

The Number of Children in The Population Estimates Program Blended Base Used for
Post-2020 Census Estimates Compared to the 2020 Census Count

By

Dr. William P. O'Hare¹ and Siddhartha Aneja²

Executive Summary

Since the 1970s, the Census Bureau has produced yearly population estimates for states and counties for the decade following each Decennial Census. The estimates include the number of children (population ages 0 to 17) for states and counties. The estimation method used by the Census Bureau starts with a population base and then adds or subtracts estimated yearly incremental change to that base.

In the past, the Decennial Census counts have provided the estimates base, but the 2020 Census detailed data needed for the base was not available in time to use with the 2021 and 2022 population estimates so the Census Bureau staff developed a new PEP (Population Estimates Program) methodology called the blended base.

This paper is intended to provide guidance for child advocates, researchers, and data analysts on the potential impact of the Census Bureau's new blended base methodology for the child population (ages 0 to 17) .

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The PEP blended base produces somewhat different numbers than what would have been produced if the Census Bureau utilized the 2020 Decennial Census counts as they have done in the past. The differences between the 2020 Census counts and the PEP blended base have different implications for different populations. This study examines the implications for the child population (ages 0 to 17).

This report focuses on differences in the number and the national share of children between the PEP blended base and the 2020 Census counts. It does not address the accuracy of these two data series. It will be difficult to provide a definitive assessment of whether the Census count or the PEP blended base provides a more accurate reflection of the true number of children in states and counties. However, it will be much clearer which source of data provides a larger number and/or a larger national share of children for states and counties. This report focuses on the differences between these two sources of data on children.

There are two key measures used in this analysis. The first measure is the number of children in a given state or county, and the second measure is the share of the total U.S. child population in a given state or county. We call this second measure “national share.”

The analysis compares the number of children in a state or county from the 2020 Census to the PEP blended base, and also the share of all children in the nation that are in a given state or county. It is important to examine both the raw numbers and the share of the national population because the implications may not be the same. Just because the number of children in a state or county is higher in the PEP blended base

compared to the Census, does not necessarily mean it is a larger share of the national population based on PEP or the Census because the total child population in PEP is different than the total child population in the Census count. There are likely to be times when the number of children is most important and other times when the share of the national population is more important in making a policy decision or in a funding formula. For example, the number of children will be the relevant number for decisions about how many children need services. But the share of the national number of children may be more relevant in allocating federal funds for programs for which a total dollar amount is appropriated federally, and then state or local data are used to determine what share of the total federal appropriation each state or community gets.

In terms of absolute numbers, the PEP blended base provided a larger number of children than the 2020 Census count nationally. At the national level, the number of children for April 1, 2020 from the PEP blended base was 74,385,212 compared to 73,106,000 in the 2020 Census. In other words, the number of children in the PEP blended base is 1,279,212 higher than the count in the 2020 Decennial Census for children. That amounts to a difference of 1.7 percent.

The PEP blended base estimates were larger than the 2020 Census counts in nearly every state (48 out of 50 states and DC). And 98 percent of the children in the U.S. lived in a state where the PEP blended base was larger than the 2020 Census counts. Assuming a higher number is better, for most states and most children using the PEP blended base would be more advantageous than using the Census count.

However, in terms of the national share of children in a state, the results are somewhat different. There are 35 states where the Census count is larger than the PEP blended base estimate in terms of national shares. Slightly more than half of all children (51 percent) lived in a state where the 2020 Census count provides a larger share of the national child population than the PEP blended base. From this perspective it may be more advantageous for most children if the 2020 Census counts were used instead of the PEP blended base.

The 2020 Census count is larger than the PEP blended base in 1,234 counties which are home to 22 percent of the nation's children. On the other hand, there are 1,903 counties where the PEP blended base provides a larger number of children than the 2020 Census count and 78 percent of the national child population live in those counties.

Within states, the prevalence of a higher number from the PEP blended base for counties varies. For example, the PEP blended base number is larger than that 2020 Census in 68 percent of the counties in Idaho compared to Hawaii and District of Columbia where none of the counties show a PEP blended base larger than the 2020 Census count.

When national shares were examined, we found the 2020 Census count larger than the PEP blended base in half (50 percent) of all counties, and these counties were home to 48 percent of the child population.

The findings here suggest that assessing the impact of the PEP blended base on the child population will be complicated. The PEP blended base numbers are larger

than the 2020 Census counts nationally and in most states. But there are 1,234 counties where the 2020 Census counts are larger than the PEP blended base. It is clear that it matters whether one is looking at raw numbers or shares of the total U.S. child population.

The official population estimates from the Census Bureau are used for many different purposes. Perhaps the most important use of the population estimates is in the distribution of federal funds through funding formulas. Census Bureau data is used in 315 programs that distributed \$1.5 trillion to states and localities in FY 2017. The population estimates are not only used by themselves in some funding formulas, but the population estimates are also used as control totals of the American Community Survey, so any funding formula that uses the ACS is indirectly influenced by the PEP population estimates. The connection between Census Bureau data and funding to states and localities is very complicated and beyond the scope of this study. It's worth noting that each federal program has its own funding allocation formula, so changes might increase funds to a particular state or locality for some programs and decrease them for others.

This paper is meant to provide readers with some background regarding the decisions that will have to be made by the Census Bureau in the next year or so about the methodology for the PEP estimates for the remainder of the decade.

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Introduction

Since the 1970s, the Census Bureau has produced yearly population estimates for states and counties for the decade following each Decennial Census. The estimates include the number of children (population ages 0 to 17) for states and counties. The estimation method used by the Census Bureau starts with a population base and then adds or subtracts estimated yearly incremental change to that base.

In the past, the Decennial Census counts have provided the estimates base, but the 2020 Census detailed data needed for the base was not available in time to use with the 2021 and 2022 population estimates so the Census Bureau staff developed a new PEP (Population Estimates Program) methodology called the blended base.

This paper is intended to provide guidance for child advocates, researchers, and data analysts on the potential impact of the Census Bureau's new blended base methodology for the child population (ages 0 to 17) .

We believe the two figures that matter most in terms of assessing the comparison between the PEP blended base estimates and the Census counts are the number of children in a state or county and the share of all children in the nation that are in a given state or county. So, we compared the number of children in the PEP

blended base to the number of children in the 2020 Census count in terms of the absolute number of children as well as the shares of all children in the country as of April 1, 2020. We examined differences numerically and in percentage terms.

This paper is intended to provide guidance for child advocates, researchers, and data analysts on the potential impact of the Census Bureau's new blended base methodology for the child population (age 0 to 17) .

