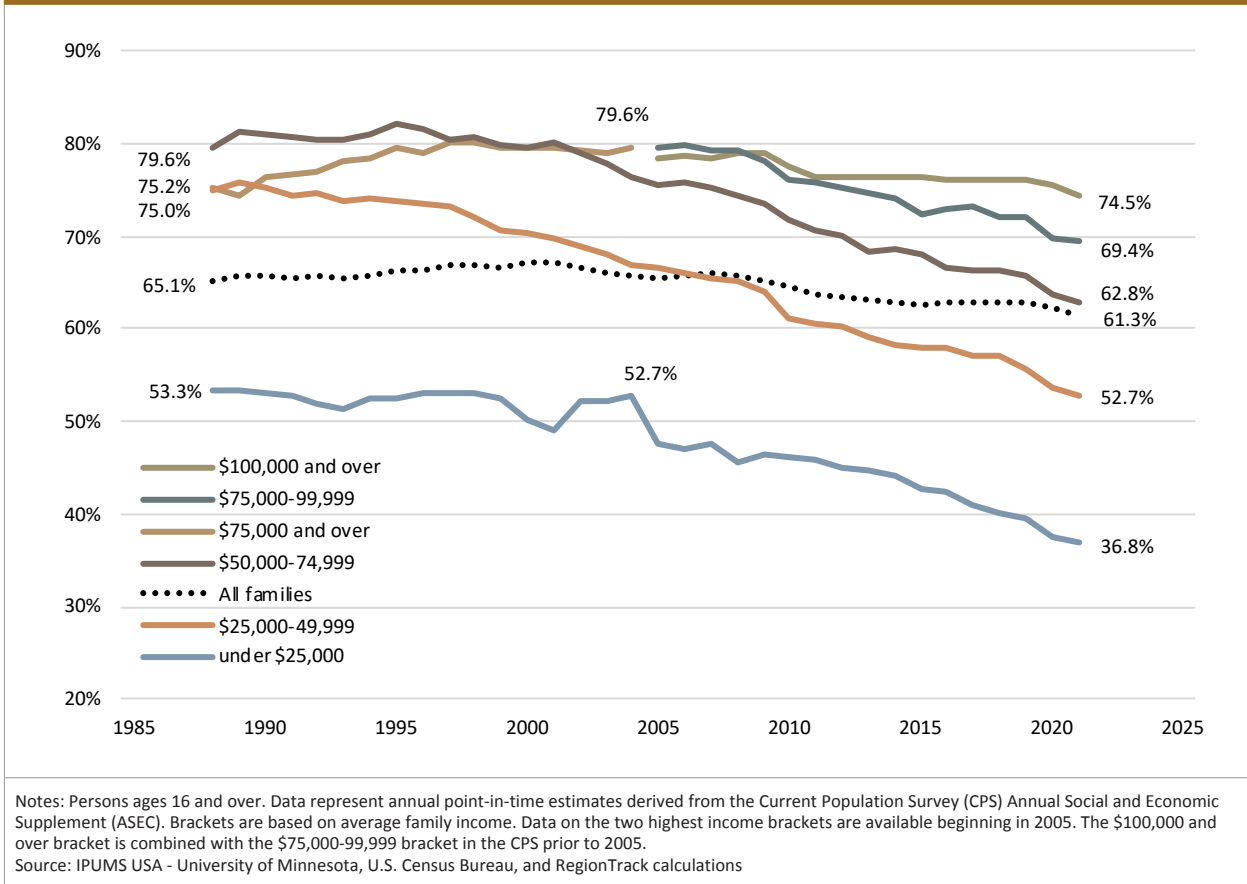
Figure 5. Labor Force Participation Rate Ages 16+ by Sex and Race



6. There has been considerable convergence in the participation rate for all female race groupings since the late 1990s. The high participation rate of Black females (58.8%) makes it the only group that differs significantly from the overall female rate of 56.2% in 2021.

7. All groups of men by race and ethnicity have higher labor force participation rates than women. The smallest male-female participation gap is for Black men (3.2 percentage point gap in 2021). The White gap was slightly larger at 5 percentage points in 2021. The largest male-female participation gap is for Hispanics of all races (18.5 percentage points in 2021).

Figure 6. U.S. Labor Force Participation Rate by Family Income Bracket



Labor Force Participation by Income

The participation rate for persons in families of various income levels also exhibits patterns related to the ongoing decline in participation. Figure 6 illustrates participation rates for persons ages 16 and over by family income groupings in the 1988 to 2021 period.

Three dominant trends are present in the data on participation rate by income bracket. First, participation rates remain far higher for those in the highest income families. Second, consistent with the national trend, participation rates are falling across all income groups. And third, the long-run decline in participation has generally been greatest for those in lower income households.

Participation is Far Higher for Higher Income Families. In 2021, persons in families with income above \$75,000 annually had labor force participation rates 8 to 13 percentage points above the overall U.S. average. Those in families in the \$50,000-74,999 bracket (which closely approximates current average family income in the U.S.) had participation rates only slightly above the overall U.S. average.

Conversely, persons in families with income in the \$25,000-49,999 range currently trail the overall U.S. average participation rate by about 9 percentage points. Those in the lowest income bracket trail the overall U.S. average by approximately 25 percentage points. Based on the two extreme income brackets, the participation rate for persons in families with income of \$100,000 or more (74.5%) is more than double the rate for those in families with income under \$25,000 (36.8%).

Participation is Declining for Persons at All Income Levels. The overall U.S. labor force participation rate for all income levels declined about 4 percentage points over the full period in Figure 6 and about 6 percentage points since the overall U.S. decline began in 2000. Each of the individual income groupings in Figure 6 similarly have lower labor force participation rates over the full period.

The point at which the decline in participation begins varies across the income brackets. Persons in families with income in the \$25,000-49,999 bracket experienced steadily declining participation rates over the full period. The participation rate for those in the \$50,000-74,999 bracket peaked in 1995



and then declined at a steady pace since. Persons in the two highest income brackets experienced slightly rising participation rates through about 2005 before peaking and falling steadily through 2021. Persons in the lowest income bracket experienced flat participation rates in the 1988 to 2005 period, before entering a decline through 2021.

Participation Declines Greater in Lower Income Families.

In the ongoing era of falling overall participation rates in the U.S. since 2000, participation rates in higher income groups have generally fared better than in lower income groups. Participation rates for persons in the highest annual income bracket of \$100,000 and over are down only about 5 percentage points since peaking in 2005. Those in the \$75,000-99,999 bracket have seen participation rates drop by about 10 percentage points. Participation for those in the \$50,000-74,999 bracket have posted declines of almost 20 percentage points since 1995 and 17 percentage points since the overall peak in 2000.

Persons with annual family income of \$25,000-49,999 experienced the largest declines in participation. Persons in this bracket lost nearly 23 percentage points over the full period and 18 percentage points since the overall peak in 2000. The participation of persons in the lowest income group (less than \$25,000) is down slightly less, about 16 percentage points, since the rate began to fall around 2005. The lowest income group includes many younger and older persons who are school age, retirement age, work only part-time or seasonally for short stretches, or otherwise move in and out of the labor force.

Participation Policy Challenges. The ongoing decline in U.S. labor force participation is spread broadly across nearly all segments of the labor force by sex, race, and income. Trends within each demographic measure suggest that the greatest policy concerns now center on declining participation for both sexes, persistent male-female and father-mother participation gaps, some racial gaps, and steep participation declines in the lowest income brackets.

Maternal Labor Force Participation

Child care usage is linked most fundamentally to the labor force attachment of mothers. Hence, the utilization of paid child care is a decision made simultaneously with the decision to work. At the state level, the employment decision of mothers and the use of paid child care reflects the close interaction of the labor market and child care market in each state.

Labor Force Status of Women and Mothers

The total number of women of working and childbearing age (ages 18 to 54) is a key determinant of the number of mothers in the labor force and their resulting use of paid child care. Estimates from the Current Population Survey for 2021 suggest there were 78.1 million women in the U.S. ages 18 to 54 (Figure 7a).⁴ An estimated 56.9 million (72.9%) of these women actively participated in the labor force (Figures 7b and 7d).

Thirty-seven percent (21.1 million) of women ages 18 to 54 were mothers with a child under the age of 15 (Figure 7c). These mothers are highly likely to work, with 70.7% actively participating in the labor force in 2021 (Figure 7d). This is only slightly lower than the 73.5% participation rate for women with no children in the household (Figure 7f).

Trends in the Population of Working Age Females. Figure 7 illustrates several key trends underway in the U.S. concerning the population of women ages 18 to 54:

1. The population of women ages 18 to 54 stalled at about 78 million the past decade, limiting the potential for growth in the number of working mothers.
2. The number of mothers ages 18 to 54 with a child under the age of 15 stalled more than a decade ago and has declined by 2.2 million (9.3%) since 2007. The number of mothers with a child under the age of 5 declined by 1.1 million (11.3%) since 2007. This has directly reduced the demand for all forms of child care.
3. The share of all women ages 18 to 54 who are mothers with a child under age 15 continues to fall, reaching 37% in 2021 for those with a child under 15 and 15% for those with a child under 5. This decline in the share of women who are mothers reflects the extended period of falling fertility rates in the U.S.
4. The labor force participation rate for women ages 18 to 54 has fallen over the past two decades for all subgroups of women except mothers with young children under 5. Mothers with young children represent one of the strongest sources of new entrants to the labor force in recent years.
5. The number of women ages 18 to 54 with no children at home continues to rise rapidly, reaching 38.6 million in 2021. This represents almost half of all women ages 18 to 54 and is weighing on overall female participation rates.
6. After experiencing falling labor force participation rates from 2000 to 2010, women with no children showed strong signs of returning to the labor force prior to the pandemic. Their participation rates declined far more steeply in 2020 and 2021 in response to the pandemic than participation rates for mothers.

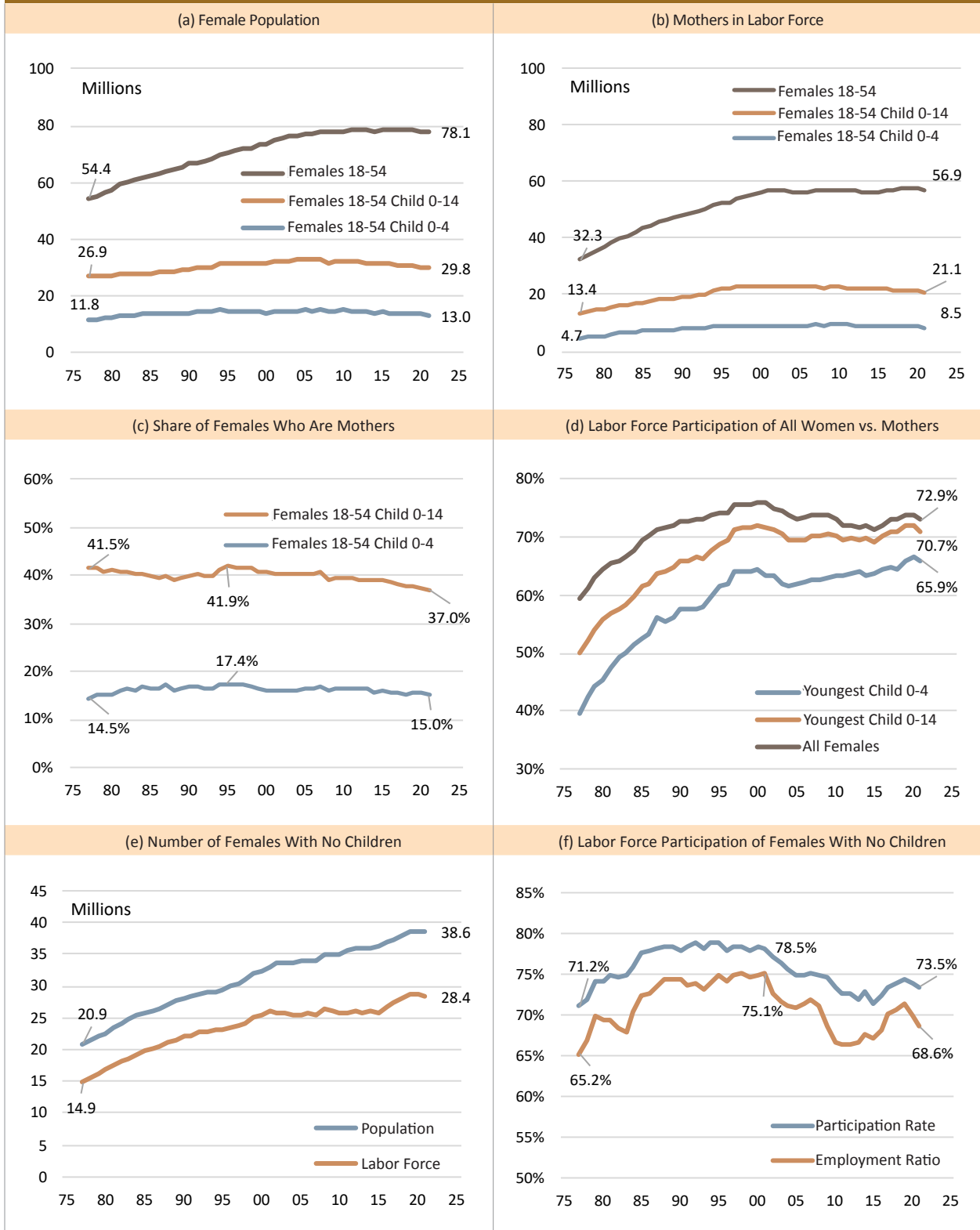
Declining Birth Rate Reinforced in the Female Labor Force.

