

Annotated Bibliography on Key Research Related to the Undercount of Young Children
in the U.S. Census

By

Dr. William P. O'Hare

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This annotated bibliography was assembled by Dr. William P. O'Hare.

The high net undercount of young children in the U.S. Census is a significant and growing problem. Unless the approach to counting young children in the 2030 Census differs from past attempts, there is no reason to expect improvement in 2030.

It is hoped that this bibliography will help researchers, demographers, data analysts, census stakeholders, and child advocates gain a better understanding of past research on the undercount of young children in the U.S. Census and promote more research related to this issue going forward.

I am sure I have overlooked a few studies related to the undercount of young children in the U.S. Census, but I am confident that this is the most complete bibliography on this topic. I believe it provides a good overview of the research in this area.

Some reports, particularly the Census Bureau reports based on Demographic Analysis, that have data on the undercount of young children but are not focused on the undercount of young children are not included here. A few reports included here are focused on all children (population ages 0 to 17) rather than young children (ages 0 to 4)

Entries are sorted by year and presented from newest to oldest.

O'Hare, W. P. (2022). Race and Hispanic Origin Composition of Population in Counties with High Net Undercount Rates for Children in the 2020 Census, presentation at the Southern Demographic Association annual conference, October 17-19, Knoxville, TN

Data from the 2020 Census indicate there was a net undercount of 2.1 percent of children (population ages 0 to 17) compared to a 0.25 percent net overcount for adults (population ages 18 and over). In the 2010 Census, there was a similar pattern of children experiencing a net undercount while adults had a net overcount (O'Hare 2015). These national rates have local implications as shown in this paper.

This paper extends a recent analysis by the Census Bureau (2022) which measured differences between the 2020 Vintage population estimates and the 2020 Census count for the population ages 0 to 17. This study puts county-level differences in the context of net overcounts and undercounts, focuses only on counties with high net child undercount and overcount rates, and examines race and Hispanic correlates of counties with high net child undercount compared to high net child overcount rates. Knowing how the net child undercount is distributed geographically may help us gain a better understanding of why children have such a high net undercount rate in the Census and help prepare better plans for the 2030 Census.

There were 342 counties where there was a high net child undercount rate (over 5 percent) and there were 418 counties showing a high net child overcount rate (over 5 percent). The analysis focuses on contrasting the race and Hispanic characteristics of these two groups of counties.

Results show counties with high net child undercount rates have relatively high percentages of people of color compared to counties with high net child overcount rates. In high net child undercount rate counties, 38 percent of the population are people of color, compared to 20 percent in counties with high net child overcount rates. In particular, the percent of the population in counties with high net child undercount rates who are Hispanic (17 percent) is twice as high as it is in counties with high net child overcount rates (8 percent). The percentage of the population in counties with high net child undercount rates who are Black (14 percent) is more than twice as high as the percentage in counties with high net child overcount rates (6 percent). The percent of the population in counties with high net child undercount rates who are American Indian or Alaskan Natives (8 percent) is twice as high as the percentages in counties with high net child overcount rates (percent). Examination of regions of the country (Southeast and Southwest) show even sharper distinction in county demographics. In addition, looking at regional patterns finds Black population in the Southeast, Hispanic Population in the Southwest, and American Indian Alaskan Native population in selected counties.

O'Hare, W. P. (2022). New Census Bureau Data Show Young Children Have a High Net Undercount in the 2020 Census, Posted on Count All Kids website, March, <https://countallkids.org/resources/new-census-bureau-data-show-young-children-have-a-high-net-undercount-in-the-2020-census/>

On March 10, 2022, the U.S. Census Bureau released some of the primary metrics needed to evaluate the quality of the 2020 Census (U.S. Census Bureau 2022). Specifically, the Census Bureau released data from Post-Enumeration Survey (PES) and limited data from the 2020 Census that could be compared to the Demographic Analysis (DA) estimates released by the Census Bureau in December 2020 to assess census accuracy. This paper focuses on the accuracy of 2020 Census data for young

children because they had the highest net undercount of any age group in the 2010 and 2020 Censuses.

Key data from 2020 Census on undercount of young children

- The net undercount of young children (ages birth to 4) in the 2020 Census was 5.4 percent, (based on the middle-series DA estimates) which is the highest rate recorded since tracking began in the 1950 census.
- The net undercount of young children in 2020 was about one million kids the same as 2010.^[i]
- The net undercount for young children was much higher than any other age group in 2020 and 2010.
- The gap in census coverage between young children and adults that began in 1980 continued to grow between 2010 and 2020.
- One of the main reasons young children are missed in the Census is because some parents have the mistaken belief that young children are not supposed to be included in the count.
- One of the most important elements of census accuracy was not addressed in the data released today and that is differences by race and Hispanic Origin. In the 2010 Census, Black young children and Hispanic young children had much higher net undercounts than non-Hispanic young white children. Preliminary data from 2020 suggests the gap between non-Hispanic white children and minority children (black and Hispanic) is bigger in 2020 than it was in 2010.
- Interest and attention to this issue inside and outside the Census Bureau increased dramatically since the 2010 Census. The lack of success in reducing the high net undercount of young children underscores the difficulty of fixing this problem and the need for more attention and more resources.
- Undercounts in the Census mean communities do not get their fair share of federal dollars for things like schools, childcare centers, and playgrounds.
- Despite increased effort on this issue in the 2020 Census, the results indicate more work is needed to improve the count of young children in the 2030 Census.

[i] The net undercount number is derived by multiplying the net undercount rates (-0.54) times the number of children ages 0 to 4 (19, 458,000) from the middle series DA estimate

Griffin, D., and O'Hare, W.P. (2022). "Counting Young children in the U.S. Census – Important Differences Between 2010 and 2020," Posted on the Leadership Conference Education Fund website. March 29, 2022.

<https://civilrightsdocs.info/pdf/reports/Counting-Young-Children-in-the-Census-Report.pdf>

Between 2010 and 2020, there were a number of advances in efforts to accurately count young children in the U.S. Census. These advances occurred inside and outside the Census Bureau. This paper documents the key changes between the 2010 Census

and the 2020 Census related to the count of young children. While the undercount of young children in the 2020 Census was disappointing (a 5.4 percent net undercount rate) this paper indicates that a foundation has been built which may help reduce this problem in the 2030 Census.

O’Hare, W.P. (2022). “Many Young Children of Color are Clustered in Census Tracts Where 2020 Census Self-Response Rates are Likely to be Problematic,” January 6, Posted on the Count All Kids website, <https://countallkids.org/resources/many-young-children-of-color-are-clustered-in-census-tracts-where-2020-census-self-response-rates-are-likely-to-be-problematic/>

The best data on the quality of the 2020 Census count of young children will not be available until the fall of 2022. That is when the Census Bureau is likely to release 2020 Census counts for the population ages 0 to 4 that can be compared to the Census Bureau’s Demographic Analysis estimates to calculate net undercounts or overcounts of young children.[1] However, self-response rates are important predictors of census accuracy and data exists now to look at how young children are distributed across census tracts based on the tract self-response rates. Specifically, low-self response rates are associated with higher net undercount and omissions rates in the census (O’Hare 2020). Thus, groups over-represented in low self-response tracts are likely to be undercounted in the Census.

Young children are the focus of this analysis because young children have had high net undercounts in several recent U.S. Decennial Censuses. In the 2010 Census, there was a net undercount of 4.6 percent for young children compared to a very small net overcount for the total population. Figure 1 shows there has been a relatively high net undercount of young children in each census since 1950. Moreover, the gap between the net undercount rates for young children and for adults (ages 18 and older) as well as the gap between all children (ages 0 to 17) and young children (ages 0 to 4) have been growing since 1980.

This report focuses on the distribution of young children living in two kinds of census tracts which are likely to be problematic. First, young children living in low self-response census tracts are examined. Second, young children living in tracts where the self-response rate decreased by 10 percentage points or more between 2010 and 2020 are analyzed. The data offer empirical evidence about what to expect when the data on young children are released for the 2020 Census.

Tract-level response rates used for the study are the final tract-level self-response rates issued by the Census Bureau in January 2021 (U.S. Census Bureau 2021). Data on race, Hispanic Origin status, and poverty status are taken from the Census Bureau’s 2015-2019 American Community Survey (ACS) tract-level estimates and merged with the file showing self-response rates. For the ACS data at the census tract level, the data combining by race and age are only available in the “race-alone ” configuration so

that is what is used here. Rather than repeat “race alone” with every mention of a race group readers should assume figures for races are for “race alone.” There were 1,040 tracts in Update/Leave areas or with household population of 100 or less which were not included in the analysis.

[1] Data from the Post Enumeration Survey is likely to be available sooner, but correlation bias in the PES makes net undercount estimates for young children inaccurate.

Johnson, J. (2022). “Does the Census Miss the Native-Born Children of Immigrant Mothers? Evidence from State-Level Undercount by Race and Hispanic Status,” Population Research and Policy Review Vol 41, pp 139-195. <https://link.springer.com/article/10.1007/s11113-021-09651-w>

Despite research going back over a century showing the U.S. census counts some groups more accurately than others at the national level, little is known about how undercount varies within the country. I focus on a population easily measured with administrative data yet known to suffer high levels of undercount—native-born young children—to document state-level variation in undercount by race and Hispanic status. Although the race-specific analysis is only possible for the 2000 census, the patterns I show for all children are similar to those in 2010, implying the results from 2000 are likely relevant to today. Undercount levels vary widely across states, with non-Black children having the highest rates in the south and southwest, and Black children in the northeast. Results by Hispanic status show non-Black Hispanic young children are highly undercounted in several states with high Hispanic populations, but not all, and are also highly undercounted in the northeast and New England. In several states with high non-Black Hispanic undercounts, non-Black non-Hispanic children are also undercounted at a high rate. I find a very strong correlation between the fraction of births to foreign-born mothers in the state and the undercount of Black and non-Black children—in fact, it is the strongest correlate with the undercount of native-born Black children of those I investigate. The fraction of foreign-born mothers does not correlate with the undercount of non-Black Hispanic and non-Hispanic young children, although Hispanic status of the parents does. My results suggest a group-specific, local focus for future work is needed to determine the causes of census undercount.