The yearly Census Bureau estimates are often referred to as PEP (Population Estimates Program) and that is the term we use in this paper. Data from the 2020 Decennial Census is referred to as Census counts.

PEP blended base in the Population Estimates Program (PEP)

The Census Bureau has been producing yearly postcensal population estimates for states and counties for the past several decades. The postcensal estimates have many uses (U.S. Census Bureau 2021b, page 1; U.S. Census Bureau 2022c, page 3) including:

- Allocation of federal funds,
- Controls for Census Bureau surveys,
- Community development,
- Aid to business planning,
- Denominators for statistical rates,
- Academic and business research, and

- Program planning in the public and private sectors.

The estimation method used by the Census Bureau starts with a base population and estimates the change from the base to the date being estimated. For example, the Census Bureau produced estimates for July 1, 2011, using a base population from April 1, 2010 and the change between April 1, 2010 and July 1, 2011. The population base used for post-census population estimates in the past has been the Decennial Census count. The annual population estimates use the base and adds births, subtracts deaths, and adjusts for international migration and estimated migration between states and counties based on changes of address in IRS and Medicare records.

But the Census Bureau is using a new method commonly called the “PEP blended base” for the 2021 and 2022 estimates, and possibly for the remainder of the decade. The PEP blended base involves data from three different sources (U. S. Census Bureau 2021b). The PEP blended base uses the 2020 Census total population counts for states and counties blended with age and sex characteristics from the middle series of the national Demographic Analysis (DA) estimates and the race/Hispanic characteristics from the Vintage 2020 Population Estimates. State estimates are adjusted to make sure they sum to the national estimate and county estimates are adjusted to make sure they sum to the state estimates. We use the term “PEP blended base” to refer to this source of data.

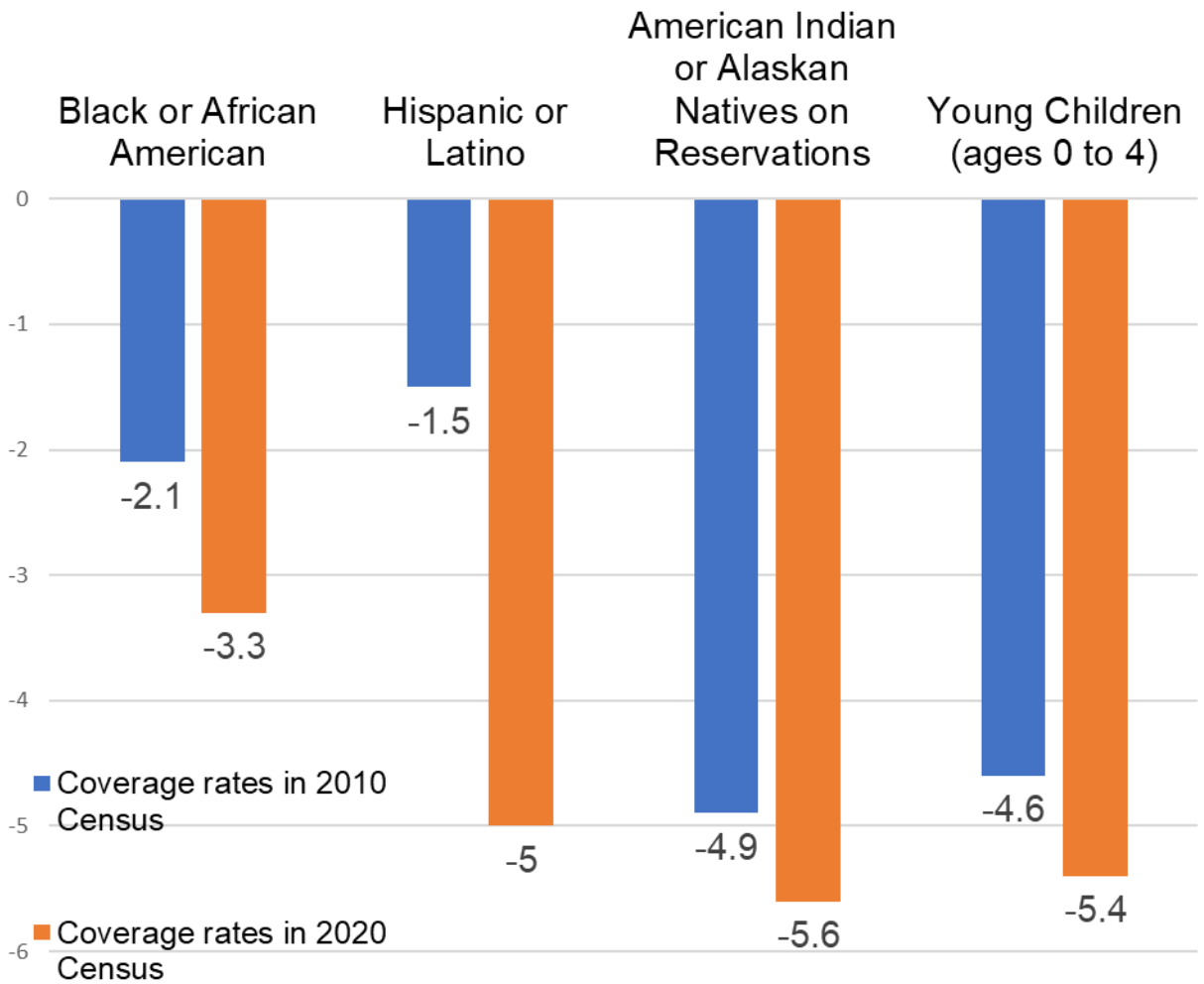
Because the yearly estimates are a product of the base population and the yearly incremental changes, should there be an undercount or overcount in the base for any demographic group or given location, there is likely to be an undercount or overcount in the yearly estimates for those groups or locations for the decade in which the base is

used. So, differences in the PEP blended base compared to the Census counts are important. The switch from the use of the Decennial Census base to the PEP blended base could have different impacts on different populations. This paper examines the situation for children (ages 0 to 17).

The move from the Decennial Census count to PEP blended base was based largely on the fact that the detailed 2020 Census data needed for the base were not available in time to use for the 2021 and 2022 Vintage estimates. However, according to one report from the Census Bureau (U.S. Census Bureau 2021 a), “there are questions about the quality of the 2020 Census results.”

The quality of the 2020 Census is also suspect because several vulnerable populations had higher net undercounts in the 2020 Census than in the 2010 Census, based on the Census Bureau’s Demographic Analysis, as shown in Figure 1 below. The decreasing quality of the Census between 2010 and 2020 may have helped stimulate a new approach to post-census population estimates.(U.S. Census Bureau 2022a and 2022b).