The decline in the U.S. birth rate for the past several decades is now limiting the size of successive population cohorts of women moving in their working and childbearing years. The lack of growth in the total number of women ages 18 to 54 is having an important long-run influence on the participation of women in the labor force and the use of paid child care. The extended period of decline in the U.S. birth rate is now reinforcing itself in the female labor pool beyond just a lower share of women of childbearing age who are having children. The lower number of births over many years is now weighing on the number of potential mothers of childbearing age.

The effect of declining births on the shrinking number of women and mothers in the 18 to 54 age group is intensified by the overall decline in the participation rate among the group over the past two decades. The participation rate for all women ages 18-54 peaked in 2000 at 76.0% and has subsequently fallen to 72.9% in 2021 (3.1 percentage point decline). The employment ratio declined even further the past two decades, from 72.7% in 1999 to 68.5% in 2021 (4.2 percentage point decline).

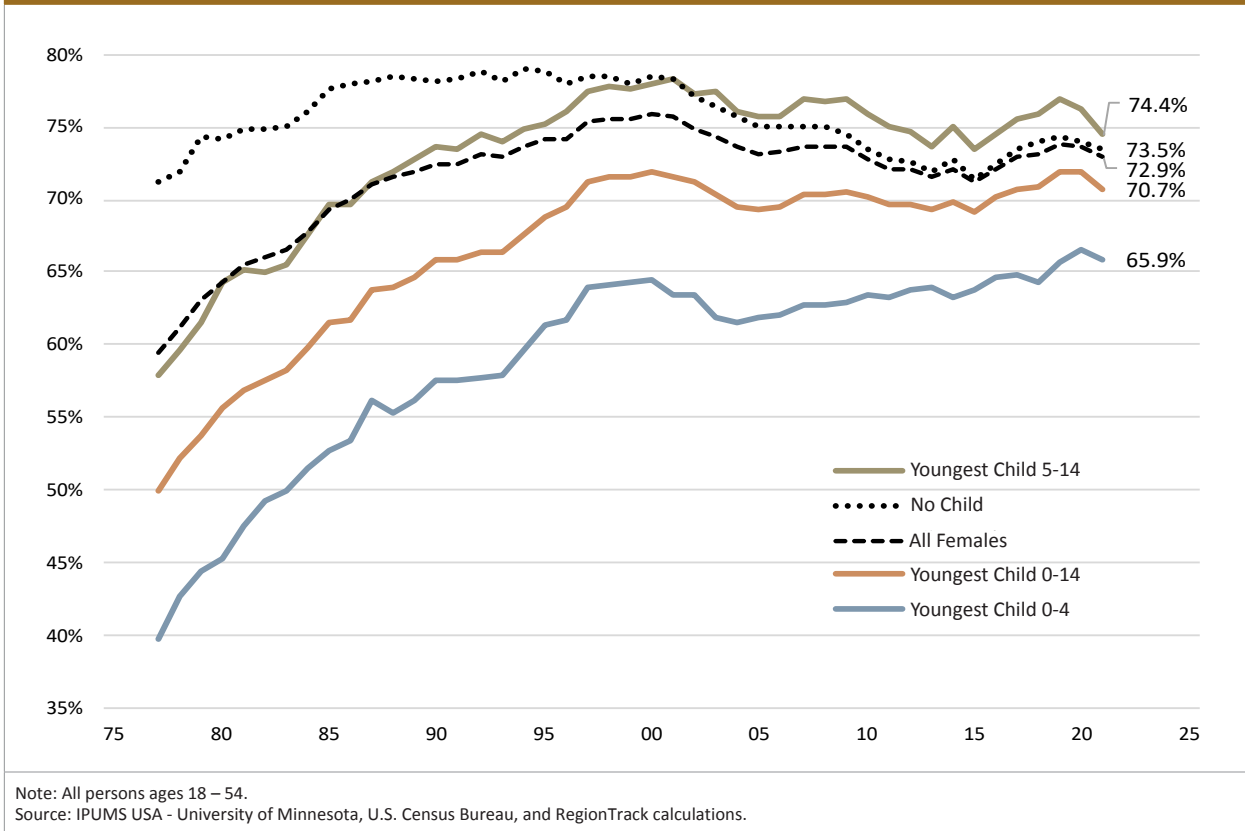
Differing Maternal Participation Rates. The decline in participation for mothers, though, is highly dependent upon the age of the child (Figure 8). For mothers with a youngest child ages 0 to 14, the participation rate is down 1.3 percentage points since 2000. In contrast, the participation rate for mothers with a youngest child ages 0 to 4 has been rising much of the past two decades. The participation rate for these mothers increased from 64.2% in 1999 to 65.9% in 2020, a 1.3 percentage point gain.

Figure 7. Population and Labor Force Status of Women Ages 18-54



Source: IPUMS USA - University of Minnesota, U.S. Census Bureau, and RegionTrack calculations.

Figure 8. Female and Maternal Labor Force Participation Rates



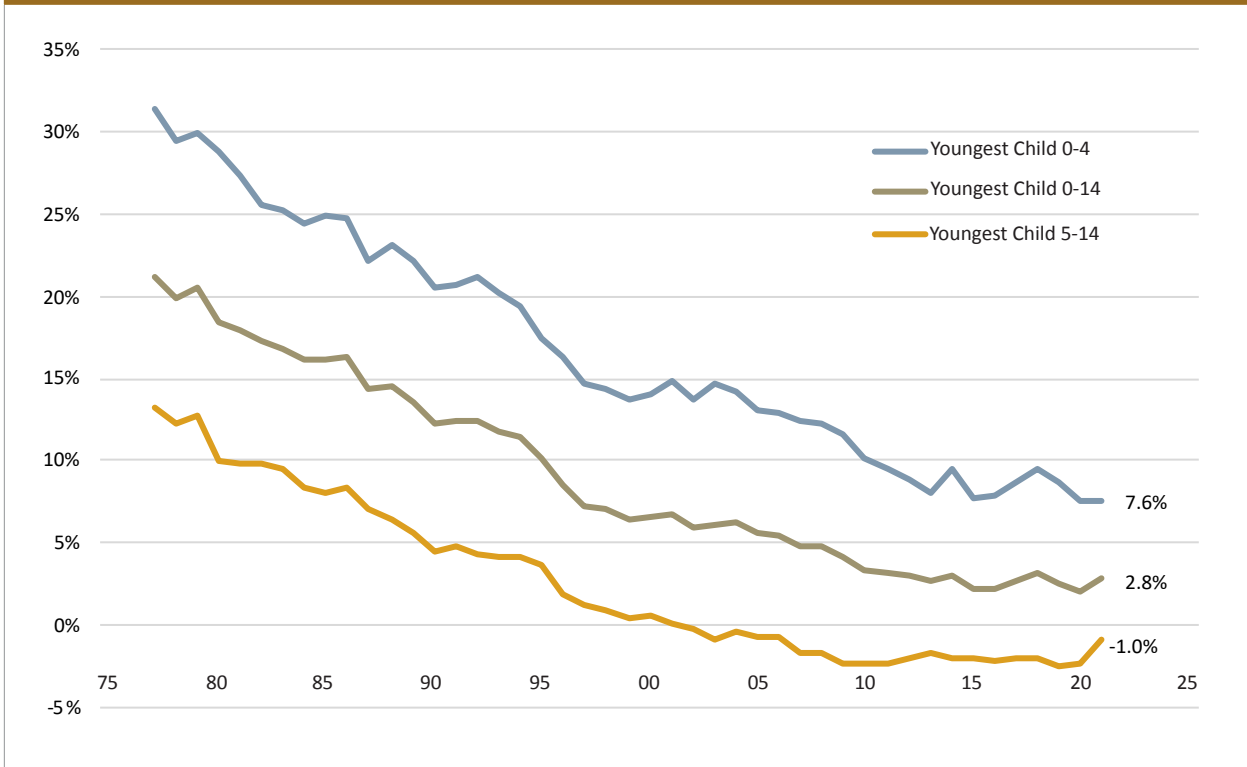
The increased participation rate for mothers with children ages 0 to 4 represents a far stronger performance the past two decades than for women with older children and women with no children in the household (Figure 8). This continues an overall convergence in female participation rates since the 1970s. Mothers with young children generally experienced the largest net gains in participation in the 1970s, 1980s, and 1990s relative to other categories of women. The gains eased following a temporary dip in the late 1990s and early 2000s but have since resumed.

Mothers with a youngest child ages 5 to 14 have higher participation rates than those with a child ages 0 to 4, but the participation rates for these mothers has been highly volatile since 2000 and generally decreased over the period. Women with older children ages 5 to 14 now have a participation rate of approximately 75% and are the most likely among all women to participate in the labor force. These women are even more likely to participate in the labor force than women with no children. Women with older children surpassed the participation of women with no children around 2000 and have averaged a rate that is 2-3 percentage points higher since 2000.

Women with No Children. Opposite to the experience of mothers with children of child care age, the number of women in the labor force ages 18 to 54 with no children in the household increased by 4.6 million (13.6%) since 2007 (Figure 8). However, the participation rate for this group of women has fallen steadily for most of the past two decades, from 78.5% in 2000 to 73.5% in 2021. The participation rate for these women reached a multi-decade low of 71.4% in 2015 before rebounding recently through 2019.

Maternal Participation Rates Converging with Non-Mothers. As women with no children began to fall out of the labor force the past two decades, their participation rate has converged considerably with that of mothers (Figure 9). In fact, mothers with their youngest child ages 5 to 14 (-1.0% gap) now have participation rates slightly above those for women with no children. The gap was about 13% in the 1970s and was fully closed in the early 2000s. Mothers with children ages 5 to 14 have now consistently posted higher participation rates than women with no children since the late 2000s.

Figure 9. Participation Gap of Mothers vs. Females with No Children



Note: All persons ages 18 – 54.
 Source: IPUMS USA - University of Minnesota, U.S. Census Bureau, and RegionTrack calculations.

The gap relative to mothers with no children is now very small (2.8% gap) for the broader group of mothers with a youngest child ages 0 to 14. This gap was more than 20% in the 1970s and fell steadily to only about 3% by 2015. Little additional progress has been made since 2015.

The gap remains widest (7.6% gap) for mothers with their youngest child ages 0 to 4 but continues to close over the long-term. This gap exceeded 30% in the 1970s but leveled off just below 10% in the late 2010s.

The amount of convergence in the participation gap between mothers and women with no children is remarkable in the past several decades. The recent stall in progress suggests that mothers with children of all ages may be reaching a new steady state in labor force participation. The new equilibrium appears headed toward roughly equal participation rates for mothers with children ages 0 to 14 and women with no children. Mothers with older children are converging toward a slightly higher participation rate, while mothers with younger children are converging toward a slightly lower participation rate relative to women with no children.

Female Labor Force Policy. The shift in the female population mix toward fewer women with children of child care age presents a challenge for federal and state policymakers. Historically, women with no children in the household were the most likely group of females to participate in the labor force. Labor force policy toward women focused on increasing access to child care for mothers with young children to allow them to enter the workforce.

Yet mothers with young children are not the underlying cause of the ongoing decline in female labor force participation in the U.S. Instead, it is women with no children who are dropping out of the labor force far faster than women with children and have more than offset any gains by mothers with younger children in recent years.

The challenge for policymakers concerned with falling participation rates is that women with no children are now increasingly incentivized to enter the labor force by the same set of factors as men.