O’Hare, W.P. (2021). “The Overlooked Undercount: Young Children Missed in the U.S. Decennial Census” Presentation Slides for the National Academy of Sciences, Committee on National Statistics, Panel on the 2020 Census, November 16, 2021 William P. O’Hare Consultant to the Count All Kids Campaign, <https://www.nationalacademies.org/event/11-16-2021/panel-to-evaluate-the-quality-of-the-2020-census-meeting-4a>

This presentation covers the basic statistical evidence about the high net undercount of young children in the U.S. Census and provides some information about why young children have such a high net undercount in the Census.

O'Hare, W.P (2021). "Evidence Mounts That Children Were Undercounted in the 2020 Census," Count All Kids website, November, <https://countallkids.org/evidence-mounts-that-children-were-undercounted-in-the-2020-census/>

Two new reports were released indicating children in general (population ages 0 to 17) and young children (population ages 0 to 4) in particular were undercounted at a high rate in the 2020 Census. In examining net undercount rates for all children, it is important to remember the net undercount of young children has been much higher than that for all children for the last 60 years. For example, in the 2010 Census, the net undercount rate for young children was 4.6 percent compared to 1.7 percent for all children.

On November 2, the Urban Institute (2021) issued a report on likely miscounts in the 2020 Census based on a novel approach using microdata. They present the findings as one more data point that can be used to evaluate the 2020 Census. One advantage of the Urban Institute approach is the ability to produce data for detailed demographic groups including state populations. For example, the Urban Institute report is the first to estimate net undercounts for young children in the 2020 Census and they provide data for each state on their website (<https://www.urban.org/policy-centers/center-labor-human-services-and-population/projects/exploring-2020-censuss-accuracy-and-utility>). They also estimate omissions and overcounts as well as net coverage.

The Urban Institute report (Table 2) indicates they expect to see a net undercount of young children in the 2020 Census of 4.86 percent based on a projected omissions rate of 8.99 percent and a double-counting rate of 4.13 percent (what call double-counting is technically called erroneous enumeration). On their website, they make state-level data available including the net undercount of young children.

The high estimated net undercount of young children seems plausible, but I suspect the magnitude of their estimates of the net undercount for young children may be too low for the reasons spelled out below.

In an earlier study by the Urban Institute (2019), they estimated the net undercount of young children in the 2020 Census could be as high as 6.3 percent and that was before the pandemic, natural disasters, and political interference experienced in the 2020 Census. In addition, the estimated net undercount of young children in the 2020 Census (4.86) percent) is only slightly higher than the net undercount observed in the 2010 Census which was 4.6 percent (O'Hare 2015) and there is growing evidence that the data from the 2020 Census will be much worse than that from 2010 for many vulnerable population segments. For example, there is evidence the net undercount for Black and

Hispanic children (ages 0 to 17) more than doubled between 2010 and 2020 (O'Hare 2021). In addition, data from the Population Reference Bureau (2020) found that the mean self-response rate for census tracts where young children were predicted to have a very high net undercount (61.7 percent) was substantially lower than the average rate (66.8 percent). This is important because data from self-response is more accurate than census data derived from other sources. Also, about one-seventh of the census tracts where young children were predicted to have a very high net undercount were tracts where the self-response rates declined by ten percentage points or more between 2010 and 2020

On November 9, the U.S. Census Bureau (2021) released a blog with more information about the accuracy of 2020 Census data on children. They indicate the net undercount for all children (population ages 0 to 17) was 2.08 percent based on the middle series of their three sets of Demographic Analysis estimates. This is higher than the rate of 1.7 percent using similar data from the 2010 Census. They also indicate an expected net undercount of 4.25 percent of Hispanic children based on the middle series DA estimate.

They also presented data comparing the 2020 Census counts to the 2020 population estimates for counties. They provide comparisons for all children and for Hispanic children in the form of the two maps shown below.

As the authors explain in the blog, one should not compare data on the Black population in the estimates to the census counts, because the Census has a "some other race" category while the estimates do not. The report explains how the Census Bureau will be constructing a modified race file to make categories in the Census consistent with those from birth and death certificate data used to produce the estimates. On the other hand, the definition for the Hispanic category is consistent between the two data sets.

There are some reasons to believe the population estimates may be more accurate than the census counts. For example, the population estimates for ages 0 to 9 in 2020 are based on vital events data (mostly birth certificates) and those are thought to be very high-quality data while the census data are very likely to have net undercounts for children based on past analysis.

Figure 1 shows county-level data for all children. As the authors of the blog point out, there is a striking regional overlay to the results for all children. The blog authors state (U.S. Census Bureau no page number),

"For example, the 2020 Census counts for the population under age 18 were higher than the estimates in much of the Northeast and Upper Midwest, while the census counts for this population were lower than the estimates in many counties in the South, Southwest, and Great Plains."

Figure 1. 2020 Census Counts Compared to Vintage 2020 Population Estimates of Total Population Under 18 Years of Age: April 1, 2020

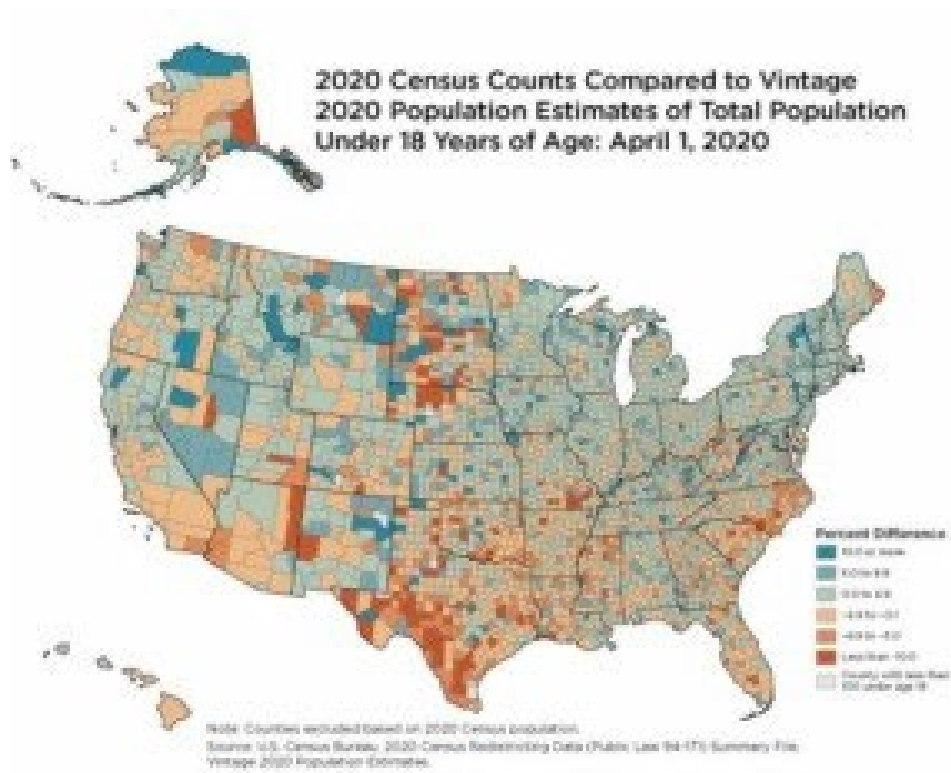
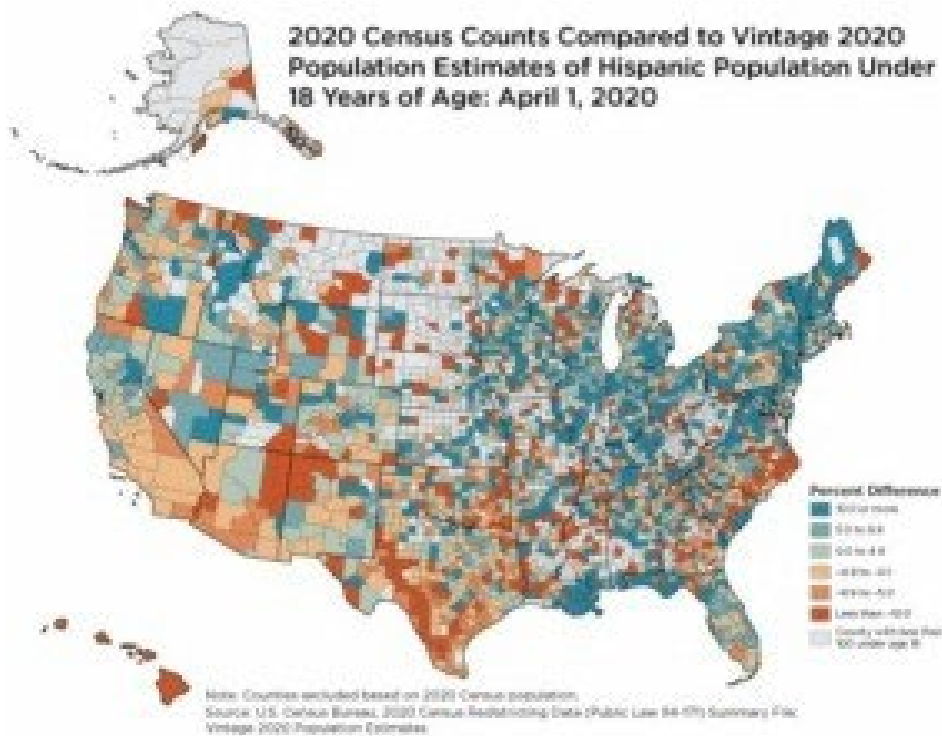


Figure 2 shows similar data for Hispanic children. There is a similar regional overlay as seen in Figure 1. Some of the extreme values shown in Figure 2 may be the results of small numbers of Hispanic children in counties, which can translate into high percentages.

Figure 2.



In summary, with these two new reports, a broad picture of 2020 Census accuracy is coming into focus. For the overall population and for many segments of the population, the data from the 2020 Census looks pretty good. For other groups, including children, and minority children in particular, the evidence so far is worrisome.