Figure 1. Census Undercount Rates Increased in Four Vulnerable Populations Between 2010 and 2020



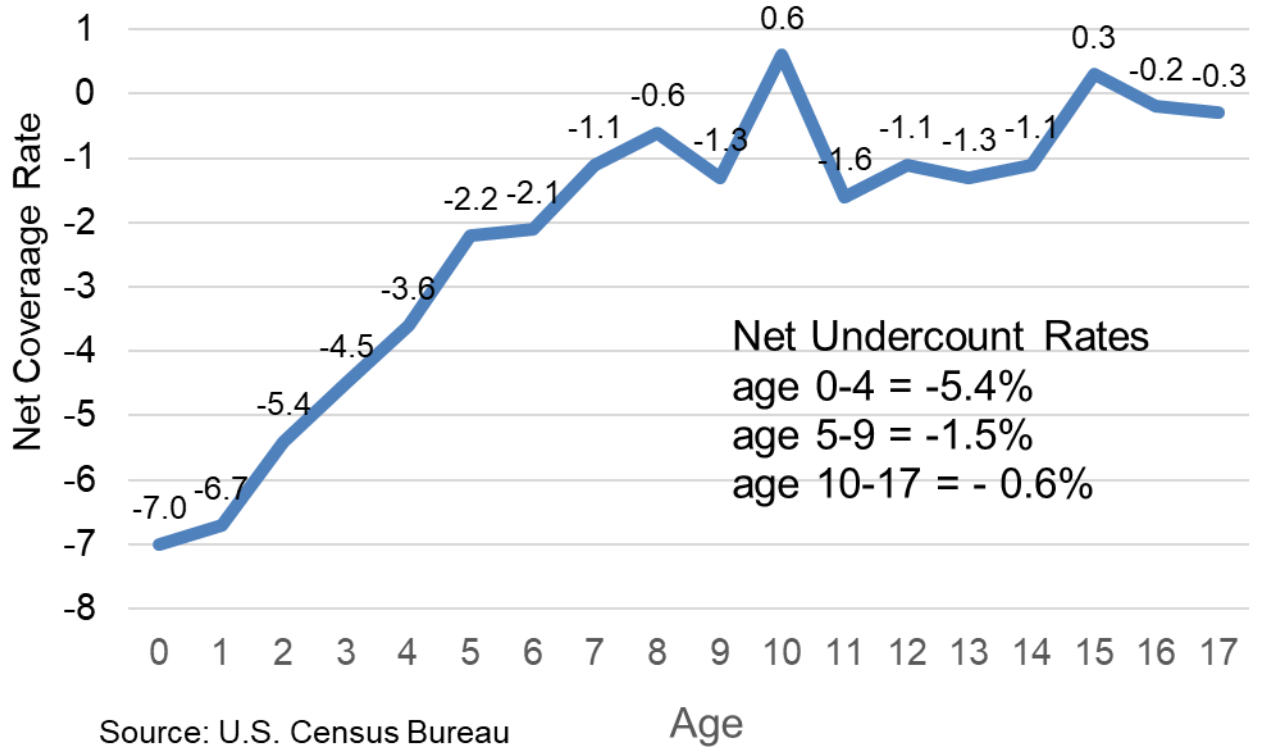
Source: U.S. Census Bureau

All Children and Young Children

It is also important to note a significant difference in 2020 Census coverage between young children (ages 0 to 4) and all children (ages 0 to 17). Figure 2 shows the national net coverage rates for children in the 2020 Census by single year of age based on the 2020 Demographic Analysis. The undercount of all children is concentrated in young children.

In addition to showing net coverage rates for individual ages of children Figure 2, there was a 5.4 percent net undercount for children ages 0 to 4, compared to a net undercount of 1.5 percent for ages 5 to 9, and a net undercount of 0.6 percent for ages 10 to 17 in the 2020 Census. O'Hare (2022a) found 87 percent of the net undercount for ages 0 to 17 in the 2020 Census is accounted for by ages 0 to 9.

Figure 2. Net Coverage Rate for Children By Single Year of Age in 2020 Census



Because the 2020 Census coverage of young children and all children are so different, the conclusions reached in this analysis of all children may not translate to the population ages 0 to 4. This report focuses on state and local data for all children (ages 0 to 17) rather than young children (ages 0 to 4) because state and local data for children ages 0 to 4 is not yet available from the 2020 Census. According to the Census Bureau, the 2020 Census data for the population ages 0 to 4 is scheduled to be released in May 2023 in the Demographic and Housing Characteristics (DHC) file.

A Census Bureau report (2022c) shows the PEP blended base seems to correct the high net undercount of young children in the 2020 Census, and also have a positive

impact on data for older children (ages 10-17) at the national level. A report by O’Hare (2022b) provides finer documentation for the differences between the PEP blended base and the 2020 Census for age groups of children. Neither of the reports cited in this paragraph provide data for states and counties.

Results

Nationwide, the PEP blended base produces a larger number of children than the 2020 Census count. Table 1 shows that at the national level, the number of children for April 1, 2020 from the PEP blended base was 74,385,212 compared to 73,106,000 in the Census. In other words, the PEP blended base is 1,279,212 higher than the count in the 2020 Decennial Census for children. That amounts to a difference of 1.7 percent.

Data in Table 1 indicate the PEP blended base shows 22.4 percent of the total U.S. population are children which is slightly higher than the 22.1 percent in the 2020 Census. The national total population for the Census and the Blended base was held constant.

| Table 1. 2020 Census Count of the Population Ages 0 to 17 (Children) Compared to the Estimate from the PEP Blended Base Used in the Post-Census Estimates Program (PEP) | | | | |
|---|--------------------|--|-----------------------------------|---|
| | Decennial Census * | Blended Base for Population Estimates ** | Numeric Difference (PEP - Census) | Percent Difference ((PEP-Census)/PEP)*100 |
| Number of Children (ages 0 to 17) | 73,106,000 | 74,385,212 | 1,279,212 | 1.7 |
| Total Population | 331,449,281 | 331,449,281 | | |
| Children as a Percent of Total Population | 22.1 | 22.4 | | |
| * Source: PL 94-171 data downloaded from census.data.gov | | | | |
| **Source: https://www.census.gov/data/tables/time-series/demo/popest/2020s-counties-total.html | | | | |

However, the gap between the 2020 Census count and the 2020 PEP blended base for children is not spread evenly across the country. In many ways the state and

local estimates are more important than the national data because these estimates help drive more than \$1.5 trillion in federal funding to states and localities (Reamer 2020). Two-thirds of these programs use sub-state data to direct dollars to places (Reamer 2019) . Census data is also used by states to distribute funds to substate geographic units (O'Hare 2020).