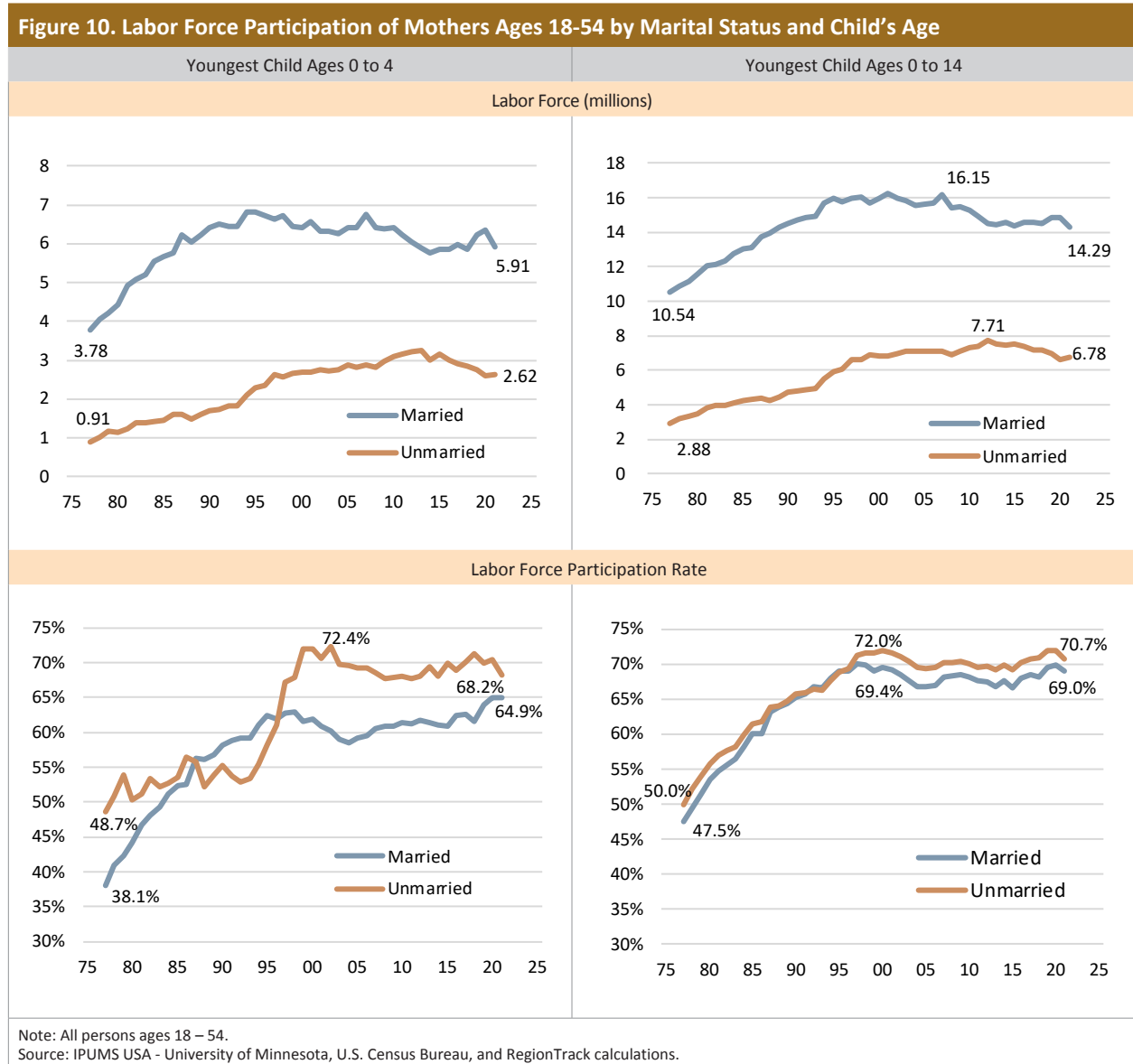
Marital Status and Participation of Mothers

Labor force participation for mothers is also closely tied to marital status. Approximately two-thirds of all mothers ages 18 to 54 with a child under the age of 15 are married (Figure 10). However, those in the far smaller group of unmarried mothers are now more likely to participate in the labor force, with a participation rate roughly 2.5 percentage points higher relative to married mothers the past two decades.

The overall gap is traced primarily to mothers with young children under the age of 5. For these younger children, unmarried mothers have a far higher participation rate relative to married mothers. The gap has averaged approximately 8 percentage points since 1996. For mothers with a child in the broader group of children ages 0 to 14, un-

married mothers have consistently had a participation rate about 1-2 percentage points above that of married mothers since the late 1990s.

Welfare Reform and Maternal Participation. The participation of unmarried mothers temporarily dropped below that of married mothers in the 1980s but has since exceeded their rate. The gap opened up in 1996 due to a nearly 20 percentage point surge in the participation rate for unmarried mothers with younger children in the 1990s from just above 50% to roughly 70%. The surge in participation for unmarried mothers followed significant welfare reform efforts in the mid-1990s. Expansions in the Earned Income Tax Credit, a rising minimum wage, and reforms in several federal aid programs such as the Temporary Assistance for Needy Families (TANF) block grant, which replaced the Aid to Families with Dependent Children (AFDC) program, worked to move



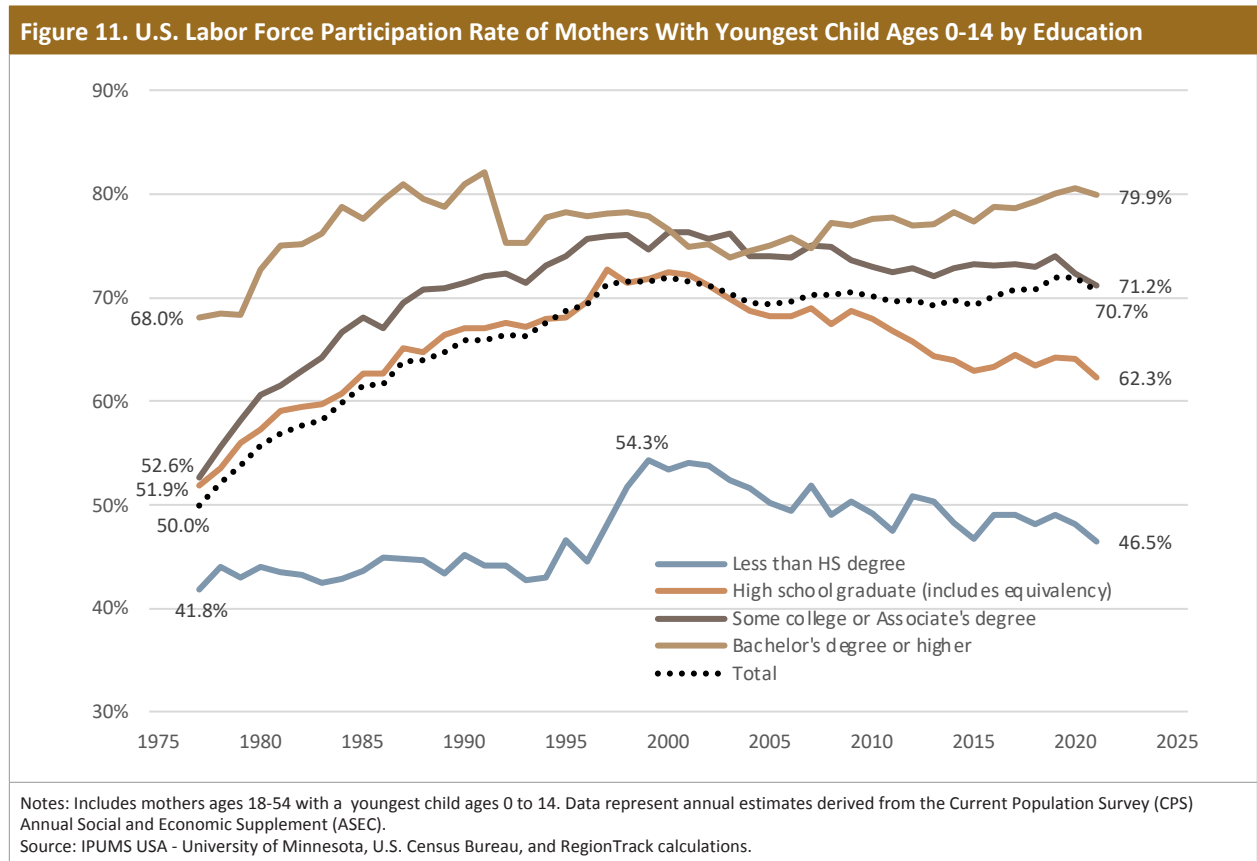
large numbers of workers, primarily unmarried mothers, into employment.⁵ Whereas AFDC was an entitlement based on income levels set by states, TANF for the first time introduced a federal time limit for the receipt of public assistance, which also carried with it specific work requirements, particularly for mothers of young children. The labor force participation gap between married and unmarried mothers has converged some since 2017, falling below 5% in 2020, with rising participation by married women primarily closing the gap.

Labor Force Participation of Mothers by Educational Attainment

Household surveys consistently indicate that labor force participation varies by level of educational attainment. Persons with higher levels of education tend to have higher labor force participation rates. State-level data similarly indicate a strong tendency for the states with the highest educational attainment to have the highest participation rates.

The same relationship holds for mothers of children of child care age. Figure 6 illustrates participation rates for mothers ages 18 to 54 with a youngest child ages 0 to 14 in the 1977 to 2021 period. In 2021, the participation rate was nearly 80% for mothers with a bachelor's degree or higher but only 46.5% for those mothers not completing high school. The more than 33 percentage point gap in 2021 has widened consistently since the recent bottom in the gap of about 21 percentage points in 2001.

Of concern for policymakers attempting to boost U.S. labor attachment is that the participation rate for mothers has been falling for all education groups except those with a bachelor's degree or higher. The relative stability in the overall participation rate for mothers the past two decades is traced entirely to gains by mothers with a bachelor's degree or higher. Mothers with the highest level of education have posted a 6 percentage point increase since 2003. Conversely, the other three education groups have posted steady and substantial declines in the participation rate since the early 2000s.



Increasing Maternal Participation. A key implication of the shifts in female participation since the 1990s is that policy efforts to attract more mothers to the workforce are increasingly likely to focus equally, or more, on married mothers. Married mothers outnumber unmarried mothers more than two to one and have lower participation rates.

Given the size of the pool of married mothers with a child under age 15 in 2021, each additional percentage point increase in the participation rate would bring an additional 142,900 working mothers into the labor force. For comparison, 1 percentage point rise in participation for the far smaller group of unmarried mothers with a child under age 15 would increase the labor force by only 67,800 workers.

When focusing on mothers with younger children under the age of 5, the pool of potential female labor force entrants becomes far smaller, particularly for unmarried women. Each additional percentage point increase in the participation rate for married mothers with a child ages 0 to 4 increases the labor force by 59,100 workers, while unmarried mothers offer the potential for only 26,200 new workers.

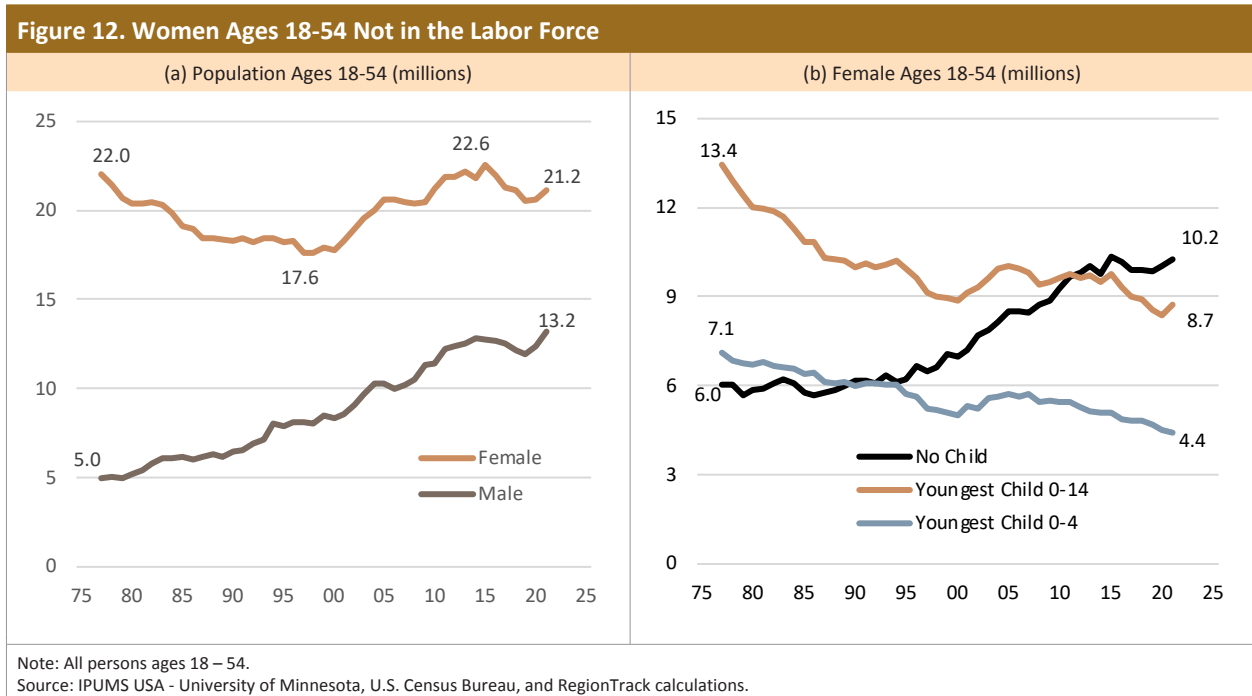
Women Not in the Labor Force

An alternative pool of potential entrants into the labor force is the group of women not in the labor force. In 2021, 21.2 million women (27.1% of the total) ages 18 to 54 were not actively attached to the labor force (Figure 12a). Among women not in the labor force, slightly less than half (10.2 million) have no children while slightly more than half (10.9 million) have a child ages 0 to 14.