O’Hare, W. P (2021). “The High Net Undercount of Black and Hispanic Children in the 2020 Census,” Count All Kids campaign website
<https://secureservercdn.net/198.71.233.229/2hj.858.myftpupload.com/wp-content/uploads/2021/10/High-Net-Undercount-of-Black-and-Hispanic-Children-in-teh-2020-Census-10-4-2021.pdf>

A complete assessment of the accuracy of the 2020 Census will have to wait until the information from the Census Bureau’s Post-Enumeration Survey and detailed data from the 2020 Census are released late in 2022. But preliminary assessments point to a continued high net undercounts for children, particularly Black and Hispanic children. In this report, the term children refers to the population ages 0 to 17, the term young children refers to the population ages 0 to 4, and the term adults refers to the population ages 18 and older. The Census Bureau’s release of the redistricting data (Public Law 94-171) on August 12, 2021, provides an opportunity to examine the coverage of children and adults in the 2020 Census. The data from the 2020 Census can be compared to the estimates produced by the Census Bureau Demographic Analysis (DA) program to assess net undercounts and overcounts for a few demographic groups. This

analysis shows children have a higher net undercount than adults and that Black and Hispanic children have substantially higher net undercounts in the 2020 Census. A similar pattern was seen in the 2010 Census.

O’Hare W. P. (2021). “CENSUS DATA RELEASE SHOWS THE 2020 CENSUS HAD A HIGHER NET UNDERCOUNT OF CHILDREN THAN IN 2010,” Count All Kids Website,

The Census Bureau just released its redistricting data, which is the first release from the 2020 Census that breaks out data by all children compared to all adults. The data is deeply disturbing to child advocates because it indicates that the Census had a higher net undercount of children in 2020 than it did in 2010. However, we will need to wait for more data to determine how many children were missed (omitted) and if the rate of omitted young and older children grew.

O’Hare. W.P. (2020). “Exploring Explanations for the High Net Undercount of Young Children in the 2010 U.S. Census,” Chapter 6 in Developments in Demography in the 21st Century, Joachim Singelman and Dudley L. Poston Jr. Editors, Springer: The Springer Series on Demographic Methods and Population Analysis, Vol 48. <https://www.springerprofessional.de/en/developments-in-demography-in-the-21st-century/17738720>

There is clear evidence that young children (between the ages of 0–4) were significantly undercounted in the 2010 U.S. Census (O’Hare 2014a, 2015). The Census Bureau’s analysis of the 2010 Census reported a net undercount rate of 4.6% for the population age 0–4, which amounts almost one million young children. This net undercount rate was more than twice as high as the next highest undercount rate of 2.2% for age group 5–9 (Hogan et al. 2013). Moreover, research shows that this undercount has increased dramatically since 1980 (O’Hare 2014b).

Griffin D. and O’Hare, W.P. (2020) “Are Census Omissions of Young Children Due to Respondent Misconceptions about the Census?” International Journal of Social Science Studies, Vol 8. No. 6 November pp 59-72. <http://redfame.com/journal/index.php/ijsss/article/view/4994/5223>

It is well documented that coverage error occurs in every United States Census (e.g., Fay et al. 1988, Robinson et al. 1993, Robinson 2010, U.S. Census Bureau 2012a, Hogan 2013, O’Hare 2019a). This article documents the systematic undercounting of young children in censuses and widely used surveys. The study also provides new evidence of one likely reason for that problem.

This research focuses on the United States, but the problem addressed is seen in many other countries and contexts. O’Hare (2017) found young children also had high net undercount rates in the censuses of many other countries, and like the United States Census, young children had higher net undercount rates than older children and adults. There is also evidence that young children are missed at a high rate in major Census

Bureau surveys (Jensen & Hogan 2018, U.S. Census Bureau 2019a). Moreover, the results discussed in this article are likely to have application to many data collection activities where parents are asked to list their children. The problem identified is subtle, but the evidence suggests it is relatively pervasive.

Errors in census coverage reverberate throughout the federal statistical system. Reducing undercounts in the census is important, in part, because census data, and post-census population estimates based on the census counts, are used to weight almost every survey inside and outside of government. Census data are also used as denominators in many rates and ratios. For these reasons, the undercount of young children in the census impacts nearly all statistics produced about young children. The evidence uncovered in this study may inform efforts to improve the coverage of young children in the 2030 Census, in censuses in other countries, and in key Census Bureau surveys. Improving the coverage of young children will have far reaching implications on improving the quality of data about this vulnerable population.

These measurement problems are not only a methodological issue, but they are also a social justice issue. In the United States, census data are used to distribute about \$1.5 trillion a year to states and localities (Reamer 2019). Areas that do not get a complete count do not get their fair share of such resources. The young children who are most in need of government assistance are often living in communities where they are less likely to get the funds, they deserve because of an incomplete census count.

O'Hare. W.P. (2020). "Update on Response Rates Show Very High Risk of Young Child Undercount Census Tracts Still Trail National Rates," MAY 2020, Posted on Count All Kids website, <https://countallkids.org/2870-2/>

We have now had almost two months when households could self-respond to the 2020 Census and it is worth noting that the self-response rates in census tracts where a very high risk of young child undercounts are predicted trail overall response rates by a substantial margin

The average response rates in very high risk of young child undercount census tracts in the 34 counties with the largest number of young children living in such census tracts. The data represent self-response rates through May 7, 2020. These 34 counties account for slightly more than half of all young children living in such tracts based on the Population Reference Bureau database of census tracts in 689 large counties. Based on self-response rates through May 7 2020, on average, across all 34 counties, the response rates in these very high risk of young child undercount tracts is 51.1 percent compared to a national response rate on May 7th of 57.7 percent; a difference of 6.6 percentage points.

Of the 34 counties shown in Table 1, seven counties had self-response rates for very high risk of young child undercount census tracts above the national self-response rates on May 7th. Six of these counties are in California and one in Maryland. On the other hand, there were 10 of the 34 counties where the self-response rates in these targeted tracts are 10 percentage points or more below the national rate. The ten are concentrated in the Northeast region of the county. The very low response rate for

Hidalgo County, Texas, is probably due in part to the fact that many households in that county are supposed to be counted in the update leave operation which has been postponed or delayed.

It is also illuminating to look at changes in self-response rates in these 34 counties since April 7th. On April 7th, the average rates for the very high risk of young child undercount census tracts was 39.4 percent compared to national rate of 45.7 percent. In other words, the 6.3 percentage point gap on April 7, was 6.6 percentage points on May 7th—almost no change. Because the rate at which households are self-responding is tapering off, the gaps evident on May 7th, suggests a trajectory for census tracts where young children are most likely to be missed that is not promising

Among the counties ranked by change in response rates between April 7 and May 7th, there is a lot of variation across counties. The counties with the biggest increase was Orange County, California, which increased 16.1 percentage points while Shelby County, Tennessee, only increased by 6.3 percentage points. Many of counties that increased the most between April 7th and May 7th are in California which is consistent with the high rates shown in Table 1.

Data from the 2010 Census show young children had net undercount of 4.6 percent compared to an overcount 0.7 percent for adults. Young children had a far higher net undercount rate than any other age group and young black and young Hispanic children were missed at a much higher rate. The data provided in these tables indicate the net undercount of young children is likely to be high in 2020 without focused and robust intervention in the next few months. The data provided here indicate exactly where the Census Bureau and census advocates should focus their outreach efforts over the next few months to get a better count of young children in the 2020 Census.

O’Hare, W. P. (2020) Counting Young Children in the U.S. Census, “ Presentation at the Joint Statistical Meeting August,

O’Hare, W.P. (2020). ”2020 Census Response Rates Show Young Children Are Likely to Have a High Net Undercount Again”, Posted on the PAA website May 26 <https://www.populationassociation.org/blogs/paa-web1/2020/05/26/census-response-rates-show-young-children-are>

In the 2010 Census, young children (ages 0 to 4) had a net undercount of 4.6 percent while adults (age 18+) had a net overcount of 0.7 percent. The net undercount of young children was much higher than any other age group. Consequently, it is important to monitor the likely undercount in the 2020 Census by tracking self-response rates.

The Population Reference Bureau (2020) produced a database which identifies every census tract in 689 large counties (those with at least 5,000 children under age 5 in 2010) where young children have a very high risk of being missed in the 2020 Census.

Tracking the 2020 Census response rates in those tracts will help us gauge what the final 2020 Census results will look like for young children.

We have now had two months when households could self-respond to the 2020 Census and it is worth noting that the self-response rates in census tracts where very high risks of young child undercounts are predicted trail overall response rates by a substantial margin.

O’Hare, W.P, (2020). “The Undercount of Young Black Children in the U.S. Census,” Count All Kids website, <https://countallkids.org/resources/the-undercount-of-young-black-children-in-the-u-s-census/>

For many decades the Black population has been missed in the U.S. Census at a high level. While there has been considerable focus on the high net undercount of the Black adults, relatively little attention has been focused on young Black children

A quick examination of the Census counts for the total Black population, shows that despite improvements in the past 70 years, the net undercount for the Black population (2.5 percent) was higher than any other race group in the 2010 Census.

The net undercount rate for young Black (Alone or in Combination) children was 6.3 percent which is about 50 percent higher than the net undercount rate for all young children. A very large segment (48 percent) of young Black children are living in Census tracts where there is a very high risk of a young child net undercount in the 2020 Census. The percent of young Black children in very high risk of undercount Census tracts is higher than any other race/Hispanic group. The percent of young Black children living in very high risk of undercount Census tracts is more than five times that of young Non-Hispanic White young children. Young Black children living in very high risk of undercount Census tracts are very concentrated geographically. Half of all such young Black children are located in just 25 counties and one-quarter are located in just nine counties. Doing a good job of counting young Black children in these places would go a long way toward reducing the overall net undercount of young Black children.

There is no single reason why young Black children are missed at such a high rate. However, one reason young Black children are missed at a high rate is related to the fact that about one-quarter of low-income Black parents are not certain young children are supposed to be included in the Census. Also, young Black children are more concentrated in living arrangements and family structure situations that are linked to be missed in the Census. The high net undercount of young Black children in the Census means the communities where they live will not get their fair share of the \$1.5 trillion the U.S. government distribute to states and localities every year based on the Census.

In addition to being missed at a high rate in the Census, young Black children are also missed in Census Bureau surveys at a higher rate than others.

O'Hare, W.P. (2020). "Big Differences Among Young Children in Asian Subgroups Means Some are More at Risk of Being Missed in the 2020 U.S. Census", Asian Americans Advancing Justice (AAAJ) website. <https://medium.com/advancing-justice-aaaj/big-differences-among-young-children-in-asian-subgroups-means-some-are-more-at-risk-of-being-7d9e98c25f4f>

Nearly all the data measuring census accuracy for Asians in the U.S. Census focus on the entire Asian population, but it is important to recognize there are big differences among Asian subgroups. The population is vibrant with nearly 50 different ethnicities and more than 100 languages. Those differences play a huge role in the characteristics associated with the likelihood of being missed in the census.