Data for States

Table 2 shows the states ranked by the numeric difference between the 2020 Census count of children and the number of children in the PEP blended base. A positive difference means the PEP blended base was larger than the Census count.

State differences range from 261,419 in California to -1,666 in Wyoming. There were three states (California, Texas, and New York) where the PEP blended base was 100,000 children larger than the Census counts. There were only three states (Wyoming, Idaho, and Colorado) where the Census count was larger than the PEP blended base estimate. It is curious that the only three states where the Census count was larger than the PEP blended base are clustered in one region of the country, but it is not clear why that happened.

Table 2. States Ranked by Numeric Difference Between April 1, 2020 PEP Blended Base Estimates and 2020 Census Counts for Population Ages 0 to 17

| Rank | | Age 0 to 17 from PEP* | Age 0-17 from Census** | Numeric Difference (PEP - CENSUS). Negative numbers mean Census is larger than PEP blended base | Percent Difference Negative numbers mean Census is larger than PEP blended base |
|------|----------------------|-----------------------|------------------------|---|---|
| 1 | California | 8,972,537 | 8,711,118 | 261,419 | 2.9 |
| 2 | Texas | 7,490,439 | 7,278,805 | 211,634 | 2.8 |
| 3 | New York | 4,230,497 | 4,113,114 | 117,383 | 2.8 |
| 4 | Florida | 4,286,590 | 4,198,955 | 87,635 | 2.0 |
| 5 | Illinois | 2,873,032 | 2,813,039 | 59,993 | 2.1 |
| 6 | Pennsylvania | 2,708,024 | 2,649,152 | 58,872 | 2.2 |
| 7 | Georgia | 2,539,121 | 2,491,634 | 47,487 | 1.9 |
| 8 | New Jersey | 2,053,255 | 2,007,684 | 45,571 | 2.2 |
| 9 | Ohio | 2,631,060 | 2,591,886 | 39,174 | 1.5 |
| 10 | Massachusetts | 1,391,279 | 1,366,194 | 25,085 | 1.8 |
| 11 | North Carolina | 2,307,718 | 2,284,289 | 23,429 | 1.0 |
| 12 | Michigan | 2,184,235 | 2,162,729 | 21,506 | 1.0 |
| 13 | Alabama | 1,126,389 | 1,107,113 | 19,276 | 1.7 |
| 14 | Mississippi | 702,255 | 683,680 | 18,575 | 2.6 |
| 15 | Maryland | 1,379,938 | 1,362,022 | 17,916 | 1.3 |
| 16 | Virginia | 1,902,424 | 1,886,339 | 16,085 | 0.8 |
| 17 | Tennessee | 1,541,879 | 1,526,367 | 15,512 | 1.0 |
| 18 | Minnesota | 1,331,521 | 1,317,461 | 14,060 | 1.1 |
| 19 | Oklahoma | 962,571 | 948,655 | 13,916 | 1.4 |
| 20 | Missouri | 1,392,671 | 1,379,301 | 13,370 | 1.0 |
| 21 | Washington | 1,693,921 | 1,680,592 | 13,329 | 0.8 |
| 22 | Louisiana | 1,099,758 | 1,087,209 | 12,549 | 1.1 |
| 23 | District of Columbia | 126,644 | 114,384 | 12,260 | 9.7 |
| 24 | Hawaii | 310,893 | 299,366 | 11,527 | 3.7 |
| 25 | Wisconsin | 1,292,448 | 1,281,418 | 11,030 | 0.9 |
| 26 | South Carolina | 1,114,220 | 1,103,965 | 10,255 | 0.9 |
| 27 | Nevada | 701,449 | 691,288 | 10,161 | 1.4 |
| 28 | Oregon | 874,579 | 866,604 | 7,975 | 0.9 |
| 29 | Arizona | 1,616,841 | 1,609,526 | 7,315 | 0.5 |
| 30 | Arkansas | 705,894 | 699,251 | 6,643 | 0.9 |
| 31 | New Mexico | 483,635 | 478,533 | 5,102 | 1.1 |
| 32 | Connecticut | 741,609 | 736,717 | 4,892 | 0.7 |
| 33 | Kansas | 713,445 | 708,564 | 4,881 | 0.7 |
| 34 | North Dakota | 187,205 | 183,001 | 4,204 | 2.2 |
| 35 | Indiana | 1,596,754 | 1,592,949 | 3,805 | 0.2 |
| 36 | Rhode Island | 213,235 | 209,785 | 3,450 | 1.6 |
| 37 | West Virginia | 363,849 | 360,784 | 3,065 | 0.8 |
| 38 | New Hampshire | 259,877 | 256,849 | 3,028 | 1.2 |
| 39 | Utah | 950,551 | 947,565 | 2,986 | 0.3 |
| 40 | South Dakota | 220,135 | 217,412 | 2,723 | 1.2 |
| 41 | Iowa | 742,898 | 740,266 | 2,632 | 0.4 |
| 42 | Nebraska | 487,919 | 485,377 | 2,542 | 0.5 |
| 43 | Maine | 254,764 | 252,274 | 2,490 | 1.0 |
| 44 | Delaware | 208,709 | 206,405 | 2,304 | 1.1 |
| 45 | Alaska | 181,567 | 179,388 | 2,179 | 1.2 |
| 46 | Kentucky | 1,022,538 | 1,021,936 | 602 | 0.1 |
| 47 | Vermont | 118,743 | 118,595 | 148 | 0.1 |
| 48 | Montana | 234,118 | 234,102 | 16 | 0.0 |
| 49 | Colorado | 1,263,940 | 1,264,138 | -198 | 0.0 |
| 50 | Idaho | 461,791 | 462,706 | -915 | -0.2 |
| 51 | Wyoming | 133,848 | 135,514 | -1,666 | -1.2 |
| | U.S. Total | 74,385,212 | 73,106,000 | | |

* Source: PL 94-171 data downloaded from census.data.gov

**Source: <https://www.census.gov/data/tables/time-series/demo/popest/2020s-counties-total.html>

The larger number of children seen in the PEP blended base nationally is seen in nearly every state. Table 3 provides a summary of the state-level data shown in Table 2. In 48 out of the 50 states and DC the PEP blended base estimate is larger than the Census count, and vast majority of children in the U.S. (98 percent of the total according to PEP blended base) live in states where the PEP blended base estimate was larger than the Census count. Again, for most children, use of the PEP blended base would be more advantageous than use of the Census Count in things like funding formulas that are based on raw numbers of children.

| | Number of States** | Percentage of States | Child Population based on PEP | Percentage of Child Population |
|---|--------------------|----------------------|-------------------------------|--------------------------------|
| Census Count is Larger than PEP Blended Base Estimate | 3 | 6 | 1,859,579 | 2 |
| PEP Blended Base Estimate is Larger than Census Count | 48 | 94 | 72,525,633 | 98 |
| Total* | 51 | 100 | 74,385,212 | 100 |

** includes DC as a state

Table 4 shows the states ranked by the percentage difference between the number of children in the 2020 Census and the number in the PEP blended base. The percentage difference among the states ranges from + 9.7 percent in DC to -1.2 percent in Wyoming. For most of the states the percentage difference is quite small. There are only ten states and Washington DC., where the difference is 2 percent or more.