By sex, there are far more women who are detached from the labor force than men – approximately 21.2 million vs. 13.2 million in 2021. The gap closed significantly in the 1970s, 1980s, and 1990s as men steadily left the workforce and female participation increased but stalled at approximately 10 million beginning in the late 1990s. The number of women outside the workforce bottomed in 2000 but then surged to 22.6 million in 2015. The number has since pulled back to just more than 21 million in 2021.

Combined, 9.4 million persons ages 18 to 54 have dropped out of the labor force since 2001, when the number of females began dropping out in large numbers. Men ages 18 to 54 have dropped out of the workforce steadily since the late 1990s, totaling a net increase of 6.6 million in the number of men who are detached from the labor force. A total of 2.7 million females have left the labor force since 2000. Men represent more than two-thirds of those leaving the labor force in the period; women less than one-third.

The decline in female attachment to the labor force beginning in the late 1990s is traced almost fully to women with no children (Figure 12b). They accounted for nearly all of the rise in women ages 18 to 54 leaving the labor force. The number of unattached women jumped from 6 million in 1990 to 10.2 million in the early 2010s. The exit of these 4.2 million women without children of child care age from the labor force has weighed heavily on the overall national participation rate and explains much of the decline in the overall female participation rate since the late 1990s.



Conversely, the number of mothers out of the labor force has remained relatively stable since the late 1990s, staying within a range of approximately 9 to 10 million in the period. Viewed longer-term from 1977, the number of mothers with a child ages 0 to 14 outside the labor force dropped from 13.4 million in 1977 to 8.7 million in 2021. This decline of 4.7 million mothers not in the labor force roughly only slightly exceeds the 4.2 million increase in the number of women with no children leaving the labor force in the period.

Mothers with younger children ages 0 to 4 have shown the greatest propensity to remain in the labor force the past several decades. The number of mothers with young children who are not in the labor force dropped steadily from 7.1 million in 1977 to 4.4 million in 2021. This net shift of 2.7 million mothers with younger children into the labor force is a key source of added female participation in the period.

Summary of Findings on Female and Maternal Participation

The findings on female and maternal labor force participation suggest several findings relevant for paid child care usage:

1. The pool of women ages 18 to 54 of both work-and child-bearing age continues to diminish in size. The population of women in this group is a key determinant of the demand for paid child care.
2. Mothers (versus women with no children in the household) now offer far less potential as a source of new labor force entrants. Mothers have nearly closed the overall participation gap on women with no children. Mothers with older children already have higher labor force participation rates than women with no children. Mothers with young children have only a 7.6% gap remaining in 2021, down from more than 30% in the late 1970s.
3. The group of unmarried mothers offers far less potential as a source of new labor force entrants than married mothers. Married mothers outnumber unmarried mothers more than two to one and have lower participation rates. Following welfare reform measures in the 1990s, unmarried mothers have since raised their labor force participation rate above that of married mothers. The likelihood of using paid child care to attract unmarried mothers to the labor force is now no greater, and probably less, than attracting married mothers.
4. Mothers with young children have had the strongest gains in labor force participation among all major groups of women the past two decades. While participation for mothers with older children has fallen

along with the overall rate, mothers with younger children have offset much of the decline. A continuation of this trend suggests that demand for paid care will be relatively stronger for mothers with younger children versus those with older children.

State-Level Labor Force Participation Rates

State labor markets are not simply microcosms of the national labor market. Participation rates for various segments of the labor force vary greatly across the states. They also vary greatly across demographic groups within a state relative to the overall participation rate.

Figure 13 summarizes annual participation rates for several groups of persons ages 18 to 54 in each state in the 2019 to 2021 period. The period examined provides an overview of participation rates prior to the onset of the pandemic in 2019, during the recession year of 2020, and in the full recovery year of 2021.

Participation rates are provided for all persons ages 18 to 54, including measures for males and females, mothers by age of child, married mothers by age of child, unmarried mothers by age of child, and women with no children at home.

Overall participation rates in 2019 vary from a low of 72.5% in West Virginia to 86.5% in Wisconsin. State rates range about 7 percentage points above and below the overall national participation rate of 79.1% in 2019. Iowa has the highest rate for males (90.7%) while Mississippi has the lowest male rate (75.9%). South Dakota has the highest rate for females (83.7%) while West Virginia has the lowest female rate (68.0%).

There is a range of about 15 percentage points between the highest male participation rate of 90.7% in Iowa and the lowest of 75.9% in Mississippi. Female rates vary across a similar range spanning about 16 percentage points, from 83.7% in South Dakota to 68.0% in West Virginia.

Rankings for the male and female participation rates tend to be similar in most states. However, there is a wide divergence between the sexes in many states. For example, the greatest variation in 2019 is found in Idaho where males rank fifth in participation but females rank forty-first. Similarly, Utah ranks second for male participation but only twenty-ninth for females. Arkansas ranks twenty-third for male participation but only forty-fourth for females. Rankings are far higher for females in several other states. For example, Maine ranks forty-sixth for males but thirteenth for females, while Massachusetts similarly ranks forty-fourth for males

They also vary greatly across demographic groups within a state relative to the overall participation rate.

and eleventh for females. Connecticut ranks thirty-eighth for males and seventeenth for females.

Five states rank among the top 10 on both male and female participation in 2019. These include the five upper Midwest states of Iowa, Minnesota, Nebraska, North Dakota, and Wisconsin. Five additional states rank among the bottom 10 based on both male and female participation. These states include Alabama, Louisiana, Mississippi, New Mexico, and West Virginia, all of which are among the lowest ranked states based on per capita income.

Mothers. The labor force participation rate of females generally as well as mothers varies greatly across states. Wisconsin has the highest participation rate for working mothers with children ages 0 to 4 (84.6%), while Alaska has the lowest (56.0%). South Dakota has the highest participation rate for mothers with children ages 0 to 14 (86.4%), versus a low of only 63.1% in Alaska.

Rankings are similar in most states for mothers with both younger and older children. However, there are several states where the mother's tendency to work is far higher for those with either older or younger children. States that rank far higher on the participation of working mothers with younger children include Alabama, Kentucky, and New Mexico, all traditional high poverty states. Conversely, states where the participation of mothers with older children ranks far higher include Arizona, Colorado, Montana, Nevada, and Wyoming, all Mountain states.

Married vs. Unmarried Mothers. Nationally, unmarried mothers are far more likely to be attached to the labor force than married mothers. This relationship holds for mothers with both younger and older children at the national level. The participation rate is 3.3 percentage points higher for unmarried mothers with a child aged 0 to 4, and 5.7 percentage points higher for unmarried mothers with a child aged 0 to 14.

While in general, unmarried mothers participate in the labor force at a higher rate compared to married mothers, labor force participation varies by state. Several states have a significantly higher share of unmarried mothers in the labor force. Those with a rate at least 10 percentage points higher for unmarried versus married mothers with a child ages 0 to 4 include Arizona, Colorado, Delaware, Georgia, Idaho, Illinois, Indiana, Minnesota, Nevada, New Mexico, Rhode Island, Wisconsin, and Wyoming.

However, there is no clear pattern of such strong participation by unmarried mothers across all the states. For mothers with younger children ages 0 to 4, the states of

Maine, Maryland, New Jersey, Washington, and West Virginia plus the District of Columbia actually have a far higher share of married mothers than unmarried mothers in the labor force. Other states that run counter to the overall trend and have at least a 5-percentage-point higher share of participation for married mothers include Kansas, New Hampshire, South Dakota, and Vermont.

Women with No Children. Both the overall participation rate and the female participation rate in most states is closely correlated

with the participation rate of women with no children in the household. The behavior of the large number of women with no children in most states exerts substantial influence on the broader measures of participation.

There are some important differences in the share of the labor force fulfilled by women with no children across the states. Those states with a far higher ranking on overall participation relative to participation for women with no children include Arkansas, Idaho, Missouri, North Dakota, Oklahoma, Pennsylvania, Rhode Island, South Dakota, Virginia, and Wyoming. The relatively weak participation of women with no children is working to reduce the overall participation rate in these states.

A few states reflect the opposite case of a relatively higher ranking for the share of women with no children in the labor force relative to the state's overall participation rate. These include Alaska, Connecticut, Kentucky, Maine, Montana, Tennessee, and Utah. The relatively strong participation of women with no children is working to boost the overall participation rate in these states.

State Variation in Labor Force Participation

The degree of variation in state level labor force participation rates suggests that policy efforts within a state to raise participation rates must consider the unique characteristics of the labor market in each state. For persons ages 18 to 54, the nearly 15-percentage-point range (72.5% to 86.5%) in overall participation rates indicate that many states are experiencing far different degrees of success in retaining workers in the labor force. Overall participation rates are greatly affected by attitudes and norms toward work in each state, as well as the demographic structure of the population.

The labor force participation rate of females generally as well as mothers varies greatly across states. Wisconsin has the highest participation rate for working mothers with children ages 0 to 4 (84.6%), while Alaska has the lowest (56.0%).

By sex for those ages 18 to 54, participation rates remain higher for males in every state, but the gap is only about 1 percentage point in those states with high female participation rates. In states with low female participation, the gap can reach as high as 10 percentage points.

The greatest variation across the states is present for mothers ages 18 to 54. The participation rate for those with children ages 0 to 14 ranges more than 20 percentage points across the states, and reaches a range of nearly 30 percentage points for those with children ages 0 to 4.

While unmarried mothers remain more likely to participate

Overall participation rates are greatly affected by attitudes and norms toward work in each state, as well as the demographic structure of the population.

in the labor force than married mothers at the national level, this pattern does not hold in many states. Many states have a far higher share of married mothers in the labor force. These differences in participation are likely to reflect differing state-level preferences for both labor force involvement and home care of children.

The most challenging dimension of declining labor force participation may be the wide variation across states in the share of women with no children participating in the labor force. The more

than 20-percentage-point range across the states suggests that some states have a far larger untapped pool of potential female workers.



Figure 13. Labor Force Participation Rates (2019)