The Population Reference Bureau created Hard-to-Count profiles for young children in 11 Asian subgroups which highlight the diversity of characteristics associated with the likelihood of being missed in the Census across these subgroups. In this blog, young children are defined as age 0 to 9. Children age 0 to 4 had the highest net undercount of any age group in the 2010 Census, but it is worth noting that ages 5 to 9 had the second-highest net undercount rate of any age group in the 2010 Census, so this age group experiences many of the same problems as the youngest children (ages 0 to 4).

Data for these groups are available at the [Count All Kids website](#). Data were also produced for specifically data for California and New Jersey and can be obtained by [contacting the author](#).

Table 1 below shows data for eight characteristics associated with the risk of being missed in the Census for young children in Asian subgroups. Data for All Children, Non-Hispanic White Alone young children, and all Asian young children provide points of comparison. The point of this table is to illustrate the great diversity of circumstances and characteristics among young Asian children. This underscores the importance of creating census outreach and promotional material that are tailored to these for specific groups.

	Poverty Rate	Living with one parent	In care of grandparent	Moved in the past year	Apartment/rental housing	multi-unit housing	In large household (7+ people)	In Limited-Proficient English household
All Young Children	21	35	4	17	42	18	10	7
Non-Hispanic White Alone	13	24	4	16	28	9	8	1
Asian (Alone or in Combination)	11	16	2	17	36	24	9	15
Asian Indian	5	5	1	21	41	36	5	9
Cambodian	19	42	3	11	44	20	18	21
Chinese	12	14	2	15	26	21	9	36
Chinese or Taiwanese	12	14	2	14	25	21	9	35
Filipino	7	22	4	13	38	22	17	8
Hmong	30	41	1	15	44	15	41	19
Japanese	7	11	2	22	57	34	4	35
Korean	10	8	1	20	43	28	3	28
Pakistani	20	8	2	16	43	28	19	14
Taiwanese	6	9	1	10	12	14	3	21
Vietnamese	15	21	2	12	24	12	14	35
Source: https://drive.google.com/drive/u/0/folders/1pJKXW-PdBJMqO4ATi7H1HS5COv0sZWzK								

As an example, let's use poverty rates. The poverty rates range from a low of 5 percent of Asian Indians to 30 percent for the Hmong community. Other characteristics show similar levels of disparity. These differences mean a one-size-fits-all approach to census promotion and outreach is unlikely to persuade all within the population.

The data are provided here to help fashion more effective outreach and promotion strategies for the 2020 Census. Now that the data collection period for the 2020 Census is likely to be extended, there is an opportunity to re-visit outreach efforts.

O'Hare, W. P. (2020). "In 2020, The First Ever Census Bureau Direct Mail Campaign to Get a More Accurate Count of Young Children," Posted on the Count All Kids website, MARCH 2020, <https://countallkids.org/in-2020-the-first-ever-census-bureau-direct-mail-campaign-to-get-a-more-accurate-count-of-young-children/>

One of the most important things the Census Bureau is doing to improve the count of young children in the 2020 Census is a "first-ever" direct mail campaign focused on areas where young children are most at risk of being missed. The Census Bureau was motivated by the fact that young children were missed at a higher rate than any other age group in the 2010 Census. The Bureau was determined to be much more proactive in trying to get a more complete and accurate count of young children in the 2020 Census compared to past Censuses.

The Census Bureau established a Task Force on the Undercount of Young Children in January 2019 to identify additional steps they could take to improve the count of young children in the 2020 Census. Discussions in that Task Force led to the idea of a direct mail campaign focused on geographic areas where young children are most at risk of being missed in the Census. This idea had been discussed within the Census Bureau before the Task Force was established, but the discussion within the Task Force lifted it up in a way that had not happened before. As discussions proceeded, the idea of targeting only young children morphed into reaching out to other hard-to-count populations in addition to young children.

With less than 12 months before implementation, the Census Bureau moved forward quickly on two different fronts simultaneously. One part of the Census Bureau analyzed 2010 census data to determine the characteristics that were most predictive of high levels of undercounts for young children. These results, in conjunction with other census data on the hard-to-count population, helped identify neighborhoods (census tracts) across the country where young children may be most at risk of being missed in the 2020 Census. After the census tracts with the highest risk of missing young children had been identified by Census Bureau staff, that data had to be translated into mail carrier routes used by the U.S. Postal Service. For housing units on these carrier routes, a special mailer was delivered which identified young children as one of the populations that respondents should include on their Census questionnaire.

Communication staff at the Census Bureau developed a postcard (mailer) to remind respondents that young children and other hard-to-count populations should be included in the Census responses. The postcard is called a Every Door Direct Mailer (EDDM) because it does not contain an address but is simply included in the mail delivery to every address on the selected letter carriers route. About 14 million mailers were sent to the selected areas in late February and early March, just prior to the 2020 Census invitation being sent out. The mailer used by the Census Bureau can be viewed [here](#).

This effort is one of the most promising and important efforts of the Census Bureau to promote a complete count of young children in the 2020 Census.

O’Hare, W.P, Jacobsen, L.A., Mather, M. VanOrman (2020). “Predicting Tract-Level Undercount Risk for Young Children,” Population Reference Bureau, Washington, DC. <https://www.prb.org/wp-content/uploads/2020/02/us-census-undercount-of-children.pdf>

In the 2010 U.S. Census, children under age 5 were more likely to be missed than any other age group. Census Bureau research shows the net undercount rate for young children (the percent of children who were missed minus the percent who were erroneously included) was nearly 5%. The net undercount for young children has been increasing while that for adults has been improving since the 1980 Census. While

several factors have been linked to the undercount of young children, most previous studies on this topic have been descriptive, rather than analytical in nature. Our analysis focuses on the factors that are most closely associated with the net undercount of children in the census, based on the Census Bureau's Revised 2018 Experimental Demographic Analysis Estimates. Our results suggest that two metrics currently being used to identify areas where young children are more likely to be missed by the census—the Low Response Score and tracts designated as hard-to-count (both based on 2010 Census mail return rates)—are not very good predictors of net undercount rates for young children in large counties.

A higher net undercount of young children in the largest counties (those with 250,000 people or more in 2010) is most closely associated with the following variables

- :
- Percent of adults ages 18 to 34 with less than a high school diploma, GED, or alternative.
 - Percent of children under age 18 living in a female-headed household with no spouse present.
 - Percent of children under age 6 living with a grandparent householder.
 - Percent of households that are linguistically isolated (no one ages 14+ speaks English "very well")
 - Percent of children under age 6 who are in immigrant families (child is foreign-born or at least one parent is foreign-born).
 - Percent of persons living in renter-occupied households.

We applied the model coefficients from our county-level regression analysis to updated independent variables from the 2013-2017 American Community Survey for census tracts to produce current neighborhood-level predicted net undercount risk for children under age 5. We hope the results of this analysis will help advocates and others better target geographic areas and population subgroups for Get-Out-the-Count efforts to reduce the undercount of young children and help ensure an accurate 2020 Census.

U.S. Census Bureau (2019). "Researching the Attitudes of Households Reporting Young Children – A Summary of Results from the 2020 Census Barriers, Attitudes, and Motivators Study (CBAMS) Survey," U.S. Census Bureau, Washington DC. June <https://www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/final-analysis/2020-report-cbams-attitudes-reporting-children.html>

Demographic analysis estimated that the 2010 Census had a 4.6 percent net undercount of children under the age of 5 (Hogan et al. 2013). Young children had a higher net undercount than any other age group. The Census Bureau is looking at data from a variety of sources to better understand this coverage problem and reduce the undercount of young children in the 2020 Census. This report analyzes response data from the Census Bureau's 2020 Census Barriers, Attitudes, and Motivators Study (CBAMS) survey. The 2020 CBAMS provides an opportunity for the Census Bureau to determine if the attitudes, barriers, and motivators for households with young children

differ in any important ways from those of households without young children. In this report, “young children” are defined as children age 5 and under.

U.S. Census Bureau (2019).”Investigating the 2010 Undercount of Young Children – Summary of Recent Research,” U.S. Census Bureau, Washington DC.

February, <https://www2.census.gov/programs-surveys/decennial/2020/program-management/final-analysis-reports/2020-report-2010-undercount-children-summary-recent-research.pdf>

In early 2015, the Census Bureau assembled an Undercount of Young Children Research Team to pursue research on the undercount of young children (defined here as age 0 to 4) in the decennial census. Since then, researchers on this team have analyzed multiple existing datasets to learn more about the undercount of young children in preparation for the 2020 Census. This report summarizes key findings from these studies, which are listed in Appendix A. This report also discusses steps the Census Bureau has taken to improve the count of young children in the 2020 Census based on the research results.

The research adds to our knowledge of the characteristics of the young children who were most at risk of being missed or incompletely enumerated in the 2010 Census. No group of young children was immune from the risk of being missed in the census, but some groups were at higher risk than others. The results underscore the importance of examining young children separately from older children when studying coverage.

Young children with the highest risks of coverage errors include:

- Children who were not a biological or adopted child of the householder (i.e., grandchildren, other relatives, and children who were not related to the householder).
- Children who were Hispanic or racial minorities.
- Children living in complex households, defined as all households other than nuclear families, stem families (i.e., single-parent families), and single-person households.
- Children living in renter-occupied housing and multiunit structures.
- Very young children (those born in the few months prior to the census reference day).
- Children living in the largest and the smallest households.
- Children are not enumerated by self-response.

There are multiple reasons why young children were missed in the 2010 Census. This research provided evidence of the following:

- Young children were missed because of different types of error, such as the housing unit was missed, the entire household was missed, or part of the household or just the child was missed. Whole-household errors were more

common for biological and adopted children while partial-household errors were more common for grandchildren, other relatives, and nonrelatives of the householder.

- Young children were missed because they lived in hard-to-count households with enumeration challenges.
- Young children may have been missed along with their young mothers.
- Cooperative self-respondents made errors when they created household rosters. These often involved children who were not related to the householder or who were relatives other than biological and adopted children.