Table 4 . States Ranked by Percent Difference Between April 1, 2020 PEP Blended Base Estimates and 2020 Census Counts for Population Ages 0 to 17

| Rank | | Age 0 to 17 from PEP* | Age 0-17 from Census** | Numeric Difference (PEP - CENSUS). Negative numbers mean Census is larger than PEP blended base | Percent Difference Negative numbers mean Census is larger than PEP blended base |
|------|----------------------|-----------------------|------------------------|---|---|
| 1 | District of Columbia | 126,644 | 114,384 | 12,260 | 9.7 |
| 2 | Hawaii | 310,893 | 299,366 | 11,527 | 3.7 |
| 3 | California | 8,972,537 | 8,711,118 | 261,419 | 2.9 |
| 4 | Texas | 7,490,439 | 7,278,805 | 211,634 | 2.8 |
| 5 | New York | 4,230,497 | 4,113,114 | 117,383 | 2.8 |
| 6 | Mississippi | 702,255 | 683,680 | 18,575 | 2.6 |
| 7 | North Dakota | 187,205 | 183,001 | 4,204 | 2.2 |
| 8 | New Jersey | 2,053,255 | 2,007,684 | 45,571 | 2.2 |
| 9 | Pennsylvania | 2,708,024 | 2,649,152 | 58,872 | 2.2 |
| 10 | Illinois | 2,873,032 | 2,813,039 | 59,993 | 2.1 |
| 11 | Florida | 4,286,590 | 4,198,955 | 87,635 | 2.0 |
| 12 | Georgia | 2,539,121 | 2,491,634 | 47,487 | 1.9 |
| 13 | Massachusetts | 1,391,279 | 1,366,194 | 25,085 | 1.8 |
| 14 | Alabama | 1,126,389 | 1,107,113 | 19,276 | 1.7 |
| 15 | Rhode Island | 213,235 | 209,785 | 3,450 | 1.6 |
| 16 | Ohio | 2,631,060 | 2,591,886 | 39,174 | 1.5 |
| 17 | Nevada | 701,449 | 691,288 | 10,161 | 1.4 |
| 18 | Oklahoma | 962,571 | 948,655 | 13,916 | 1.4 |
| 19 | Maryland | 1,379,938 | 1,362,022 | 17,916 | 1.3 |
| 20 | South Dakota | 220,135 | 217,412 | 2,723 | 1.2 |
| 21 | Alaska | 181,567 | 179,388 | 2,179 | 1.2 |
| 22 | New Hampshire | 259,877 | 256,849 | 3,028 | 1.2 |
| 23 | Louisiana | 1,099,758 | 1,087,209 | 12,549 | 1.1 |
| 24 | Delaware | 208,709 | 206,405 | 2,304 | 1.1 |
| 25 | Minnesota | 1,331,521 | 1,317,461 | 14,060 | 1.1 |
| 26 | New Mexico | 483,635 | 478,533 | 5,102 | 1.1 |
| 27 | North Carolina | 2,307,718 | 2,284,289 | 23,429 | 1.0 |
| 28 | Tennessee | 1,541,879 | 1,526,367 | 15,512 | 1.0 |
| 29 | Michigan | 2,184,235 | 2,162,729 | 21,506 | 1.0 |
| 30 | Maine | 254,764 | 252,274 | 2,490 | 1.0 |
| 31 | Missouri | 1,392,671 | 1,379,301 | 13,370 | 1.0 |
| 32 | Arkansas | 705,894 | 699,251 | 6,643 | 0.9 |
| 33 | South Carolina | 1,114,220 | 1,103,965 | 10,255 | 0.9 |
| 34 | Oregon | 874,579 | 866,604 | 7,975 | 0.9 |
| 35 | Wisconsin | 1,292,448 | 1,281,418 | 11,030 | 0.9 |
| 36 | Virginia | 1,902,424 | 1,886,339 | 16,085 | 0.8 |
| 37 | West Virginia | 363,849 | 360,784 | 3,065 | 0.8 |
| 38 | Washington | 1,693,921 | 1,680,592 | 13,329 | 0.8 |
| 39 | Kansas | 713,445 | 708,564 | 4,881 | 0.7 |
| 40 | Connecticut | 741,609 | 736,717 | 4,892 | 0.7 |
| 41 | Nebraska | 487,919 | 485,377 | 2,542 | 0.5 |
| 42 | Arizona | 1,616,841 | 1,609,526 | 7,315 | 0.5 |
| 43 | Iowa | 742,898 | 740,266 | 2,632 | 0.4 |
| 44 | Utah | 950,551 | 947,565 | 2,986 | 0.3 |
| 45 | Indiana | 1,596,754 | 1,592,949 | 3,805 | 0.2 |
| 46 | Vermont | 118,743 | 118,595 | 148 | 0.1 |
| 47 | Kentucky | 1,022,538 | 1,021,936 | 602 | 0.1 |
| 48 | Montana | 234,118 | 234,102 | 16 | 0.0 |
| 49 | Colorado | 1,263,940 | 1,264,138 | -198 | 0.0 |
| 50 | Idaho | 461,791 | 462,706 | -915 | -0.2 |
| 51 | Wyoming | 133,848 | 135,514 | -1,666 | -1.2 |
| | U.S. Total | 74,385,212 | 73,106,000 | | |

* Source: PL 94-171 data downloaded from census.data.gov

**Source: <https://www.census.gov/data/tables/time-series/demo/popest/2020s-counties-total.html>

Rankings are based on unrounded data

Examination of National Shares

There is another way of looking at the PEP blended base and Census counts for April 1, 2020. One can look at the share of the national child population in each state and county based on the PEP blended base and the Census counts. We call this measure the national share.

In some cases, the raw number of children may be most important but in other cases the share of the national child population in a state or county may be more important. A larger number of children does not necessarily mean a larger share of the national population because the base is different in the PEP blended base and the Census counts.

Shares are expressed as a percentage of the national child population. Many of the percentages are small and the difference between PEP blended base and 2020 Census count are very small.