Region	Overall		Male Ages 18-54		Female Ages 18-54		Mothers with Children Ages 0-4		Mothers with Children Ages 0-14	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Alabama	75.3%	47	80.9%	45	70.0%	48	62.2%	38	66.4%	49
Alaska	74.3%	48	77.0%	49	71.5%	40	56.0%	51	63.1%	51
Arizona	80.5%	19	84.8%	26	76.1%	20	59.9%	44	73.1%	24
Arkansas	77.6%	38	85.0%	23	70.7%	44	64.9%	34	70.7%	36
California	77.4%	41	84.3%	33	70.5%	45	60.6%	41	66.7%	47
Colorado	83.4%	10	86.3%	13	80.4%	9	70.6%	18	81.4%	6
Connecticut	80.0%	30	83.5%	38	76.9%	17	73.2%	10	75.4%	17
Delaware	82.3%	13	87.6%	8	77.1%	15	68.8%	22	73.0%	26
Dist. of Columbia	84.0%	7	84.4%	31	83.5%	2	84.1%	3	81.9%	5
Florida	77.0%	42	81.7%	42	72.6%	34	60.7%	40	70.1%	37
Georgia	77.5%	40	83.6%	36	71.9%	39	63.9%	35	69.1%	38
Hawaii	77.9%	36	82.3%	39	73.6%	33	57.3%	49	67.4%	45
Idaho	80.4%	22	89.1%	5	71.5%	41	58.8%	46	66.5%	48
Illinois	80.1%	27	84.7%	29	75.6%	22	72.2%	14	74.9%	18
Indiana	81.0%	15	86.0%	17	76.1%	19	69.9%	19	72.9%	27
Iowa	86.5%	2	90.7%	1	82.3%	5	73.4%	9	80.4%	9
Kansas	83.4%	9	86.2%	14	80.6%	7	69.2%	20	76.5%	14
Kentucky	76.2%	45	80.4%	47	72.0%	38	67.1%	27	68.5%	40
Louisiana	75.9%	46	81.4%	43	70.8%	43	63.8%	36	71.1%	35
Maine	80.0%	28	80.8%	46	79.1%	13	67.9%	25	71.5%	32
Maryland	83.5%	8	88.2%	7	78.9%	14	73.1%	11	77.4%	12
Massachusetts	80.5%	20	81.4%	44	79.7%	11	80.1%	4	80.8%	8
Michigan	80.4%	23	84.3%	32	76.4%	18	71.4%	16	75.4%	15
Minnesota	84.9%	4	87.0%	10	82.6%	4	76.5%	6	83.3%	3
Mississippi	72.6%	50	75.9%	51	69.8%	49	72.3%	13	76.6%	13
Missouri	80.9%	16	84.9%	24	77.0%	16	71.7%	15	75.4%	16
Montana	82.5%	12	85.3%	20	79.8%	10	65.5%	32	74.6%	22
Nebraska	85.5%	3	89.3%	4	81.5%	6	78.6%	5	81.3%	7
Nevada	80.3%	24	85.1%	22	75.5%	23	58.8%	47	73.1%	25
New Hampshire	82.9%	11	86.5%	11	79.3%	12	75.8%	7	82.8%	4
New Jersey	77.0%	43	82.1%	41	72.1%	37	68.0%	24	72.7%	29
New Mexico	72.9%	49	77.3%	48	68.5%	50	65.6%	31	68.2%	41
New York	76.7%	44	83.6%	37	70.0%	47	62.3%	37	67.7%	42
North Carolina	78.8%	34	85.6%	18	72.4%	35	65.1%	33	72.5%	30
North Dakota	84.7%	5	88.7%	6	80.4%	8	72.6%	12	78.4%	11
Ohio	80.0%	29	86.1%	16	74.2%	31	69.1%	21	74.7%	20
Oklahoma	77.9%	35	84.8%	27	70.8%	42	59.5%	45	67.5%	43
Oregon	80.3%	25	85.2%	21	75.4%	24	66.0%	29	74.6%	21
Pennsylvania	80.2%	26	86.5%	12	74.4%	30	68.1%	23	74.4%	23
Rhode Island	79.1%	33	82.1%	40	76.0%	21	75.1%	8	78.6%	10
South Carolina	77.7%	37	83.7%	35	72.2%	36	65.7%	30	72.3%	31
South Dakota	84.3%	6	84.8%	25	83.7%	1	84.3%	2	86.4%	1
Tennessee	79.4%	32	83.9%	34	75.1%	27	66.5%	28	71.5%	33
Texas	77.5%	39	84.8%	28	70.4%	46	58.5%	48	67.0%	46
Utah	82.3%	14	89.6%	2	74.7%	29	59.9%	43	66.2%	50
Vermont	79.6%	31	84.6%	30	74.9%	28	70.6%	17	74.7%	19
Virginia	80.7%	17	86.1%	15	75.4%	25	67.8%	26	72.9%	28
Washington	80.4%	21	85.5%	19	75.1%	26	60.3%	42	68.8%	39
West Virginia	72.5%	51	76.9%	50	68.0%	51	62.0%	39	67.5%	44
Wisconsin	86.5%	1	89.5%	3	83.5%	3	84.6%	1	85.7%	2
Wyoming	80.6%	18	87.3%	9	73.7%	32	57.1%	50	71.3%	34
U.S.	79.1%		84.5%		73.8%		65.6%		71.6%	

Continued

Figure 13. (Cont) Labor Force Participation Rates (2019)

Region	Married Mothers Children 0-4		Married Mothers Children 0-14		Unmarried Mothers Children 0-4		Unmarried Mothers Children 0-14		Mothers Youngest Child 5-14		Females No Children	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Alabama	64.2%	32	64.4%	48	59.5%	44	69.5%	44	70.2%	50	70.6%	44
Alaska	57.1%	46	64.7%	47	52.7%	50	58.4%	51	70.3%	49	77.2%	22
Arizona	56.1%	47	68.9%	36	70.7%	29	83.3%	10	82.3%	13	77.4%	21
Arkansas	65.2%	29	71.1%	27	64.3%	39	69.9%	43	76.0%	37	68.6%	48
California	58.0%	44	63.6%	49	67.4%	34	74.6%	36	71.4%	47	73.2%	36
Colorado	67.2%	24	76.4%	12	92.2%	2	96.8%	1	87.7%	4	79.7%	11
Connecticut	71.5%	13	73.6%	20	76.2%	14	79.7%	18	76.9%	30	77.9%	16
Delaware	65.1%	30	69.0%	35	79.3%	9	81.7%	12	76.2%	35	77.5%	20
District of Columbia	88.3%	1	83.4%	3	75.0%	18	79.8%	16	79.5%	20	84.9%	1
Florida	57.7%	45	65.5%	42	67.0%	35	79.1%	20	77.2%	28	73.1%	37
Georgia	60.2%	38	64.7%	45	71.7%	26	78.3%	22	73.5%	43	71.9%	41
Hawaii	58.6%	43	68.1%	39	54.3%	47	65.5%	48	76.6%	32	75.6%	28
Idaho	55.5%	49	63.4%	50	76.7%	12	78.1%	23	75.2%	39	74.3%	32
Illinois	68.4%	21	72.5%	23	80.8%	5	81.5%	13	76.7%	31	74.8%	30
Indiana	66.3%	26	72.3%	24	77.5%	11	74.4%	38	76.0%	38	77.5%	19
Iowa	70.8%	15	79.0%	9	78.6%	10	83.5%	9	87.0%	5	82.3%	5
Kansas	70.3%	16	75.6%	13	65.1%	38	79.4%	19	83.3%	12	84.9%	2
Kentucky	65.3%	28	68.7%	37	71.7%	25	67.9%	46	69.8%	51	74.1%	33
Louisiana	59.8%	40	68.6%	38	69.2%	32	74.4%	37	77.0%	29	67.6%	49
Maine	74.7%	8	75.4%	15	57.8%	46	65.0%	49	73.7%	41	83.0%	4
Maryland	78.2%	6	78.2%	10	58.1%	45	75.4%	32	80.9%	18	80.9%	8
Massachusetts	80.4%	4	80.7%	5	79.4%	8	81.2%	14	81.3%	16	79.1%	14
Michigan	68.6%	20	74.0%	19	76.4%	13	78.0%	25	78.4%	25	76.8%	24
Minnesota	72.4%	11	80.6%	6	91.5%	3	91.8%	2	90.7%	1	80.1%	10
Mississippi	69.5%	18	73.1%	22	75.3%	17	81.1%	15	80.0%	19	63.3%	51
Missouri	71.5%	12	75.5%	14	72.5%	23	75.3%	34	78.4%	24	77.2%	23
Montana	66.0%	27	74.3%	16	64.1%	40	75.3%	33	83.6%	11	84.7%	3
Nebraska	79.6%	5	80.1%	7	76.1%	15	83.9%	7	83.6%	10	80.5%	9
Nevada	50.7%	51	64.7%	46	75.5%	16	87.0%	5	84.6%	8	76.8%	25
New Hampshire	77.8%	7	82.4%	4	71.8%	24	83.8%	8	88.9%	2	77.8%	17
New Jersey	71.0%	14	71.9%	25	53.7%	48	75.6%	31	76.2%	36	69.3%	46
New Mexico	60.0%	39	65.9%	41	72.9%	20	71.1%	42	70.3%	48	68.8%	47
New York	61.2%	37	65.1%	43	65.4%	37	73.5%	40	71.9%	45	70.1%	45
North Carolina	62.3%	35	69.7%	30	70.6%	30	77.5%	26	80.9%	17	72.4%	38
North Dakota	72.6%	9	79.2%	8	72.7%	22	76.1%	30	84.6%	9	79.7%	12
Ohio	68.7%	19	73.2%	21	70.4%	31	78.1%	24	79.0%	22	74.7%	31
Oklahoma	58.8%	42	66.1%	40	62.0%	43	71.8%	41	74.1%	40	71.9%	42
Oregon	64.3%	31	70.8%	29	70.9%	28	85.5%	6	81.8%	14	74.9%	29
Pennsylvania	68.3%	22	74.2%	18	67.7%	33	74.8%	35	79.4%	21	73.4%	35
Rhode Island	68.1%	23	74.3%	17	86.8%	4	88.4%	4	81.3%	15	71.4%	43
South Carolina	63.2%	33	69.5%	31	72.8%	21	79.0%	21	76.4%	33	72.3%	39
South Dakota	86.1%	2	87.8%	1	79.7%	7	83.1%	11	88.3%	3	79.6%	13
Tennessee	61.5%	36	69.4%	32	80.3%	6	76.7%	29	76.4%	34	77.8%	18
Texas	55.6%	48	62.0%	51	63.7%	41	76.8%	28	73.6%	42	72.0%	40
Utah	58.9%	41	65.0%	44	66.4%	36	73.7%	39	72.3%	44	81.7%	6
Vermont	72.6%	10	76.5%	11	63.6%	42	68.7%	45	78.7%	23	73.4%	34
Virginia	66.7%	25	70.9%	28	73.8%	19	79.8%	17	77.8%	26	76.5%	26
Washington	63.0%	34	69.4%	33	52.8%	49	66.9%	47	77.5%	27	78.2%	15
West Virginia	69.9%	17	71.2%	26	49.1%	51	60.5%	50	71.9%	46	66.3%	50
Wisconsin	81.4%	3	84.3%	2	93.9%	1	89.7%	3	86.5%	6	81.7%	7
Wyoming	51.9%	50	69.1%	34	71.3%	27	77.4%	27	86.0%	7	76.2%	27
U.S.	65.1%		69.5%		69.9%		77.4%		76.0%		74.4%	

Continued

Figure 13. (Cont) Labor Force Participation Rates (2020)

Region	Overall		Male Ages 18-54		Female Ages 18-54		Mothers with Children Ages 0-4		Mothers with Children Ages 0-14	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Alabama	73.6%	49	79.2%	48	68.4%	49	65.6%	33	69.2%	42
Alaska	73.6%	50	77.4%	51	69.9%	46	59.7%	47	66.7%	46
Arizona	81.5%	19	85.9%	18	77.1%	18	66.0%	31	73.0%	29
Arkansas	76.7%	43	81.6%	42	72.0%	37	71.9%	15	72.4%	31
California	76.7%	42	83.5%	32	69.9%	47	61.3%	43	65.0%	50
Colorado	82.9%	11	87.7%	6	77.4%	17	68.3%	24	76.4%	20
Connecticut	80.3%	23	85.5%	22	75.1%	26	76.6%	6	79.4%	7
Delaware	80.5%	22	82.0%	39	79.0%	11	65.5%	34	74.9%	24
Dist. of Columbia	84.2%	3	85.6%	21	83.0%	3	76.6%	5	83.2%	3
Florida	77.9%	35	81.6%	43	74.3%	29	66.4%	29	73.3%	27
Georgia	76.3%	44	81.9%	40	71.4%	39	62.8%	40	70.2%	39
Hawaii	77.3%	38	82.6%	36	72.6%	35	64.2%	37	71.0%	38
Idaho	79.9%	25	88.4%	3	71.3%	40	60.9%	44	66.0%	48
Illinois	79.1%	30	82.3%	38	75.8%	23	76.0%	7	78.5%	9
Indiana	79.0%	31	84.7%	26	73.5%	32	72.0%	14	72.6%	30
Iowa	83.9%	4	86.6%	15	81.1%	6	78.1%	3	78.5%	11
Kansas	83.4%	8	87.9%	5	79.0%	12	70.5%	21	75.6%	22
Kentucky	77.4%	37	83.6%	31	71.2%	42	68.2%	25	76.4%	19
Louisiana	75.7%	46	80.5%	47	71.3%	41	71.5%	17	72.4%	32
Maine	81.8%	18	85.6%	20	77.6%	15	63.6%	38	73.4%	26
Maryland	82.2%	17	87.2%	8	77.1%	19	70.8%	19	76.5%	18
Massachusetts	78.8%	32	82.5%	37	75.0%	27	73.0%	13	76.5%	17
Michigan	78.4%	33	81.3%	45	75.5%	25	65.2%	35	71.2%	36
Minnesota	85.0%	2	86.6%	14	83.4%	2	74.5%	10	79.1%	8
Mississippi	72.7%	51	78.2%	50	67.6%	51	69.9%	22	71.0%	37
Missouri	82.6%	13	83.4%	33	81.9%	5	68.9%	23	78.1%	13
Montana	83.6%	7	88.0%	4	79.2%	9	67.4%	27	77.7%	14
Nebraska	83.9%	5	87.2%	9	80.5%	8	80.7%	2	79.6%	6
Nevada	79.5%	27	86.2%	17	73.0%	34	59.6%	48	69.9%	41
New Hampshire	83.3%	10	87.5%	7	79.1%	10	71.2%	18	78.2%	12
New Jersey	79.8%	26	85.2%	23	74.4%	28	70.6%	20	73.5%	25
New Mexico	74.6%	48	81.5%	44	67.8%	50	53.4%	51	63.7%	51
New York	75.8%	45	81.0%	46	70.9%	43	60.5%	45	67.0%	44
North Carolina	77.2%	39	84.3%	28	70.6%	44	59.8%	46	65.7%	49
North Dakota	86.7%	1	89.6%	1	83.6%	1	74.6%	9	82.3%	4
Ohio	79.5%	28	83.3%	34	75.8%	24	64.4%	36	75.8%	21
Oklahoma	77.0%	40	84.9%	25	69.0%	48	62.9%	39	70.1%	40
Oregon	80.5%	21	84.6%	27	76.6%	20	67.8%	26	73.1%	28
Pennsylvania	82.2%	14	87.2%	10	77.5%	16	71.7%	16	77.0%	16
Rhode Island	82.2%	15	85.8%	19	78.3%	13	76.0%	8	80.3%	5
South Carolina	74.9%	47	78.6%	49	71.5%	38	58.7%	49	72.0%	33
South Dakota	83.7%	6	86.9%	12	80.6%	7	81.5%	1	87.4%	1
Tennessee	78.1%	34	83.2%	35	73.3%	33	66.5%	28	71.7%	34
Texas	76.8%	41	83.6%	30	70.3%	45	62.4%	41	68.1%	43
Utah	79.4%	29	86.2%	16	72.4%	36	62.3%	42	66.5%	47
Vermont	83.4%	9	83.8%	29	83.0%	4	77.9%	4	83.8%	2
Virginia	80.2%	24	87.0%	11	74.0%	30	74.0%	11	78.5%	10
Washington	80.8%	20	85.2%	24	76.6%	21	65.7%	32	71.4%	35
West Virginia	77.8%	36	81.8%	41	73.7%	31	58.1%	50	66.8%	45
Wisconsin	82.2%	16	86.8%	13	77.7%	14	73.4%	12	77.6%	15
Wyoming	82.8%	12	89.4%	2	76.4%	22	66.1%	30	75.1%	23
U.S.	78.6%		83.7%		73.6%		66.4%		71.6%	