U.S. Census Bureau (2019). "Investigating the 2010 Undercount of Young Children—Net Census Coverage of Very Young Children, Howard Hogan, issued January 15, 2020 Census Memorandum Series, <https://www2.census.gov/programs-surveys/decennial/2020/program-management/final-analysis-reports/2020-report-2010-undercount-children-net-census-coverage.pdf>

The fact that net undercoverage of young children has been relatively high in censuses compared with older children and adults is well documented (see Coale 1955, Siegel 1974, U.S. Census 2012a, Hogan et al. 2013, and U.S. Census Bureau 2014). Many hypotheses have been offered including the unstable living arrangements precipitated by having young children (e.g., the need to move in with the child's grandparents), time stress because of the care needs of the child, and the possibility that the respondents, including proxies, may not remember the child (U.S. Census Bureau 2014). The younger the child, the more salient most of the hypotheses for omission seem.

In this report, we compare census counts to counts of births from vital statistics by month. We show that the census counts actually exceeded the vital statistics counts for January and February 2010, implying a net overcount for these months. The 2010 Census records for children age 0 with a year of birth of 2010 and missing a date of birth (or having an invalid Date of birth were assigned a Date of birth for the months of January, February, and March 2010. It is likely that many of these records corresponded to children born after Census Day, children who should not have been included in the 2010 Census count. This helps explain the lower net undercount for children age 0 shown in Figure 1. Without these imputations, children age 0 would have had net coverage errors consistent with, or greater than, those for children ages 1 and 2.

U.S. Census Bureau (2019). "Investigating the 2010 Undercount of Young Children-- Examining the Coverage in Demographic Surveys, January, Eric Jensen, 2020 Census Memorandum Series, <https://www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/final->

[analysis/2020-report-2010-undercount-children-examining-coverage-demo-surveys.html](#)

The estimated net undercount for young children, age 0 to 4, in the 2010 Census was 4.6 percent compared with a 0.1 overcount for the total population (Griffin 2014). The net coverage error for young children was even higher for some races and ethnic groups. The undercount of young children in the decennial census is a persistent problem that has been documented by demographers for many decades (See for example, Coale 1955, Table 7). Recent estimates show that the net undercount of young children in the 2010 Census was driven by 2.2 million omissions for young children (U.S. Census Bureau 2016a). In other words, one out of every ten young children were not included in the 2010 Census.

In 2013, the Census Bureau organized a task force on the undercount of young children, and a research team was created in 2015 to analyze this issue. While the focus of the task force and research team has been on the coverage of children in the census, we also wanted to evaluate the coverage of this population in demographic surveys.

There are reasons we would expect demographic surveys to have patterns of coverage similar to the census and other reasons why we would expect demographic surveys to have different coverage patterns from the census. Some demographic surveys and the census ask respondents to create a roster of household members (Tourangeau et al. 1997). Surveys and the census both include operations to address nonresponse and increase overall participation. However, surveys have less extensive nonresponse follow-up and coverage improvement procedures, may have a panel or longitudinal design, are often collected throughout the year leading to seasonal variation in coverage, and do not have the same level of marketing and advertising as the decennial census.

Coverage in a survey is measured by calculating the relative coverage rate, which is the ratio of the uncontrolled survey estimate for a population to an independent population estimate. Many of the demographic surveys conducted by the Census Bureau use data from the Population Estimates Program as survey controls to adjust for coverage error. In other words, survey results are weighted to make sure they are consistent with the population estimates. The Census Bureau's Postcensal Population Estimates use the most recent census counts as the base population and then account for births, deaths, and migration since the census to provide current population estimates. The population estimates are produced by age, sex, race, and Hispanic origin. The coverage rates for the surveys can be calculated for these same characteristics, but not for additional characteristics such as poverty status or household structure.

In this report, we analyze coverage rates by age, race, and Hispanic origin for the American Community Survey (ACS), Current Population Survey (CPS), and the Survey of Income and Program Participation (SIPP).

These surveys have different sample designs but are each controlled to the postcensal population estimates, which allows us to calculate relative coverage rates. As stated above, the population estimates are based on the decennial census, which undercounts young children. To address this issue, we use data from 2009 and from 2015, when available. In these years, the population age 0 to 4 would have been born after the previous census, therefore, the population estimates for this cohort were developed primarily from vital statistics data on births and not census counts. We then calculate adjusted coverage rates for the cohorts where the population estimates are based on the census to account for coverage error in the census. This allows more legitimate comparisons across age groups.

U.S. Census Bureau (2019).” Investigating the 2010 Undercount of Young children –Further Analysis of Census Coverage Measurement Results, Deborah Griffin and Scott Konicki, January 2020 Census Memorandum Series,
https://www2.census.gov/programs-surveys/decennial/2020/program-management/final-analysis-reports/2020-report-2010-undercount-children-further_analysis_coverage_results.pdf

After the 2010 Census, Demographic Analysis (DA) estimated a net undercount of about 4.6 percent for young children (Hogan et al. 2013). This suggests a net undercount of about 1 million children under the age of 5. Several recent Census Bureau reports have provided additional information about the undercount of young children in the 2010 Census. One report summarized the analysis of data from the 2010 Census Coverage Measurement (CCM) program, focusing on characteristics of young children who were enumerated in the CCM but could not be matched to a child in the 2010 Census (U.S. Census Bureau 2017a). It also provided information about the types of nonmatches that involved young children. This data allowed us to determine:

- If children were nonmatches because the housing unit they lived in was a nonmatch.
- If nonmatching young children were the only nonmatches in a household.
- If they were nonmatches along with other household members.

In this report, we present further analyses of the CCM data. One recommendation from U.S. Census Bureau (2017a) was to create cross-tabulations of the CCM nonmatch data to gain greater insights into possible reasons for certain nonmatches. Our initial research showed important distinctions for young children based on their relationship to the householder and the size of the household. That research also found that young children living in a complex household had a greater likelihood of an enumeration error. Important differences were also found by race and Hispanic origin and by mode of data collection. This report will study the distributions of types of nonmatches by relationship to the householder and type of complex household. In addition, this report analyzes cross-tabulations of the CCM nonmatch rates for relationship to the householder by race and Hispanic origin and household size.

U.S. Census Bureau (2017a) also examined the nonmatch rates for young children by the mode of enumeration. That research showed higher nonmatch rates for young children enumerated in Nonresponse Followup (NRFU), especially when the NRFU interview was completed with a proxy respondent. In this report, we study the distribution of types of nonmatches by mode of enumeration. Our goal was to understand the reasons why young children might be missed in self-response and NRFU, and how these error sources may differ. Knowing these differences is important for taking measures to address the errors in future censuses and surveys.

In another analysis, we compare the CCM nonmatch rates for children in three age groups—0 to 4, 5 to 9, and 10 to 17. U.S. Census Bureau (2017b) showed that young children, age 0 to 4, were more likely than older children to have certain characteristics that were associated with high CCM nonmatch rates, such as a relationship other than biological or adopted child of the householder. This report studies whether the pattern of CCM nonmatch rates for young children hold for older children.

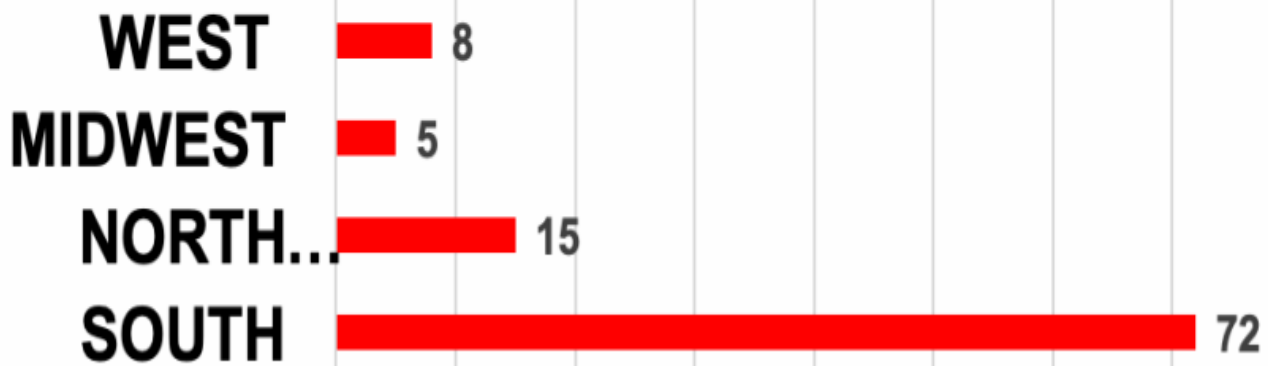
Last Revised: January 18, 2019

O’Hare, W.P. (2019). “The Census Undercount of Young Children in the South,” presentation at the Southern Demographic Association Conference, October New Orleans.

Young children had a higher net undercount in the 2010 Census than other age groups — 4.6 percent, a rate that has “tripled since 1980 while the net undercount rates for most other demographic groups have improved,” according to researcher Bill O’Hare of O’Hare Data and Demographic Services LLC. In his latest [research brief](#), O’Hare suggests that the “biggest problem” in counting young children in the 2020 Census is likely to be in the South.

“Of the 100 large counties with the highest net undercount rates for young children” in 2010, he said, “72 are located in the South.” In addition, “the problem is not confined to the large urban centers of the South. The net undercount of young children in the rural South is much higher than the net undercount of young children in rural areas of other regions.”

Figure 2. Number of Counties in Each Region Among the 100 Counties with the Highest Net Undercount Rate for Young Children in 2010 Census



Source: 2018 U.S. Census Bureau Experimental DA Estimates

O'Hare emphasized that "counting young children accurately in the 2020 Census should be a high priority."

O'Hare, W.P., Jacobsen, L. A., Mather, M. Vanorman, A., and Pollard, K. (2019) **What factors Are Most closely Associated with the Net Undercount of Young Children in the U.S. Census?** Population Reference Bureau, Washington DC. Available online at <https://www.prb.org/what-factors-are-most-closely-associated-with-the-net-undercount-of-young-children-in-the-u-s-census/>

This paper provides information on factors most closely associated with differences in net undercount rates for young children in large counties. The study uses experimental DA estimates from the Census Bureau, and a host of potential explanatory variables in a multivariate analysis to determine which variables are most closely associated with differences in net undercount rates. The results of this study will be updated when new experimental DA estimates for the net undercount of young children are made available by the Census Bureau in August 2019.