Table 5 shows states ranked by the percentage point difference between PEP blended base and Census counts in terms of the share of the national child population in each state. A negative sign in the difference column means the Census count is larger than the PEP blended base. The differences range from 0.146 percent in California to -0.032 in Indiana.

Table 5. States Ranked by Percent Difference in National Shares between PEP Blended Base Estimates and 2020 Census Count of Population Age 0 to 17

| Rank | | Age 0 to 17 from PEP* | Percent of National total PEP Child Population | Age 0-17 from Census** | Percent of National total Census Child Population | Percentage Point Difference of National Shares (PEP - CENSUS) Negative values means the Census is larger than the PEP Estimate |
|------|----------------------|-----------------------|--|------------------------|---|--|
| 1 | California | 8,972,537 | 12.06 | 8,711,118 | 11.92 | 0.146 |
| 2 | Texas | 7,490,439 | 10.07 | 7,278,805 | 9.96 | 0.113 |
| 3 | New York | 4,230,497 | 5.69 | 4,113,114 | 5.63 | 0.061 |
| 4 | Florida | 4,286,590 | 5.76 | 4,198,955 | 5.74 | 0.019 |
| 5 | Pennsylvania | 2,708,024 | 3.64 | 2,649,152 | 3.62 | 0.017 |
| 6 | Illinois | 2,873,032 | 3.86 | 2,813,039 | 3.85 | 0.014 |
| 7 | New Jersey | 2,053,255 | 2.76 | 2,007,684 | 2.75 | 0.014 |
| 8 | District of Columbia | 126,644 | 0.17 | 114,384 | 0.16 | 0.014 |
| 9 | Mississippi | 702,255 | 0.94 | 683,680 | 0.94 | 0.009 |
| 10 | Hawaii | 310,893 | 0.42 | 299,356 | 0.41 | 0.008 |
| 11 | Georgia | 2,539,121 | 3.41 | 2,491,634 | 3.41 | 0.005 |
| 12 | Massachusetts | 1,391,279 | 1.87 | 1,366,194 | 1.87 | 0.002 |
| 13 | North Dakota | 187,205 | 0.25 | 183,001 | 0.25 | 0.001 |
| 14 | Alabama | 1,126,389 | 1.51 | 1,107,113 | 1.51 | 0.000 |
| 15 | Rhode Island | 213,235 | 0.29 | 209,785 | 0.29 | 0.000 |
| 16 | Alaska | 181,567 | 0.24 | 178,802 | 0.24 | 0.000 |
| 17 | South Dakota | 220,135 | 0.30 | 217,412 | 0.30 | -0.001 |
| 18 | Delaware | 208,709 | 0.28 | 206,405 | 0.28 | -0.002 |
| 19 | New Hampshire | 259,877 | 0.35 | 256,849 | 0.35 | -0.002 |
| 20 | Maine | 254,764 | 0.34 | 252,274 | 0.35 | -0.003 |
| 21 | Vermont | 118,743 | 0.16 | 118,595 | 0.16 | -0.003 |
| 22 | Nevada | 701,449 | 0.94 | 691,288 | 0.95 | -0.003 |
| 23 | Oklahoma | 962,571 | 1.29 | 948,655 | 1.30 | -0.004 |
| 24 | West Virginia | 363,849 | 0.49 | 360,784 | 0.49 | -0.004 |
| 25 | New Mexico | 483,635 | 0.65 | 478,533 | 0.65 | -0.004 |
| 26 | Wyoming | 133,848 | 0.18 | 135,514 | 0.19 | -0.005 |
| 27 | Montana | 234,118 | 0.31 | 234,102 | 0.32 | -0.005 |
| 28 | Arkansas | 705,894 | 0.95 | 699,251 | 0.96 | -0.008 |
| 29 | Maryland | 1,379,938 | 1.86 | 1,362,022 | 1.86 | -0.008 |
| 30 | Nebraska | 487,919 | 0.66 | 485,377 | 0.66 | -0.008 |
| 31 | Ohio | 2,631,060 | 3.54 | 2,591,886 | 3.55 | -0.008 |
| 32 | Louisiana | 1,099,758 | 1.48 | 1,087,209 | 1.49 | -0.009 |
| 33 | Oregon | 874,579 | 1.18 | 866,604 | 1.19 | -0.010 |
| 34 | Kansas | 713,445 | 0.96 | 708,564 | 0.97 | -0.010 |
| 35 | Connecticut | 741,609 | 1.00 | 736,717 | 1.01 | -0.011 |
| 36 | Minnesota | 1,331,521 | 1.79 | 1,317,461 | 1.80 | -0.012 |
| 37 | Idaho | 461,791 | 0.62 | 462,706 | 0.63 | -0.012 |
| 38 | South Carolina | 1,114,220 | 1.50 | 1,103,965 | 1.51 | -0.012 |
| 39 | Iowa | 742,898 | 1.00 | 740,266 | 1.01 | -0.014 |
| 40 | Missouri | 1,392,671 | 1.87 | 1,379,301 | 1.89 | -0.014 |
| 41 | Tennessee | 1,541,879 | 2.07 | 1,526,367 | 2.09 | -0.015 |
| 42 | Wisconsin | 1,292,448 | 1.74 | 1,281,418 | 1.75 | -0.015 |
| 43 | Utah | 950,551 | 1.28 | 947,565 | 1.30 | -0.018 |
| 44 | Washington | 1,693,921 | 2.28 | 1,680,592 | 2.30 | -0.022 |
| 45 | Michigan | 2,184,235 | 2.94 | 2,162,729 | 2.96 | -0.022 |
| 46 | North Carolina | 2,307,718 | 3.10 | 2,284,289 | 3.12 | -0.022 |
| 47 | Virginia | 1,902,424 | 2.56 | 1,886,339 | 2.58 | -0.023 |
| 48 | Kentucky | 1,022,538 | 1.37 | 1,021,936 | 1.40 | -0.023 |
| 49 | Arizona | 1,616,841 | 2.17 | 1,609,526 | 2.20 | -0.028 |
| 50 | Colorado | 1,263,940 | 1.70 | 1,264,138 | 1.73 | -0.030 |
| 51 | Indiana | 1,596,754 | 2.15 | 1,592,949 | 2.18 | -0.032 |
| | U.S. Total | 74,385,212 | 100.00 | 73,105,404 | 100.00 | 0.000 |

*Source:

** Source: <https://www.census.gov/programs-surveys/popest/technical-documentation/research/evaluation-estimates/2020-Rankings> are based on unrounded data

Table 6 provides a summary of data in Table 5. For 34 states and Washington DC, the share of all U.S. children is higher using the Census counts rather than the PEP blended base and 51 percent of all children live in those states according to the PEP blended base. There were 13 states where the share of all U.S. children is higher using the PEP blended base rather than the Census count and 47 percent of children live in those states according to the PEP blended base.