Continued

Figure 13. (Cont) Labor Force Participation Rates (2020)

Region	Married Mothers Children 0-4		Married Mothers Children 0-14		Unmarried Mothers Children 0-4		Unmarried Mothers Children 0-14		Mothers Youngest Child 5-14		Females No Children	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Alabama	64.4%	30	68.6%	38	67.5%	34	70.1%	49	72.4%	44	66.1%	50
Alaska	50.3%	51	62.5%	50	90.9%	3	78.8%	22	72.8%	42	70.1%	43
Arizona	62.6%	36	69.7%	35	70.9%	28	79.2%	20	78.0%	30	80.0%	9
Arkansas	73.7%	11	73.6%	24	67.0%	36	69.7%	50	72.8%	41	69.4%	45
California	59.3%	42	62.8%	48	67.6%	33	71.5%	44	68.0%	51	73.0%	32
Colorado	69.2%	21	75.4%	16	64.5%	40	79.6%	19	82.2%	16	76.7%	22
Connecticut	75.9%	7	77.6%	11	78.1%	16	84.5%	9	81.8%	18	72.4%	36
Delaware	64.1%	31	75.7%	15	67.9%	31	73.4%	38	82.0%	17	79.8%	10
District of Columbia	76.8%	5	81.5%	5	76.1%	19	87.0%	7	89.5%	3	83.4%	4
Florida	63.7%	32	70.7%	31	71.9%	25	78.3%	24	78.3%	29	73.1%	31
Georgia	62.1%	37	67.1%	41	64.9%	39	77.8%	27	76.3%	34	71.2%	41
Hawaii	60.7%	40	70.2%	32	71.6%	26	73.5%	36	79.1%	26	70.4%	42
Idaho	57.8%	46	63.9%	47	83.2%	10	77.8%	26	71.7%	48	76.5%	23
Illinois	72.7%	12	73.6%	23	84.5%	7	89.8%	2	80.6%	23	73.4%	29
Indiana	70.4%	18	72.7%	26	75.0%	20	72.3%	42	73.2%	39	72.9%	33
Iowa	71.8%	17	74.5%	20	91.9%	2	88.4%	4	78.9%	27	82.5%	5
Kansas	64.6%	29	73.1%	25	95.6%	1	83.8%	11	81.1%	21	80.7%	7
Kentucky	68.7%	22	76.0%	14	66.5%	37	77.5%	28	85.3%	7	67.0%	48
Louisiana	67.3%	26	71.2%	29	76.3%	18	73.8%	35	73.1%	40	67.9%	46
Maine	63.7%	33	72.6%	27	63.4%	42	74.9%	34	84.4%	8	79.6%	13
Maryland	77.6%	3	78.5%	9	50.4%	49	72.1%	43	80.6%	22	78.1%	17
Massachusetts	75.9%	6	78.5%	8	60.9%	47	70.3%	48	79.3%	25	72.6%	35
Michigan	66.1%	27	70.0%	33	63.3%	43	73.4%	37	76.7%	32	76.2%	24
Minnesota	72.6%	13	77.6%	10	83.2%	11	83.9%	10	83.2%	12	84.7%	1
Mississippi	74.9%	9	69.9%	34	63.8%	41	72.6%	41	72.0%	46	62.6%	51
Missouri	67.6%	25	77.3%	13	72.4%	24	80.4%	17	85.5%	5	84.0%	3
Montana	72.5%	14	80.2%	6	50.0%	50	70.8%	47	85.4%	6	79.2%	14
Nebraska	82.5%	1	80.0%	7	73.1%	22	78.1%	25	78.5%	28	79.7%	12
Nevada	53.7%	49	64.0%	46	83.7%	8	87.8%	6	79.5%	24	72.9%	34
New Hampshire	68.2%	24	75.2%	17	85.9%	5	89.9%	1	84.0%	11	80.5%	8
New Jersey	69.8%	19	71.6%	28	74.1%	21	80.5%	16	75.8%	38	74.1%	27
New Mexico	55.3%	48	59.2%	51	48.8%	51	71.4%	45	72.7%	43	71.4%	40
New York	58.1%	45	65.2%	42	67.6%	32	71.3%	46	72.1%	45	73.7%	28
North Carolina	58.7%	43	64.1%	45	62.8%	44	69.5%	51	70.4%	49	72.0%	37
North Dakota	75.5%	8	84.4%	3	71.4%	27	75.1%	33	89.7%	2	84.1%	2
Ohio	65.8%	28	75.0%	18	62.1%	45	77.4%	29	84.4%	9	76.0%	26
Oklahoma	63.2%	34	69.1%	36	61.5%	46	73.0%	39	75.9%	36	66.9%	49
Oregon	68.4%	23	70.7%	30	65.8%	38	81.4%	15	76.9%	31	78.5%	15
Pennsylvania	72.3%	15	74.7%	19	69.9%	29	82.6%	13	81.4%	20	77.0%	21
Rhode Island	74.2%	10	81.7%	4	79.8%	15	76.2%	31	84.4%	10	77.1%	19
South Carolina	53.6%	50	68.4%	39	68.5%	30	78.6%	23	82.2%	15	67.7%	47
South Dakota	80.0%	2	86.7%	1	85.3%	6	89.1%	3	91.4%	1	71.7%	38
Tennessee	61.4%	39	67.4%	40	82.3%	13	82.2%	14	75.8%	37	73.3%	30
Texas	60.2%	41	64.8%	43	67.2%	35	75.3%	32	71.9%	47	71.6%	39
Utah	57.6%	47	62.7%	49	87.1%	4	85.5%	8	70.3%	50	77.0%	20
Vermont	77.2%	4	86.3%	2	80.2%	14	76.5%	30	87.8%	4	81.2%	6
Virginia	72.2%	16	77.3%	12	82.4%	12	82.9%	12	82.7%	14	69.8%	44
Washington	62.0%	38	68.8%	37	77.9%	17	80.0%	18	76.4%	33	79.8%	11
West Virginia	58.3%	44	64.2%	44	57.4%	48	72.9%	40	76.3%	35	76.1%	25
Wisconsin	69.3%	20	73.6%	21	83.3%	9	87.8%	5	81.6%	19	78.3%	16
Wyoming	62.9%	35	73.6%	22	72.6%	23	78.9%	21	83.0%	13	77.1%	18
U.S.	64.0%		69.9%		70.4%		76.9%		76.3%		74.0%	

Continued

Figure 13. (Cont) Labor Force Participation Rates (2021)

Region	Overall		Male Ages 18-54		Female Ages 18-54		Mothers with Children Ages 0-4		Mothers with Children Ages 0-14	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Alabama	73.7%	48	79.5%	46	68.2%	48	60.1%	45	69.4%	39
Alaska	73.8%	47	76.4%	49	71.0%	37	69.2%	18	71.5%	28
Arizona	78.1%	30	87.0%	6	69.2%	45	51.6%	50	62.6%	50
Arkansas	75.7%	43	83.9%	27	68.0%	49	62.4%	42	69.4%	38
California	74.6%	45	80.1%	43	69.0%	46	59.2%	46	64.7%	48
Colorado	81.7%	11	84.5%	20	78.7%	12	68.8%	21	73.3%	21
Connecticut	75.6%	44	83.5%	28	67.7%	50	71.1%	14	71.8%	27
Delaware	77.7%	31	81.4%	39	74.2%	26	69.5%	16	74.2%	18
Dist. of Columbia	81.0%	18	84.6%	19	77.6%	16	68.1%	24	73.2%	22
Florida	77.3%	32	82.6%	35	72.1%	32	65.0%	31	70.8%	31
Georgia	76.4%	37	82.5%	37	71.0%	38	64.3%	35	72.7%	24
Hawaii	76.6%	33	80.8%	41	72.6%	30	64.9%	32	74.6%	14
Idaho	81.6%	12	90.4%	1	72.5%	31	59.0%	47	66.1%	45
Illinois	78.6%	27	82.9%	33	74.2%	25	74.7%	8	74.5%	16
Indiana	78.7%	25	84.1%	23	73.5%	28	66.9%	25	70.0%	36
Iowa	83.7%	5	84.6%	17	82.7%	1	80.5%	1	86.9%	1
Kansas	82.5%	8	86.9%	8	78.0%	14	69.4%	17	74.0%	20
Kentucky	76.4%	39	84.6%	18	68.4%	47	51.0%	51	63.5%	49
Louisiana	74.6%	46	80.3%	42	69.3%	44	64.6%	33	68.6%	42
Maine	81.4%	14	82.6%	36	80.2%	6	74.7%	9	77.6%	12
Maryland	80.6%	20	86.3%	10	75.4%	19	74.0%	11	74.5%	15
Massachusetts	81.2%	16	84.0%	25	78.4%	13	68.7%	22	74.0%	19
Michigan	76.3%	40	78.8%	47	73.7%	27	68.4%	23	70.3%	33
Minnesota	82.6%	7	86.0%	12	79.3%	10	68.8%	20	75.1%	13
Mississippi	73.2%	49	75.9%	50	70.5%	40	65.8%	30	72.7%	23
Missouri	82.4%	9	84.2%	22	80.7%	5	80.2%	2	80.0%	5
Montana	81.9%	10	84.0%	26	79.8%	7	75.8%	5	78.2%	8
Nebraska	84.1%	3	85.9%	13	82.2%	3	74.1%	10	80.3%	4
Nevada	78.7%	26	86.9%	7	70.8%	39	66.3%	29	66.0%	46
New Hampshire	82.7%	6	86.1%	11	79.0%	11	70.8%	15	78.0%	10
New Jersey	79.3%	24	84.2%	21	74.5%	22	62.6%	41	72.6%	25
New Mexico	71.5%	51	78.2%	48	65.4%	51	61.0%	44	60.9%	51
New York	76.1%	41	79.7%	45	72.9%	29	69.1%	19	69.5%	37
North Carolina	75.9%	42	79.8%	44	72.1%	33	63.9%	37	68.0%	44
North Dakota	85.6%	1	89.9%	2	80.9%	4	75.4%	7	81.2%	3
Ohio	78.5%	28	82.6%	34	74.2%	24	62.4%	43	70.9%	30
Oklahoma	76.4%	38	83.0%	32	69.7%	43	62.6%	40	68.6%	43
Oregon	81.3%	15	85.7%	14	77.0%	17	63.0%	39	72.1%	26
Pennsylvania	80.5%	21	84.6%	16	76.4%	18	72.2%	13	77.7%	11
Rhode Island	81.4%	13	83.1%	31	79.8%	8	78.6%	3	82.1%	2
South Carolina	76.6%	34	81.7%	38	71.6%	36	66.6%	27	70.3%	34
South Dakota	85.4%	2	88.2%	3	82.3%	2	75.5%	6	79.2%	7
Tennessee	76.5%	35	81.3%	40	71.8%	35	63.4%	38	68.9%	40
Texas	76.5%	36	83.1%	30	70.1%	42	63.9%	36	68.8%	41
Utah	78.5%	29	85.1%	15	72.0%	34	54.6%	49	65.6%	47
Vermont	80.6%	19	83.2%	29	78.0%	15	66.9%	26	78.2%	9
Virginia	80.1%	22	86.4%	9	74.4%	23	66.5%	28	70.3%	32
Washington	79.8%	23	84.0%	24	75.4%	20	72.7%	12	74.5%	17
West Virginia	73.1%	50	75.8%	51	70.2%	41	64.5%	34	70.1%	35
Wisconsin	84.0%	4	88.0%	4	79.7%	9	77.0%	4	79.2%	6
Wyoming	81.1%	17	87.3%	5	75.0%	21	57.3%	48	71.4%	29
U.S.	77.8%		82.8%		72.9%		65.8%		70.5%	