Walejko, G. and Konicki, S. (2018). “**Census Efforts to Reduce the Undercount of Young Children,**” Poster Presented at Joint Statistical Meeting, Vancouver Canada,

This poster lists several activities and operations that the Census Bureau plans to use in the 2020 Census to improve the count of young children

Jensen, E., Benetsky, M. and Knapp, A., (2018). “**A Sensitivity Analysis of the Net Undercounts for Young Hispanic Children in the 2010 Census,**” Poster at the 2018 Population Association of American conference, Denver, Colorado April 25-28 downloaded May 5, 2108, at <https://paa.confex.com/paa/2018/meetingapp.cgi/Paper/20826>

This poster provides updated net undercount estimates for young children in the 2010 Census based improved vital events data and new assumptions about movement of young children from the U.S to Mexico just prior to the 2010 Census.

U.S. Census Bureau (2018).” Investigating the 2020 Undercount of Young Children - Analysis of Complex Households, Eric Jensen, Laurel Schwede, Deborah Griffin and Scott Konicki, 2020 Census Memorandum Series, December https://www2.census.gov/programs-surveys/decennial/2020/program-management/final-analysis-reports/2020-report-2010-undercount-children-complex_households.pdf

The 2010 Census had a net undercount of 4.6 percent for the population age 0 to 4 compared to a net overcount of 0.1 percent for the total population (Hogan et al. 2013). This 4.6 percent translates into a net undercount of almost 1 million young children. The coverage of young children in the decennial census is a persistent problem (West and Robinson 1999). Moreover, there is evidence that the undercount for this population has been increasing while there has been an improvement in coverage for other age groups (O’Hare 2015). The growth in the net undercount of young children is concerning, and in response, the Census Bureau formed the Task Force on the Undercount of Young Children and the Children Undercount Research Team to address this issue (U.S. Census Bureau 2014).

The Research Team has used data from multiple sources including vital statistics, Census operations, Census evaluations, and household surveys to investigate this problem. A common finding across this research is that variation in household structure is closely related to the undercount of young children (U.S. Census Bureau 2016, U.S. Census Bureau 2017a, b, & c). In recent decades, shifts in demographic, social, and economic patterns in the United States have led to changes in household and family structure. As a result, today there is less overlap between families and households than in the past as families are often spread over multiple households or multiple families may be living in one household (Cherlin 2010). Family diversity and complexity may cause ambiguity for census respondents about whom to include on

the household roster, which may increase the likelihood that some household members are not counted.

Research on the undercount of young children has included indicators of household structure, mainly by focusing on the relationship of the young child to the householder. Relying only on the direct relationship between individuals and the householder may mask additional intricacies in living situations. In this report, we use the complex household typology, developed by Schwede and Terry (2013), to measure household structure. The typology uses information on the relationship to the householder for all household members to capture the diversity and complexity in structure that may not be reflected in the individual relationships. For instance, the living situation of a young child who lives with just his or her biological parents may be qualitatively different from that of a young child living with his or her parents and extended family or nonrelatives.

In this report, we use a complex household typology to analyze household structure and the undercount of young children in the 2010 Census. First, we classify households in the 2010 Census using the complex household typology, which includes a wider variety of household types than has previously been analyzed in the census. Next, we provide a descriptive profile of children in the 2010 Census by the complex household typology. In addition to summarizing the distribution of enumerated young children across these household types, this report expands recent Coverage Followup (CFU) and Census Coverage Measurement (CCM) analyses to see if specific types of complex households had a greater likelihood of errors involving young children. We conclude with a discussion of the importance of including complex household types in analyses of coverage.

King, H., Ihrke, D. and Jensen, E., (2018). “Subnational Estimates of Net Coverage Error for the Population Aged 0 to 4 in the 2010 Census,” paper present the 2018 Population Association of American Conference, April 25-28 , Denver Colorado, Downloaded May 6, 2018
<https://paa.confex.com/paa/2018/meetingapp.cgi/Paper/21374>.

Young children aged 0 to 4 had an estimated net undercount of -4.6 percent in the 2010 Census compared to a 0.1 percent overcount for the total population. Net coverage error for these cohorts is estimated using Demographic Analysis (DA). DA uses historical vital records and data on international migration to produce estimates of the population. The 2010 DA estimates were produced at the national level; therefore, the data cannot be used to estimate net coverage error for states or counties. In this paper, we produce subnational DA estimates of the population age 0-4 using vital records, international migration data, and domestic migration rates at the state and county levels. The results will show the geographic areas where young children had the highest estimated net undercount in the 2010 Census.

Jensen, E. and Hogan, H. (2017).” The coverage of young children in demographic surveys,” *Statistical Journal of the International Association of Official Statistics (IAOS)*, Vol 33. pp 321-333.

The 2010 U.S. Decennial Census had a 4.6 percent net undercount for the population age 0 to 4 compared to a 0.1 percent over count for the total population. While the undercount of young children in the census has gotten considerable attention in recent years, less is known about the coverage of children in demographic surveys. In this paper, we analyze coverage rates by age, race, and Hispanic origin for three surveys conducted by the U.S. Census Bureau - American Community Survey (ACS), Current Population Survey (CPS), and the Survey of Income and Program Participation (SIPP). In addition, we estimate modified coverage rates to account for cumulative coverage error in both the survey and the census counts, which are used to calculate the coverage rates. The results show that young children tend to have lower coverage rates than other age groups. Coverage rates for young children in the ACS vary by race and Hispanic origin. The differences in coverage rates for young children in the CPS and SIPP by race and Hispanic origin were not statistically significant.

O’Hare, W.P., (2017). “An International Perspective on the Undercount of Young Children in the U.S. Census,” *Statistical Journal of the International Association of Official Statistics*, Vol .33 (2017) PP 289-304.

<https://content.iospress.com/articles/statistical-journal-of-the-iaos/sji1008>

There is growing evidence that young children have a high net undercount in the U.S. Decennial Census and that net undercount rate has been increasing. Three key patterns are evident in the data. First, there has been a relatively high net undercount of children under age 5. Second, the net undercount for young children is higher than the net undercount for older children. Third, young children have a higher net undercount than any other age group. Data from several other countries are examined to see if the patterns seen in the U.S. relative to the net undercount of young children are also seen in other countries. Examination of data from several other countries indicates that most have experienced a net undercount of young children and that young children typically have higher net undercount rates than older children. However, in most other countries, young children are not the age group with the highest net undercount. In most countries young adults have the highest net undercount rates.

U.S. Census Bureau (2017). “Investigating the 2010 Undercount of Young Children – Examining Data Collected During Coverage Followup,” 2020 Census Memorandum Series, January 2020 Census Memorandum Series,

The Census Bureau acknowledges the long-standing undercount of children under the age of 5 in decennial censuses and in Census Bureau surveys. Demographers have documented the high undercount of these youngest children (e.g., West & Robinson

1999, O'Hare 2015). Evaluations show that Census Bureau surveys like the American Community Survey (ACS), the Current Population Survey, and the Survey of Income and Program Participation also undercount young children, which can result in biased survey estimates (O'Hare & Jensen 2014).

In this report, we define “young children” as children age 0 to 4. After the 2010 Census, Demographic Analysis estimated a net undercount of about 4.6 percent for young children (Hogan et al. 2013). This translated into a net undercount of almost 1 million young children. O'Hare (2015) shows that the net undercount rates for young children increased from 1.4 percent in 1980 to 4.6 percent in 2010, while the net undercount rate for the adult population (age 18+) went from an undercount of 1.4 percent in 1980 to an overcount of 0.7 percent in 2010. The rapid rise in the undercount of young children underscores the importance of examining this coverage problem in greater detail.

In 2014, the Census Bureau released a task force report summarizing this issue and recommending research to better understand the possible causes for this undercount (U.S. Census Bureau 2014). An interdivisional team is currently working on several projects that review existing data sources that might provide insights into the high undercount of young children in the 2010 Census.

The 2010 Census included a coverage improvement operation (Coverage Followup or CFU) to improve the accuracy of the household members listed on census questionnaires. Households with suspected coverage errors flowed into CFU. During the CFU operation, interviewers recontacted households by telephone, probing to determine if the list of household members was incomplete or if some people might be included in error. Data from the CFU operation allow us to profile the characteristics of households that initially erroneously excluded young children that CFU successfully added. The CFU data also allow us to study the characteristics of the households that initially indicated that they might have omitted a child, regardless of the outcome of CFU. In combination, they provide important information about households and children that the census may enumerate incompletely.

This is one of two CFU reports. It analyzes the characteristics of the young children that respondents initially omitted from their census questionnaires that CFU determined were missing and later added. The summaries identify instances where respondents made errors that CFU was able to correct. A second report looks at the larger universe of households that responded positively to one of the coverage probes about young children. That report will supplement these findings by assessing if the households with uncertainty about whom to include on their census forms are similar to the households where CFU added young children.

U.S. Census Bureau (2017) “Investigating the 2010 Undercount of Young Children – A Comparison of Demographic, Social, and Economic Characteristics of Children by Age,” January 18, 2020 Census Memorandum Series, https://www2.census.gov/programs-surveys/decennial/2020/program-management/final-analysis-reports/2020-2017_02-UndercountofYoungChildrenReport.pdf

In 2014, the Census Bureau released a task force report summarizing this issue and recommending research (U.S. Census Bureau 2014). An interdivisional team is currently working on several projects to investigate possible causes for the undercount of young children in the 2010 Decennial Census. As part of this work, we feel it is important to summarize what we know about the living arrangements and characteristics of enumerated young children. Data collection challenges vary by household and housing characteristics. The motivation for this report is to first, consolidate information describing the characteristics of young children and second, to explore if differences exist between these youngest children and older children that might contribute to coverage error. We want to understand if living arrangements or other housing, household, or demographic characteristics of the youngest children differ in important ways from those of older children.

This initial report summarizes basic demographic, housing, and household data from the 2010 Census, comparing the characteristics and living arrangements of young children (age 0 to 4) with those of older children (age 5 to 9 and 10 to 17).

U.S. Census Bureau (2017) “Investigating the 2010 Undercount of Young Children – A Comparison of Demographic, Social, and Economic Characteristics of Children by Age, July , Deborah Griffin and Scott Konicki, 2020 Census Memorandum Series, <https://www2.census.gov/programs-surveys/decennial/2020/program-management/final-analysis-reports/2020-report-2010-undercount-children-characterisitcs-by-age.pdf>

Young children (age 0 to 4) have a high rate of undercoverage in the decennial census and in surveys such as the American Community Survey (ACS). An interdivisional team is researching the causes for this undercoverage and assembling existing information about the living situations of young children. An important foundation for the team’s work is a baselining of the demographic, social, and economic characteristics of young children. The ACS is an ideal vehicle to measure the characteristics of young children along with the characteristics of the housing units and households where they live. Each year the ACS releases several tables about children. The tables included in this report expand on those tables to include greater age detail.