| Table 6. Distribution of States by Difference Between Census Count and PEP Blended Base National Shares of the Child Population in 2020 | | | | |
|---|--------------------|----------------------|-------------------------------|--------------------------------|
| | Number of States** | Percentage of States | Child Population based on PEP | Percentage of Child Population |
| Census Count is Larger than PEP Blended Base Estimate | 35 | 69 | 37,871,771 | 51 |
| No Difference *** | 3 | 6 | 1,521,191 | 2 |
| PEP Blended Base Estimates is Larger than Census Count | 13 | 25 | 34,992,250 | 47 |
| Total | 51 | 100 | 74,385,212 | 100 |
| Analysis based on data rounded to two decimal points. | | | | |
| ** includes DC as a state | | | | |
| *** analysis carried out to three decimal places | | | | |

In assessing the impact of the PEP blended base compared to the Census counts, it is important to distinguish differences in raw numbers from difference in national shares. Recall that based on the number of children, the PEP blended base was larger than the Census count in nearly every state. The results for national shares are different. For many states and counties, the number of children is larger in the PEP blended base, but the national share is smaller – but as noted above, the differences in national shares are typically very small.

Data for Counties

This section focuses on counties using a similar approach to the one used in the section on states. Table 7 shows the distribution of counties by whether the PEP blended base or the 2020 Census count of children is larger. According to our

analysis, there are more counties in which the PEP blended base estimate of children is larger than the Census count (1,903 compared to 1,224). Table 7 shows that in 61 percent of the counties, the PEP blended base is larger than the Census count. Table 7 also shows 78 percent of the child population (according to the PEP) living in the counties in which the PEP blended base was larger than the Census count.

| Table 7. Distribution of Counties by Difference Between Number of Children Based on Census Count and PEP Blended Base for the April, 1 2020 Population Ages 0 to17 | | | | |
|--|--------------------|---------------------------|---------------------------------|-----------------------------------|
| | Counties | | Child Population (based on PEP) | |
| | Number of Counties | Percent or Total Counties | Number (based on PEP data) | Percent of Total Child Population |
| Census Count is Larger than PEP Blended Base Estimate | 1,224 | 39 | 16,466,711 | 22 |
| No Difference | 16 | 1 | 54,734 | rounds to zero |
| PEP Blended Base Estimate is Larger than Census Count | 1,903 | 61 | 57,863,767 | 78 |
| Total | 3,143 | 100 | 74,385,212 | 100 |

Table 8 shows the 23 counties where the PEP blended base estimate was at least 10,000 children larger than the Census count. It is not surprising these are all large counties. There were no counties where the Census count was at least 10,000 larger than the PEP blended base estimate

Table 8. 23 Counties Where the PEP Blended Base Estimate was 10,000 or More Children Larger than the 2020 Census Count

| State | County | PEP Blended Base Estimate | Census Count | Numeric Difference (Census - PEP) | Percent Difference |
|----------------------|-----------------------|---------------------------|--------------|-----------------------------------|--------------------|
| California | Los Angeles County | 2,152,217 | 2,054,218 | -97,999 | -4.6 |
| Texas | Harris County | 1,260,389 | 1,211,561 | -48,828 | -3.9 |
| Illinois | Cook County | 1,149,426 | 1,103,139 | -46,287 | -4.0 |
| Texas | Dallas County | 678,411 | 640,961 | -37,450 | -5.5 |
| New York | Kings County | 627,093 | 595,703 | -31,390 | -5.0 |
| New York | Queens County | 487,126 | 455,995 | -31,131 | -6.4 |
| California | Orange County | 698,037 | 667,331 | -30,706 | -4.4 |
| Florida | Miami-Dade County | 553,129 | 523,147 | -29,982 | -5.4 |
| Pennsylvania | Philadelphia County | 349,287 | 325,435 | -23,852 | -6.8 |
| California | San Bernardino County | 574,924 | 552,612 | -22,312 | -3.9 |
| California | San Diego County | 711,755 | 689,866 | -21,889 | -3.1 |
| Texas | Hidalgo County | 281,051 | 262,556 | -18,495 | -6.6 |
| New York | Bronx County | 366,895 | 349,579 | -17,316 | -4.7 |
| Texas | Tarrant County | 552,262 | 536,594 | -15,668 | -2.8 |
| Texas | Bexar County | 511,221 | 496,936 | -14,285 | -2.8 |
| Florida | Broward County | 411,839 | 398,337 | -13,502 | -3.3 |
| California | Santa Clara County | 419,643 | 406,542 | -13,101 | -3.1 |
| New York | New York County | 245,230 | 232,511 | -12,719 | -5.2 |
| Texas | El Paso County | 233,302 | 220,695 | -12,607 | -5.4 |
| Florida | Duval County | 226,419 | 213,964 | -12,455 | -5.5 |
| District of Columbia | District of Columbia | 126,644 | 114,384 | -12,260 | -9.7 |
| Michigan | Wayne County | 427,338 | 417,045 | -10,293 | -2.4 |
| Tennessee | Shelby County | 233,832 | 223,681 | -10,151 | -4.3 |

Collectively these 23 counties account for almost half (46 percent - 584,678 out of the 1,279,212) the difference between the national PEP blended base estimates and the Census counts for children

The counties in Table 8 are clustered in just a few states. There are six in Texas, five in California, four in New York, and 3 in Florida.

Table 9 provides a summary of the distribution of county national shares for PEP blended base and Census counts. There are almost twice as many counties where the share of all U.S. children according to the 2020 Census count was larger than according to the PEP blended base estimates (1,574 compared to 864). However, the child population according to PEP is evenly split between these two sets of counties (48 percent each).

| | Number of Counties | Percentage of Counties | Child Population Based on PEP | Percentage of National Child Population |
|---|--------------------|------------------------|-------------------------------|---|
| Census Count is Larger than PEP Blended Base Estimate | 1,574 | 50 | 35,726,364 | 48 |
| No Difference* | 705 | 22 | 3,128,671 | 4 |
| PEP Blended Base Estimate is Larger than Census Count | 864 | 27 | 35,530,177 | 48 |
| Total | 3,143 | 100 | 74,385,212 | 100 |

*analysis carried out to six to decimal places

Table 10 shows the states ranked by percent of counties in each state where the Census count of children was larger than the PEP blended base. The states ranged from 68 percent of all counties in Idaho, to zero counties in DC and Hawaii.