Continued

Figure 13. (Cont) Labor Force Participation Rates (2021)

Region	Married Mothers Children 0-4		Married Mothers Children 0-14		Unmarried Mothers Children 0-4		Unmarried Mothers Children 0-14		Mothers Youngest Child 5-14		Females No Children	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Alabama	52.4%	49	68.1%	35	70.8%	23	71.5%	36	76.5%	25	63.9%	51
Alaska	67.8%	25	69.9%	30	72.1%	21	75.3%	26	73.3%	38	70.4%	40
Arizona	47.0%	51	57.1%	50	64.1%	36	76.5%	22	71.1%	46	75.1%	22
Arkansas	59.9%	40	66.3%	42	66.2%	31	75.2%	30	73.9%	32	65.8%	49
California	58.6%	43	62.2%	49	61.0%	45	71.7%	35	68.5%	49	71.1%	39
Colorado	68.3%	24	72.6%	22	70.1%	24	75.5%	24	76.1%	26	82.5%	3
Connecticut	70.6%	16	69.3%	34	72.8%	17	77.9%	19	72.3%	41	64.0%	50
Delaware	80.5%	1	79.7%	5	54.5%	46	66.0%	47	78.6%	18	71.2%	38
District of Columbia	73.9%	11	75.9%	14	51.4%	49	68.7%	44	77.9%	22	79.4%	12
Florida	60.1%	39	67.1%	38	74.0%	14	77.7%	20	75.2%	28	71.7%	36
Georgia	60.4%	38	66.8%	41	72.5%	20	83.3%	7	78.4%	19	70.3%	41
Hawaii	56.2%	44	71.2%	26	82.3%	6	83.1%	9	80.6%	12	69.1%	45
Idaho	53.9%	46	63.6%	47	77.4%	10	75.3%	29	71.7%	45	77.8%	14
Illinois	75.1%	8	73.5%	19	73.5%	16	77.1%	21	74.4%	31	73.1%	33
Indiana	65.9%	30	69.5%	32	68.8%	29	70.9%	38	73.0%	39	74.8%	27
Iowa	72.1%	14	83.4%	1	100.0%	1	96.8%	1	92.5%	1	77.7%	15
Kansas	64.9%	34	70.9%	27	80.0%	9	82.5%	11	78.4%	20	79.6%	10
Kentucky	53.8%	47	63.8%	45	40.3%	51	62.5%	51	73.3%	37	71.5%	37
Louisiana	64.4%	35	69.4%	33	64.8%	33	67.4%	46	71.9%	44	69.3%	44
Maine	69.5%	19	73.9%	18	87.6%	3	84.4%	3	80.4%	13	81.0%	7
Maryland	75.9%	4	75.5%	15	69.5%	25	72.4%	33	74.9%	29	74.2%	29
Massachusetts	70.7%	15	74.8%	16	64.3%	35	72.2%	34	78.7%	17	82.0%	4
Michigan	68.7%	22	69.9%	31	67.7%	30	71.0%	37	72.0%	43	73.9%	31
Minnesota	70.3%	17	77.1%	12	64.1%	37	67.9%	45	80.8%	11	80.0%	8
Mississippi	69.1%	20	70.7%	28	61.8%	43	75.3%	27	77.1%	24	68.5%	47
Missouri	76.0%	3	78.0%	8	87.7%	2	84.0%	6	79.9%	15	79.7%	9
Montana	75.5%	6	78.1%	7	76.8%	12	78.6%	16	80.2%	14	81.3%	5
Nebraska	74.9%	9	80.9%	2	72.7%	18	79.1%	14	87.7%	2	83.4%	2
Nevada	68.7%	21	63.7%	46	62.3%	42	70.8%	40	65.6%	50	71.8%	35
New Hampshire	73.2%	12	77.5%	9	63.6%	38	79.8%	13	84.0%	6	78.1%	13
New Jersey	61.9%	37	72.4%	23	65.1%	32	73.5%	32	79.8%	16	74.0%	30
New Mexico	55.5%	45	55.7%	51	68.8%	28	69.2%	43	60.9%	51	66.7%	48
New York	66.5%	29	66.9%	39	75.5%	13	75.3%	28	69.7%	48	75.0%	24
North Carolina	58.9%	42	66.9%	40	73.8%	15	69.8%	42	71.0%	47	72.3%	34
North Dakota	72.8%	13	79.6%	6	80.6%	7	84.4%	4	87.5%	3	81.1%	6
Ohio	66.9%	27	74.3%	17	52.6%	48	64.9%	49	77.4%	23	74.8%	26
Oklahoma	66.7%	28	67.8%	36	50.5%	50	70.6%	41	73.8%	33	73.3%	32
Oregon	65.6%	31	71.4%	25	53.7%	47	74.3%	31	78.2%	21	77.2%	16
Pennsylvania	75.4%	7	77.3%	10	64.6%	34	78.4%	17	82.0%	9	75.2%	21
Rhode Island	76.8%	2	80.7%	4	82.8%	5	85.0%	2	84.6%	5	77.2%	17
South Carolina	70.1%	18	73.0%	20	61.6%	44	65.5%	48	72.8%	40	70.3%	42
South Dakota	74.8%	10	80.8%	3	76.9%	11	75.4%	25	84.0%	7	85.9%	1
Tennessee	59.0%	41	64.2%	44	72.6%	19	78.9%	15	73.3%	36	74.8%	25
Texas	64.3%	36	65.4%	43	63.3%	39	75.8%	23	72.3%	42	69.5%	43
Utah	52.4%	48	63.2%	48	69.5%	26	78.2%	18	73.7%	34	75.9%	18
Vermont	65.2%	33	76.3%	13	71.3%	22	82.9%	10	86.9%	4	74.6%	28
Virginia	67.6%	26	70.2%	29	62.3%	41	70.9%	39	73.5%	35	75.1%	23
Washington	68.5%	23	71.7%	24	85.7%	4	83.3%	8	75.8%	27	75.9%	19
West Virginia	65.2%	32	72.8%	21	62.9%	40	64.1%	50	74.4%	30	68.7%	46
Wisconsin	75.8%	5	77.3%	11	80.3%	8	84.3%	5	81.1%	10	79.6%	11
Wyoming	50.9%	50	67.2%	37	69.5%	27	80.4%	12	83.2%	8	75.6%	20
U.S.	64.9%		69.0%		68.2%		74.7%		74.4%		73.5%	

Source: IPUMS USA - University of Minnesota, U.S. Census Bureau, and RegionTrack calculations.

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Glossary

Best-Fit Line

A best fit line through a scatter plot of data best expresses the linear relationship between those points. The straight line provides the best approximation of the relationship between the data points. The slope of the line provides a quantitative estimate of both the direction and magnitude of the relationship. Best fit lines are also commonly referred to as trendlines or linear regression lines.

Birth Rate

Measures of the birth rate reflect the number of births in a population over time (typically one year). Commonly used measures of the birth rate include the crude birth rate and fertility rate.

Capital Investment

Capital investment is the purchase of tangible and intangible assets by firms, governments, and individuals for the purpose of pursuing their business and operating goals and objectives. Capital investment is measured in the child care report using net private fixed investment as defined by BEA. The estimated measure of capital is net of depreciation and includes the broad asset categories of equipment, structures, and intellectual property. Public sector assets are excluded from the analysis. State-level estimates are formed by partitioning national data on net private fixed assets at the industry level based on a region's share of national household earnings at the industry level.

Child and Dependent Care Tax Credit (CDCTC)

The Child and Dependent Care Tax Credit is a federal tax credit available to pay for the care of eligible children and adult dependents (qualifying persons) to enable taxpayers to work or look for work. To claim the credit, you (and your spouse if filing jointly) must have earned income during the year. Child and dependent care expenses must be work-related to qualify for the credit. There is a special rule for education. The spouse is treated as having earned income for any month that he or she is a full-time student, or physically or mentally not able to care for himself or herself. If filing a joint return, this rule also applies to either spouse. You can be treated as having earned income for any month you are a full-time student or not able to care for yourself. The credit is calculated based on earned income and covers a percentage of expenses incurred for the care of qualifying persons. For tax year 2021, the American Rescue Plan Act of 2021 extended the credit up to \$4,000 for one qualifying person and \$8,000 for two or more qualifying persons and made the credit temporarily refundable.

Children of Child Care Age

Children ages 14 and under are considered most likely to participate in formal or informal child care. The group of children of child care age is divided into two groups in the report: younger children ages 0 to 4 and older children ages 5 to 14. This definition follows the Current Population survey which measures paid child care usage for children ages 14 and under.

Child Care Cost Burden

The child care cost burden of a household reflects expenditures on paid child care as a percentage of household income. This measure reflects the notion that the cost burden of child care is best measured relative to ability to pay. The cost burden is calculated as child care expenditures divided by total household income. Burden can be measured on a per child basis or for all children in a household.

Civilian Non-Institutional Population

The civilian non-institutional population measures those persons ages 16 and older and their children not on active duty in the Armed Forces or residing in institutions (e.g., correctional institutions or long-term care facilities for the aged).

Cointegration

Cointegration is a statistical concept that refers to the long-run co-movement of two or more data series over time. If variables are found to be cointegrated, estimates can then be made of the long-run elasticity between two cointegrated factors over time. The concept of cointegration is closely tied to the notion of Granger causality but focuses on the long-run dimension of the relationship among a group of variables over time. A set of cointegrated variables maintain a long-run equilibrium relationship over time, with any short-run deviations from the long-run relationship corrected over time through an error-correction process. In fact, two cointegrated variables are expected to have short-run Granger causality present in at least one direction.

Correlation

Correlation is a statistical measure of the degree of linear dependence between two series over a specified period. Correlated series tend to move in coordination with one another over time. Positively correlated variables tend to move in the same direction; negatively correlated series tend to move in the opposite direction. If X and Y are correlated, the calculated correlation is the same for both series in each direction in the period.

Cost-of-Living

Cost of living reflects differing prices across geographic areas for a range of typical living expenses including housing, food, energy, and other items. Measures of the cost of living are often used to compare how costly it is to live in one geographic area versus another. Cost of living adjustments are made in the report using state-level regional price parity (RPP) indexes produced by the Bureau of Economic Analysis (BEA) along with the national implicit price deflator to adjust for national price changes over time.

Crude Birth Rate

The crude birth rate is the number of births per 1,000 population in a geographic area.

Current Population Survey (CPS)

The Current Population Survey, also commonly referred to as the household survey, is a sample-based monthly survey of about 60,000 eligible households. It provides a comprehensive body of data on the U.S. labor force by demographic and labor force characteristics.

Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC)

A widely used supplement to the Current Population Survey is the Annual Social and Economic Supplement (ASEC) conducted by the Census Bureau every February, March, and April. The supplement collects data on health insurance coverage, work experience, income from all sources, receipt of noncash benefits, poverty, migration, geographic mobility, and other special topics. The CPS ASEC also collects data on the number of children in paid child care and the expenditures of households and families using paid care. Use of the ASEC requires a tradeoff from monthly to annual data but provides a broader sample and larger universe than the basic CPS.

Educational Attainment

Educational attainment refers to the highest level of education that an individual has completed. Attainment is often measured using the number of years of education completed, especially when used to describe the average attainment across the population of a geographic region. Attainment is distinct from the level of schooling that an individual is attending currently.

Elasticity

Elasticity is an economic concept used to measure the percentage change of one economic variable in response to a change in another. The response is deemed elastic (or highly responsive) if the resulting change in a variable is more than proportional to the initial change and inelastic (or not highly responsive) if less than proportional.

Employment-Population Ratio

The employment-population ratio (or employment ratio) is a measure of labor force attachment that measures the share of the population activity employed. The ratio is calculated as the number of employed workers divided by the civilian noninstitutional population. The employment ratio does not consider unemployed workers as attached to the labor force. As a result, the employment ratio is far more volatile than the labor force participation rate across the economic cycle.

Family

A family is defined in the Current Population Survey (CPS) as a group of related individuals who are all members of the same household. Multiple families can be domiciled within the same household.

Female Labor Force Participation Rate

The female labor force participation rate measures the rate of participation of women in the labor force.

Fertility Rate

The fertility rate is the number of births per 1,000 women ages 15 to 44 in a geographic area.

Goods-Producing

Goods-producing sectors of the economy are those that produce products rather than services. These typically include NAICS sectors covering farming; forestry, fishing, and related activities; mining; and manufacturing.