A comparison of 2010 Demographic Analysis (DA) estimates and 2010 Census counts for three partitions of children—those age 0 to 4, 5 to 9, and 10 to 17—found that only the two youngest age groups had an estimated net undercount in 2010 (U.S. Census Bureau 2012). We want to understand if living arrangements or other characteristics of young children differ in important ways from those of older children and if this might explain the difference in net coverage. U.S. Census Bureau (2017a) analyzed 2010 Census demographic, housing, and household data about children. The report summarized the characteristics and living arrangements of young children in three age groups (0 to 4, 5 to 9, and 10 to 17). It compared results for the youngest children (age 0 to 4) with those of the oldest children (age 10 to 17). Unlike censuses in the past, the 2010 Census asked a limited number of questions about each person and each household. This report expands the previous analysis by using the more detailed social, economic, and housing data that are now collected in the ACS.

U.S. Census Bureau (2017). “Investigating the 2010 Undercount of Young Children – Geographic Distribution of Coverage Followup Results,” Deborah Griffin and Scott Konicki, 2020 Census Memorandum Series, July 7, <https://www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/final-analysis/2020-report-2010-undercount-children-coverage-followup-results.html>

Demographers have documented the high undercount of children under the age of 5 in decennial censuses (e.g., West and Robinson 1999, O’Hare 2015). Evaluations show that U.S. Census Bureau surveys, such as the American Community Survey, the Current Population Survey, and the Survey of Income and Program Participation, also undercount young children, which can result in biased survey estimates (O’Hare and Jensen 2014).

In this report, we define “young children” as children age 0 to 4. In 2010, the Census Bureau used two different methods to evaluate census coverage. A post-enumeration survey, the Census Coverage Measurement (CCM) program, used dual system estimation to measure net coverage error. In addition, Demographic Analysis (DA) provided independent estimates of net coverage error. In 2010, DA estimated a net undercount of about 4.6 percent for young children (Hogan et al. 2013). This translates into a net undercount of almost 1 million young children. O’Hare (2015) shows that the net undercount rate for young children in the decennial census increased from 1.4 percent in 1980 to 4.6 percent in 2010, while the net undercount rate for the adult population (age 18+) went from an undercount of 1.4 percent in 1980 to an overcount of 0.7 percent in 2010. This growth in the net undercount of young children is the motivation for this research.

The 2010 Census included a coverage improvement program to review the list of household members and identify suspected coverage errors for follow-up. Two recent reports summarized data from this Coverage Followup (CFU) operation. The first report (U.S. Census Bureau 2017a) looked at households that responded positively to one of the probes on the 2010 Census questionnaires about potentially omitted children. The report summarized the characteristics of households where the respondent was uncertain about including a child. The second report (U.S. Census Bureau 2017b) analyzed the characteristics of the young children added as a result of CFU and the characteristics of the households where they lived. Data from these two evaluations identified instances of potential coverage error involving young children.

In this report, we look at the geographic distribution of the CFU results, identifying areas with the greatest numbers and highest rates of positive responses to the child undercount probes and areas with the greatest numbers and proportions of their young children added as a result of the CFU operation. As we plan for the 2020 Census, it is useful to identify the geographic areas that experienced 2010 Census enumeration challenges involving young children. These areas could be targeted for special outreach and education efforts in 2020. Understanding common characteristics of these areas may help us better understand the reasons for the errors.

U.S. Census Bureau (2017).”Memorandum 2017.16: Investigating the 2010 Undercount of Young Children – Analysis of the Coverage Followup Results Using the Esri Tapestry Segmentation and Planning Database” Deborah Griffin and Scott Konicki, 2020 Census Memorandum Series, July 7, U.S. Census Bureau, Washington, DC.

Hogan et al. (2013) used Demographic Analysis to estimate that young children (children under the age of 5) in the 2010 Census had a net undercount of 4.6 percent. An interdivisional team at the Census Bureau is currently analyzing existing data sets from the 2010 Census to try to understand the reasons for this high level of coverage error. This report is part of a series of reports that examine the undercount of young children in the 2010 Census. It summarizes findings about households that may have erroneously excluded a young child when they completed their 2010 Census questionnaires.

The 2010 Census included a coverage improvement program to review the list of household members and identify potential coverage errors for follow-up. Three recently released reports summarized data from this Coverage Followup (CFU) operation. The first report (U.S. Census Bureau 2017a) looked at households that responded positively to one of the probes on the 2010 Census questionnaires about potentially omitted children. The report summarized the characteristics of households where the respondent was uncertain about including a child. The second report (U.S. Census Bureau 2017b) analyzed the characteristics of the young children added as a result of CFU and the characteristics of the households where they lived. Data from these two evaluations identified instances of potential coverage error involving young children. The third report (U.S. Census Bureau 2017c) analyzed the geographic distribution of each of these events—households with positive responses to a child-specific undercount probe and young children added during CFU. In that report, the authors recommended additional research to study the social and economic characteristics of the geographic areas with high positive-response rates and high CFU add rates. Segmentation group analysis was also proposed to understand if errors involving young children were largely concentrated in areas associated with hard-to-count characteristics.

In this report, we expand our analysis of the geographic distribution of the CFU results using two segmentation methods. These methods group neighborhoods with similar characteristics. The first method uses a marketing segmentation structure developed by Esri, a geographic information system company (www.esri.com). Esri created the Tapestry demographic and lifestyle segmentation for use in analyzing markets and consumers. The second method uses tract-level data from the Census Bureau’s Planning Database (PDB) to stratify the country based on specific social, economic, housing, and operational variables.

We use these two methods to identify areas with the greatest numbers and highest rates of positive responses to the child undercount probes—an indicator of the types of neighborhoods where respondents experienced some level of confusion about

including young children on their census forms. In addition, we identify areas with the greatest numbers and proportions of young children added as a result of the CFU operation. These results point us to neighborhoods where the CFU operation successfully added young children that the household respondent initially omitted in error. As we plan for the 2020 Census, it is useful to identify where respondents experienced challenges completing their 2010 Census forms. The Census Bureau could target these areas for special outreach and education efforts in 2020. The Esri Tapestry segmentation and the PDB provide us with a rich set of operational, demographic, housing, and socioeconomic data about the neighborhoods that experienced these enumeration challenges in 2010.

U.S. Census Bureau (2017). “Investigating the 2010 Undercount of Young Children – Child Undercount Probes,” January, 2020 Census Memorandum Series, https://www2.census.gov/programs-surveys/decennial/2020/program-management/final-analysis-reports/2020-2017_03-undercount-children-probes.pdf

In this report, we define “young children” as children age 0 to 4. After the 2010 Census, Demographic Analysis estimated a net undercount of almost 1 million young children, about 4.6 percent (Hogan et al. 2013). O’Hare (2015) shows that the net undercount rates for young children increased from 1.4 percent in 1980 to 4.6 percent in 2010, while the net undercount rate for the adult population (age 18+) went from an undercount of 1.4 percent in 1980 to an overcount of 0.7 percent in 2010. The rapid rise in the undercount of young children underscores the importance of examining this coverage problem in greater detail.

In 2014, the Census Bureau released a task force report summarizing this issue and recommending research to better understand the possible causes for this undercount (U.S. Census Bureau 2014). An interdivisional team is currently working on several projects to review existing data sources that might provide insights into the high undercount of young children in the 2010 Census. This report analyzes responses to the 2010 Census coverage questions to identify households that might have had some confusion about whether or not to include a young child on their 2010 Census forms.

U.S. Census Bureau (2017) “Investigating the 2010 Undercount of Young Children – Analysis of Census Coverage Measurement Results,” January, 2020 Census Memorandum Series, https://www2.census.gov/programs-surveys/decennial/2020/program-management/final-analysis-reports/2020-2017_04-undercount-children-analysis-coverage.pdf

NO ABSTRACT AVAILABLE

O’Hare W.P. (2017). “Geographic Variation in 2010 U.S. Census Coverage Rates for Young Children: A Look at Counties,” *International Journal of Social Science Studies*, Vol. 5, No. 9 Sept. Redframe Publishing.

Data from the Census Bureau's Demographic Analysis (DA) show there was a net undercount of almost one million children under age 5 in the 2010 Decennial Census. The net undercount for young children was more than twice as high as any other age group. Given the high net total undercount of young children it would be useful to know how this net undercount is distributed geographically. In this study, the 2010 Decennial Census county-level counts of children age 0 to 4 are compared to corresponding figures from the Census Bureau's Vintage 2010 population estimates, to ascertain census coverage for young children. Results show that net undercount rates for young children are higher in larger counties and counties with high percentages of Black or Hispanic children, but county growth rates do not seem to be related to net undercount rates for young children. Discussion explores how this information may be helpful in the 2020 Census.

O'Hare, W.P., Mayol-Garcia, Y., Wildsmith, E., and Torres, A., (2016) The Invisible Ones: How Latino Children Are Left Out of Our Nation's Census Count, Child Trends Hispanic Institute & National Association of Latino Elected Officials, Child Trends, Washington DC. <http://www.childtrends.org/?publications=the-invisible-ones-how-latino-children-are-left-out-of-our-nations-census-count>

This publication focuses on the high net undercount of young Latinos in the U.S. Census. The data is examined at the national, state and county level. The authors also include information on possible reasons for the high net undercount of young Latinos and offer some suggestions for avoiding a high net undercount of young Latinos in the 2020 Census.

O'Hare, W. P., Robinson, J.G., West, K., and Mule, T., (2016). Comparing the U.S. Decennial Census Coverage Estimates for Children from the Demographic Analysis and Coverage Measurement Surveys, *Population Research and Policy Review*, Vol. 35, Issue 5, pages 685-704.