Table 10. States Ranked by Percent of Counties in Each State Where the Census Count

| Rank* | Row Labels | Percent of Counties Where: | | | Total |
|-------|----------------------|----------------------------|---|---|-------|
| | | There is No Difference | Census Count is Larger than PEP Blended Base Estimate | PEP Blended Base Estimate is Larger than Census Count | |
| 1 | Idaho | 0 | 68 | 32 | 100 |
| 2 | Wyoming | 0 | 65 | 35 | 100 |
| 3 | Montana | 0 | 57 | 43 | 100 |
| 4 | Colorado | 0 | 55 | 45 | 100 |
| 5 | Nevada | 0 | 53 | 47 | 100 |
| 6 | Alaska | 0 | 52 | 48 | 100 |
| 6 | Utah | 0 | 52 | 48 | 100 |
| 8 | Kentucky | 0 | 51 | 49 | 100 |
| 9 | Connecticut | 0 | 50 | 50 | 100 |
| 9 | Indiana | 0 | 50 | 50 | 100 |
| 11 | Minnesota | 1 | 48 | 51 | 100 |
| 12 | New York | 2 | 47 | 52 | 100 |
| 13 | Wisconsin | 0 | 46 | 54 | 100 |
| 14 | New Mexico | 0 | 45 | 55 | 100 |
| 15 | Kansas | 1 | 45 | 54 | 100 |
| 16 | Washington | 0 | 44 | 56 | 100 |
| 17 | Tennessee | 1 | 43 | 56 | 100 |
| 18 | Illinois | 1 | 43 | 56 | 100 |
| 19 | Vermont | 0 | 43 | 57 | 100 |
| 20 | Missouri | 0 | 43 | 57 | 100 |
| 21 | Iowa | 2 | 42 | 56 | 100 |
| 22 | Michigan | 1 | 41 | 58 | 100 |
| 23 | Georgia | 0 | 40 | 60 | 100 |
| 24 | Rhode Island | 0 | 40 | 60 | 100 |
| 24 | West Virginia | 0 | 40 | 60 | 100 |
| 26 | Pennsylvania | 0 | 39 | 61 | 100 |
| 27 | Virginia | 2 | 38 | 60 | 100 |
| 28 | Louisiana | 0 | 38 | 63 | 100 |
| 28 | Maine | 0 | 38 | 63 | 100 |
| 28 | Maryland | 0 | 38 | 63 | 100 |
| 31 | North Carolina | 1 | 36 | 63 | 100 |
| 32 | Nebraska | 1 | 35 | 63 | 100 |
| 33 | Arkansas | 0 | 35 | 65 | 100 |
| 34 | Arizona | 0 | 33 | 67 | 100 |
| 34 | Delaware | 0 | 33 | 67 | 100 |
| 36 | North Dakota | 2 | 32 | 66 | 100 |
| 37 | Florida | 0 | 31 | 69 | 100 |
| 38 | Ohio | 0 | 31 | 69 | 100 |
| 39 | South Carolina | 0 | 30 | 70 | 100 |
| 40 | Oklahoma | 1 | 30 | 69 | 100 |
| 41 | Mississippi | 0 | 29 | 71 | 100 |
| 42 | South Dakota | 0 | 29 | 71 | 100 |
| 43 | Oregon | 3 | 28 | 69 | 100 |
| 44 | Alabama | 1 | 25 | 73 | 100 |
| 45 | Texas | 0 | 25 | 75 | 100 |
| 46 | California | 0 | 24 | 76 | 100 |
| 47 | Massachusetts | 0 | 21 | 79 | 100 |
| 48 | New Jersey | 0 | 14 | 86 | 100 |
| 49 | New Hampshire | 0 | 10 | 90 | 100 |
| 50 | District of Columbia | 0 | 0 | 100 | 100 |
| 50 | Hawaii | 0 | 0 | 100 | 100 |
| | U.S. Total | 1 | 39 | 61 | 100 |

* Ranking is based on unrounded data

Summary and Conclusions

The implications of using the number of children in the PEP blended base instead of the number counted in the 2020 Census for post-census estimates are complicated. Results differ depending on whether one is examining the nation as whole or states or counties and whether one is focused on absolute numbers of children or the share of the national child population in a state or county. All of these perspectives are important.

At the national level, the number of children counted in the PEP blended base is 1.7 percent larger than the number in the Census count. Table 3 shows there are 47 states and DC where the PEP blended base estimates a larger number of children than the Census count, and more than 72 million children (98 percent of the total according to the PEP) are estimated to live in those states. Table 7 shows there are 1,903 counties where the PEP blended base estimate is larger than the Census count of children. About 58 million children (78 percent of the total child population according to PEP) are estimated to live in those counties. There are 1,224 counties (39 percent of all counties) where the Census count of children was larger than that PEP blended base.

Examining national shares offers a different story. The Census count of children yielded a larger share of the national child population than the PEP blended base in 35 states and 51 percent of the child population (according to PEP) live in those 35 states. On the other hand, the PEP blended base estimate of children yielded a larger share of the national child population than the Census count in 13 states and 47 percent of the child population according to the PEP lived in those states.

It is important to recognize that this analysis only focuses on one population: children. Analysis of other populations may show that the use of the PEP blended base is less advantageous or more advantageous for those populations in different states or counties .

One of the biggest issues that needs to be examined in the context of the PEP blended base is the impact of federal funding. Census Bureau data is used in 315 programs that distributed \$1.5 trillion to states and localities in FY 2017 (Reamer 2020). The connection between Census Bureau data and funding to states and localities is very complicated, and a detailed examination is beyond the scope of this study.

As stated previously, the 2020 Census counts could not be used as the base for the post-2020 Census population estimates because the detailed data needed from the 2020 Census is not yet available. The lack of these detailed data also makes a more comprehensive analysis of the impact of the PEP blended base compared to the 2020 Census impossible. For example, the lack of age groups of children at this time makes it impossible to assess the implications of the blended base for young children (ages 0 to 4). Such an analysis will be possible when the data for young children become available in 2023.

The PEP blended base was used for the 2021 series of population estimates and will be used for the 2022 round of estimates and probably for 2023. However, the method that will be used by the Census Bureau for the remainder of the decade is unclear.

The Census Bureau has established a Base Evaluation and Research Team (BERT) to explore options for producing a base population including the feasibility of taking coverage measures from the DA and Post-Enumeration Survey (PES) into account in the development of the population estimates (U.S. Census Bureau 2022e, slide 6),

When detailed data from the 2020 Census become available (probably May 2023) the Census Bureau will have to decide if it wants to; 1) continue using the PEP blended base as is for the post-2020 Census population estimates, 2) begin using the 2020 Census counts as the base (and perhaps revise the estimates already produced) or 3) devise some other method for producing a base.

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