Granger Causality

Granger causality is a statistical test of the usefulness of one variable in forecasting future values of another. Granger causality is present between two variables if future forecasts of variable X are improved by using variable Y in its prediction, above the level present when using only information about the history of X. Granger causality can be present in a single direction from either X to Y or Y to X, in both directions (bi-directional), or may not be present at all. If there is no Granger causal relation found from Y to X, Y is deemed strictly exogenous to X in providing useful forecasting information. Granger causality also differs greatly from measuring the correlation between two time series. Correlation simply measures the linear dependence between two series over a specified period. If X and Y are correlated, the calculated correlation is the same for both series in each direction in the period. Granger causality, however, measures statistical predictability in both directions and in the time dimension.

Great Recession

The Great Recession refers to the steep decline in economic activity associated with the U.S. recession lasting from December 2007 to June 2009, as well as downturns in national economies globally. It is the longest recession in

the post-World War II period and generally considered the most significant economic downturn since the Great Depression.

Household

Survey data from the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC) are organized using samples of households or dwellings. A household is defined as all persons who occupy a single dwelling unit. A dwelling unit is a room or group of rooms intended for occupation as separate living quarters and having either a separate entrance or complete cooking facilities for the exclusive use of the occupants. In a small percentage of cases, multiple family units occupy a household.

Household Income

Household income represents all combined forms of gross income, both earned and unearned, for all members of a household ages 15 and over.

IPUMS-CPS

IPUMS provides census and survey data from around the world integrated across time and space. IPUMS integration and documentation makes it easy to study change, conduct comparative research, merge information across data types, and analyze individuals within family and community context. Data and services available free of charge. IPUMS CPS harmonizes microdata from the monthly U.S. labor force survey, the Current Population Survey (CPS), covering the period 1962 to the present. Data include demographic information, rich employment data, program participation and supplemental data on topics such as fertility, tobacco use, volunteer activities, voter registration, computer and internet use, food security, and more. IPUMS-CPS, University of Minnesota, www.ipums.org.

Labor Force

The labor force includes all persons in the civilian noninstitutional population classified as either employed or unemployed. The labor force does not change as individuals move from employment to unemployment, and vice versa. The labor force changes only when new entrants enter the labor force or existing participants exit.

Labor Force Status

Labor force status measures the degree of labor force attachment for persons ages 15 years and older. Persons are generally classified as either in the labor force or not in the labor force. Those in the labor force are further classified as either employed or unemployed. Many persons are not in the labor force due to school, retirement, health, personal choice, and other factors. Members of the Armed Forces are excluded from most measures of work status.

Labor Force Attachment

Labor force attachment is a general economic term

referring to a person's status as a participant in the labor force. Persons attached to the labor force include those either employed or unemployed. Those who are unattached do not participate in the labor force. The two most widely used measures of the degree of labor force attachment for the population of a geographic area are the labor force participation rate and the employment-population ratio.

Labor Force Participation Rate

The labor force participation rate is the most widely cited measure of labor force attachment and is calculated as persons in the labor force (either employed or unemployed) divided by population (civilian noninstitutional) ages 16 and over. In other words, it captures the percentage of the population of a geographic area that is either employed or unemployed and looking for work. The inclusion of the unemployed is the key characteristic of the participation rate versus the employment ratio, another popular measure of labor force attachment.

Maternal Labor Force Participation

Maternal labor force participation refers to the labor force participation of women with children.

Median Household Income

For households, the median income represents the level of household income where half the households in a geographic region (including those with no income) earn more and half earn less. Median household income is also referred to as the midpoint of the income distribution or the 50th percentile of household income.

Outlier

An outlier is an observation or data point that differs significantly from others in the same sample. Outliers can be due to measurement error or may simply reflect unusual and unexpected behavior among the observations in the sample. Outliers are sometimes excluded from the data set to gauge the sensitivity of any statistical findings to the presence of the outlier(s).

Paid Child Care

Paid child care is defined in the report as any form of child care arrangement for a child ages 0 to 14 for which a parent makes a direct expenditure on care to enable them to work. This follows the definition of paid child care used in the Current Population Survey (CPS). Paid options can include both formal and informal care arrangements such as neighbors or friends, which may or may not be regulated by states.

Panel Data

Panel data refers to data observations categorized for a given entity or data measure observed across time. Panel data is also known as longitudinal or cross-sectional time series data. Panel data used throughout the child care

report is defined for multiple states (cross sections) and multiple time periods.

Panel Model

Panel model techniques are statistical tools and methods that simultaneously utilize the information contained in the economic behavior of an entity or data measure across time. Unit root, Granger causality, and cointegration tests used throughout the child care report are all panel modeling techniques that use a 50-state panel dataset. The use of a panel of states rather than national data can provide for more robust estimates of the fundamental factors driving paid care usage.

Personal Income

Personal income includes all forms of income that persons receive in return for their provision of labor, land, and capital used in current production and the net current transfer payments that they receive from business and from government.

Per Capita Income

Per capita income measures the amount of income earned per person in a geographic region. Per capita income is commonly used as a measure of standard of living of the population in a region.

Prime Working Age Women (ages 25-54)

Women of prime working age are those ages 25 to 54 who actively participate in the labor force. These women are more likely to participate in the labor force than younger and older women and have likely completed pre-career education and training.

Probability Value (p-value)

A probability value, or p-value, is a statistical parameter used within hypothesis testing that determines the probability of obtaining the observed results assuming a given probability distribution of the test statistic and that the null hypothesis is true. In other words, it is the predetermined level of probability at which statistical significance is found. A p-value of 0.05 (5 percent) or lower is typically considered the threshold of statistical significance.

Public Preschool Education

Public preschool includes a range of publicly funded early childhood education programs accessed by children before they begin compulsory education at the primary school level. Public pre-kindergarten (or Pre-K) programs are commonly available to children ages 4 to 5 in many states (i.e., 5-year-old children not yet enrolled in public kindergarten). In some states, public preschool also serves 3-year-old children. Publicly funded preschool could be located in a school or in a mixed delivery setting such as child care centers and family child care homes depending upon state or local school district decisions.

Quartile

A quartile is a statistical tool used for summarizing data by dividing the observations into four groups that are more-or-less of equal size. Data is often ranked along some measure of the value of the underlying data and then assigned to quartiles. As with other forms of quantiles (e.g., terciles, quintiles, deciles, etc.), quartiles provide a convenient means of comparing data across grouped intervals.

Real Personal Income

Personal income calculated at its nominal, or current, value and then adjusted for the effects of inflation over time is deemed real personal income. At the state level, an additional adjustment is made to nominal personal income to reflect state-level differences in cost-of-living when calculating real personal income. The cost-of-living adjustments are made using Regional Price Parity (RPP) indexes developed by the Bureau of Economic Analysis.

Sample Size

Sample size refers to the number of individual observations in a sample of data.

Service-Providing

The service-providing sectors of the economy produce intangible services instead of goods. A range of services are produced by both private and public sector entities under the NAICS classification system.

Stationarity

A stationary data series will have a mean, variance, and autocorrelation structure that is stable over time. Visually, stationary series tend to be mean reverting and do not trend strongly upward or downward. They also do not have periodic patterns such as seasonality. A non-stationary data series, or one with a unit root, may have to be differenced one or more times to achieve stationarity. The level of integration, denoted as $I(i)$, is used to describe the number of times (i) a data series must be differenced to achieve stationarity.

Statistical Causality

The statistical notion of causality tests for the increased predictability of the future path of one variable, X , using another variable, Y . While not addressing the issue of economic causality in the traditional sense, tests of statistical causality provide an empirical measure of the historical responses and timing embodied in the relationships among data series. Granger causality is a common approach to testing for statistical causality. Because economic causality also operates in the time dimension, economic causal relations are often informed using Granger-type methods, particularly in forecasting applications.

Statistical Significance

In statistical hypothesis testing, a result is statistically significant if it is deemed unlikely to have occurred due to chance given the stated hypothesis tested. Statistical significance is usually determined by rejection of the null hypothesis.

Subsidies and Cost Offsets

Several federal and state subsidies, tax credits, and other forms of cost offsets are available to assist families in meeting the cost of paid child care. Subsidies and offsets examined in the report include those provided through the Child Care and Development Fund (CCDF), the Temporary Assistance for Needy Families (TANF) block grant, and the Child and Dependent Care Tax Credit (CDCTC).

Time Series Analysis

Time series analysis describes a group of statistical techniques and methods for analyzing time series data to extract meaningful characteristics of the data. These techniques are used most often to examine relationships present between variables over different points in time. The Granger causality and cointegration tests used in the reports are widely used methods of time series analysis.

Time Series Data

Time series data is a collection or sequence of data observations collected over time intervals. Time series data is commonly collected on an hourly, daily, weekly, monthly, quarterly, or annual time interval and indexed in time order.

Todo-Yamamoto Method (TY Method)

All Granger causality tests in the child care report are implemented within a VAR model framework using the method of Todo and Yamamoto (1995). The TY method allows for causality testing among a group of data series within a system framework. The system includes an equation for each data series with the series as the dependent variable and the remaining variables as explanatory (independent or right-hand side or) variables. The TY method is noteworthy in that it is robust to the presence of unit roots, or the order of integration of the time series. The base VAR used in the tests is augmented, or overfit, by including an additional lag of the level of each variable as an additional exogenous variable in each equation of the VAR.

Traded Activity (or Openness)

Traded activity is defined as production for trade outside a region, or a region's degree of openness. The concept traces its origins to the notion of enhancing the 'basic' industries located within a region. Basic industries produce goods and services that are exported for sale outside the local market. This includes trade with other states as well as internationally. States with large manufacturing, mining, and Federal government sectors (including military) tend

to have the most traded activity with outside regions. Traded activity captures spending from outside the region which in turn helps support the development of the region's 'non-basic' sectors. Non-basic industries are believed to merely recirculate existing purchasing power, which exerts less influence on overall regional growth than an equivalent injection of spending from outside the region.

Unit Root Test

Unit root tests are used to test the stationarity of a data series and establish its degree of integration. $I(0)$ variables are stationary in levels (no unit root) and require no differencing, while $I(1)$ variables have a unit root and must be differenced once to achieve stationarity. An $I(2)$ series is one that must be differenced twice to achieve stationarity. Most nonstationary series are $I(1)$ and become stationary after differencing once. Few data series require differencing twice (or more) to achieve stationarity.

Unpaid Child Care

Some families may use unpaid child care, which reflects time children spend out-of-the-home. However, for purposes of this report series, only the use of paid child care was reviewed. The series compares the average income of families with children age 14 and younger that use paid child care compared to families with children of the same age that do not use paid child care. The same analysis is also included for families with children under age 5 that use paid care compared to families with children under age 5 that do not use paid care.

Vector Autoregressive (VAR) Model

Vector autoregressive models are a time series technique used to investigate the relationships among a group of time series variables. The estimated model includes an equation for each data series with the series as the dependent variable and the remaining variables as explanatory (independent or right-hand side or) variables. Each equation in the VAR model includes only each variable's lagged (or past) values, lagged values of the other variables in the model, and an error term. The VAR model imposes no structural assumptions on the data but instead treats all data in the model as endogenous to the system.

Women of Working and Childbearing Age (ages 18-54)

The population of women ages 18 to 54 are of both working age and childbearing age. These women are the most likely to use paid child care services for children ages 0 to 14. This measure captures a broader group of women than prime working age women (ages 25-54) by including younger women ages 18-24 who are typically of childbearing age.

Abbreviations and Acronyms

BLS	Bureau of Labor Statistics
BEA	Bureau of Economic Analysis
CCDF	Child Care and Development Fund
CDCTC	Child and Dependent Care Tax Credit
CED	Committee for Economic Development of The Conference Board
CPS	Current Population Survey
CPS ASEC	Current Population Survey, Annual Social and Economic Supplement
ECPP	Education Early Childhood Program Participation
HHS	US. Department of Health and Human Services
IPUMS-CPS	IPUMS-Current Population Survey
IRS	Internal Revenue Service
NAICS	North American Industrial Classification System
NIEER	National Institute for Early Education Research
RPP	Regional Price Parity
SIPP	Survey on Income and Program Participation
SPM	Supplemental Poverty Measure
TANF	Temporary Assistance for Needy Families
VAR	Vector Autoregressive Model

Endnotes

- 1 The base measure of population used throughout the report is the civilian noninstitutional population ages 16 and over. Population is adjusted throughout the report by using alternative measures of age, sex, race, marital status, and state of residence.
- 2 Population can be defined in many ways, with the most common measure using civilian noninstitutional population ages 16 and over. The definition used most commonly in the report is based on civilian noninstitutional persons ages 18 to 54. Definitions of the components used by the Bureau of Labor Statistics are available online at: <https://www.bls.gov/cps/definitions.htm>.
- 3 For a historical discussion of this phenomenon, see: <https://www.bls.gov/opub/mlr/1983/09/art1full.pdf>
- 4 These estimates are formed using data from the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC).
- 5 For a more detailed discussion of the effects of welfare reform efforts on labor force participation, see: <https://www.brookings.edu/research/welfare-and-the-economy/#:~:text=The%20rate%20of%20labor%20force,both%20receiving%20welfare%20and%20working>.