Following every U.S. decennial census since 1960, the U.S. Census Bureau has evaluated the completeness of coverage using two different methods. Demographic Analysis (DA) compares the census counts to a set of independent population estimates to infer coverage differences by age, sex, and race. The survey-based approach (also called Dual System Estimation or DSE) provides coverage estimates based on matching data from a special follow-up survey to census records. Each method has strengths and weaknesses. This paper examines the results of these two methods for the 1990, 2000, and 2010 decennial censuses in terms of consistency and inconsistency for the population under age 18. Results are shown for the overall population in this age group and by demographic detail (age, race, and Hispanic origin). The paper provides a set of tables with corresponding data from the two methods and highlights similarities and differences in the two sets of estimates across groups and over time. The differences between DA and DSE estimates are larger for children than for adults. Among children, the DA and DSE results are most inconsistent for the population aged 0 to 4 and most consistent for ages 10 to 17. Results also show that DA and DSE are more consistent for Black than Non-Black populations. The authors

suggest that a possible explanation for the differences in the two methods for young children may be an underestimation bias in the DSE approach due to correlation bias.

Weinberg, D. (2016) Improving Coverage of Children in the 2010 U.S. Census, Unpublish manuscript,

This paper covers many of the changes in 2010 Census operations and outreach designed to improve the coverage of young children in the 2010 U.S. Census.

U.S. Census Bureau (2016).”Investigating the 2010 Undercount of Young Children—A New Look at 2010 Census Omissions by Age,” Howard Hogan and Deborah Griffin issued July 26, 2016., U.S. Census Bureau, Washington DC.

<https://www2.census.gov/programs-surveys/decennial/2020/program-management/memo-series/2020-report-2010-undercount-children-omissions.pdf>

The Census Bureau has a long history of measuring net coverage errors to assess the overall quality of its censuses. The Census Coverage Measurement (CCM) program and Demographic Analysis (DA) both provide estimates of net coverage error. For nearly all uses of census data those net coverage error measures are sufficient. Information about gross errors such as omissions, duplications, and fabrications as well as information on whole-person imputations provide an important supplement to net errors. Measuring the components that make up net coverage allows us to better understand the processes that lead to coverage shortcomings. Census planners can use these components to identify needs for methodological changes in future censuses.

Analysis has shown that the net undercount rate for young children (aged 0 to 4) is higher than for other ages. We can use information about gross errors and whole-person imputations to help understand the possible causes. Specifically, we are interested in assessing if the high net undercount rate for young children might be because of a higher omission rate for young children (gross undercoverage) or whether it might be the result of a lower rate of erroneous enumerations (gross overcoverage) and/or a lower rate of imputed young children. The analysis in this report seeks to harness the unique strengths of both DA and the CCM to address this issue.

U.S. Census Bureau (2016).”Investigating the 2010 Undercount of Young Children-- Examining the Coverage of Young Mothers, issued June 7, 2016

<https://www2.census.gov/programs-surveys/decennial/2020/program-management/final-analysis-reports/2020-report-2010-undercount-children-mothers.pdf>

The Census Bureau acknowledges the historical undercount of young children in decennial censuses and Census Bureau surveys. Demographers have documented the high undercount of children under the age of five (e.g., Robinson et al 1993, O'Hare 1999, West & Robinson 1999, O'Hare 2009). This is not a phenomenon unique to the U.S. as China, South Africa, Laos, the former Soviet Union, and Canada also

experience this high net undercount of young children (Anderson & Silver 1985, Anderson 2004, Statistics Canada 2004 and 2010, Goodkind 2011). Evaluations show that Census Bureau surveys like the American Community Survey (ACS), the Current Population Survey (CPS), and the Survey of Income and Program Participation also undercount young children, which can result in biased survey estimates. In addition, these surveys will never fully correct for this undercoverage, given the use of decennial census counts with known undercoverage as inputs to final survey controls.

The 2010 Demographic Analysis estimated an undercount of almost 1 million children, aged 0 to 4 (about 4.6 percent). O'Hare (2012) found that the net undercount rates for young children in the U.S. Decennial Census increased from 1.4 percent in 1980 to 4.6 percent in 2010, while the net undercount rate for the adult population (age 18+) went from an undercount of 1.4 percent in 1980 to an overcount of 0.7 percent in 2010. The rapid rise in the undercount of young children underscores the importance of examining this population in more detail.

In 2014, the Census Bureau released a task force report summarizing this critical coverage issue and recommending research that the Bureau should consider to better understand the possible causes for this undercount (U.S. Census Bureau 2014b). An interdivisional team is currently working on several projects to investigate the undercount of young children in the 2010 Decennial Census. One of these projects explores the coverage of young mothers to determine if the census might miss young children along with their young mothers. This evaluation report summarizes the results of that investigation.

O'Hare, W.P. (2016). Who Lives in Hard-to-Count Neighborhoods? *International Journal of Social Science Studies*, Vol. 4, No. 4, pp 43-55.

For more than 20 years the U.S. Census Bureau has engaged in work to identify local areas that are likely to be difficult to enumerate in the Decennial Census. Such areas have been labeled "Hard-to-count." In this study I use the final Mail Return Rates from the 2010 Census to identify a group of Census Tracts that I label Hard-to-Count or HTC. Once HTC Tracts have been identified I examine the demographic characteristics and socioeconomic characteristics of the population living in the HTC Tracts and compare them to the population in all Tracts. Demographic characteristics of the HTC Tracts examined here include location, age, race, and sex, along with several socioeconomic measures such as poverty and living arrangements. The distribution of characteristics for the population residing in the HTC Census Tracts is compared to the distribution for all Tracts to develop an HTC concentration ratio. The HTC Tracts are highly concentrated geographically. The 25 counties with the most HTC Tracts account for half of all HTC Tracts. Blacks, Hispanics, and American Indian populations are highly concentrated in HTC Tracts. Demographic groups with the highest concentration in HTC Tracts are identified and the net undercount rates for these groups are

examined. The relationship between concentration in HTC neighborhoods and Census undercount rates is mixed.

O’Hare, W.P. (2016). What Do We know About the Presence of Young Children in Administrative Records, Proceedings of the Federal Conference on Statistical Methodology.

The U.S. Census Bureau is planning to use administrative records in conducting the 2020 U.S. Decennial Census. In that context, it is important to examine how the groups that are undercounted at the highest rates in the Census are represented in administrative records. The Census Bureau’s Demographic Analysis found a net undercount of nearly a million young children in the 2010 Census which amounts to 4.6 percent of this age group. The net undercount of young children (under age 5) in the 2010 U.S Decennial Census was twice as high as any other age group. This paper reviews what we know about the presence of young children in the set of administrative records often used by the Census Bureau. Data show that the youngest children (ages 0 to 2) have the lowest match rates between the Census and administrative records. Implications for use for administrative records in the Decennial Census and major Census Bureau surveys are discussed.

O’Hare, W.P. (2016). “Five Steps for Reducing the High Net Undercount of Young Children in the 2020 Census,” The Census Project, Available online at <https://censusproject.files.wordpress.com/2015/12/oharepaper-five-steps-for-reducing-child-undercount-summer2016-8-16-2106-final.pdf>

This article provides several steps that could be taken to improve the count of young children in the 2020 Census. Including aspects of research, operations, communications, and partnership program, build a robust network of child advocacy organizations, and evaluating the undercount of young children in the 2020 Census in a way that contributes to our understanding of the problem.

O’Hare, W.P. (2015). *The Undercount of Young Children in the U.S. Decennial Census*. Springer Publishers <http://www.springer.com/us/book/9783319189161>

This book provides a summary of information on the undercount of young children in the U.S. Census. The contents are reflected in the chapters which include:

- Introduction
- Methodology
- Coverage of Young Children in the 2010 U.S. Decennial Census
- Historical Examination of Net Coverage for Children in the U.S. Decennial Census: 1950 to 2010

- State and County Level 2010 U.S. Census Coverage Rates for Young Children
- Coverage of Young Children in the Census: An International Comparative Perspective
- Potential Explanations for the High Net Undercount of Young Children in the U.S. Census. S
- Summary and Conclusions

O'Hare, W.P. (2014). State-Level 2010 Census Coverage Rates for Young Children, *Population Research and Policy Review*, Volume 33, no. 6, pages 797-816.

Demographic Analysis has been used by the U.S. Census Bureau for more than fifty years to assess the quality of information collected in U.S. Decennial Census. Data from the Census Bureau's Demographic Analysis (DA) show the net undercount rate for children age 0 to 4 in the 2010 Census was 4.6 percent while adults (age 18 and older) had a net overcount rate of 0.7 percent. Given the relatively high net undercount rate for young children, it would be useful to examine this population in more detail. The yearly population estimates from the Census Bureau provide estimates of young children for states which are based on a methodology very similar to that used in DA. Like the DA method, the yearly population estimates are based on a simple demographic accounting equation that uses number of births, deaths, and net migration.

In this study, the 2010 Decennial Census counts of children age 0 to 4 are compared to corresponding figures from the Census Bureau's Vintage 2010 population estimates in each state. Differences between the 2010 Decennial Census count and the Vintage 2010 population estimates for the population ages 0 to 4, range from a net undercount of 10.2 percent in Arizona to a net overcount of 2.1 percent in North Dakota. Net undercounts are associated with population size. Larger states had larger net undercounts than smaller states. Several implications of this finding are explored.

U.S. Census Bureau. (2014). Final Task Force Report on the Undercount of Young Children. U.S. Census Bureau, Washington, DC.

<http://www.census.gov/library/working-papers/2014/demo/2014-undercount-children.html>

This report includes a high-level review of the issue of the undercount of children ages 0-4 in censuses and surveys. It summarizes possible causes for that undercount and highlights areas that the task force was able to investigate to assess the validity of some of our hypotheses. The primary product is a list of recommended research (pages 17 - 19). This executive summary includes a broad set of observations and suggestions for Census Bureau managers; suggestions that we feel could move us in the right direction in addressing this problem in the future.

U.S. Census Bureau (2014). "Assessing Net Coverage Error for Young Children in the 2010 U.S. Decennial Census." *Center for Survey Measurement Study Series (Survey Methodology #2014-02)*. William O'Hare, U.S. Census Bureau. Available online at <http://www.census.gov/srd/papers/pdf/ssm2014-02.pdf>

The U.S. Census Bureau's Demographic Analysis shows the population age 0 to 4 experienced a net undercount rate of 4.6 percent in the 2010 Decennial Census. This is more than twice as high as any other age group. Despite the fact that the relatively high net undercount of young children was uncovered more than fifty years ago, this problem has received little systematic attention from demographers. To help fill that gap in the literature, this study examines the accuracy of the count of children in the 2010 Decennial Census. The initial focus on all children shifts to a focus on young children (age 0 to 4) where net undercount rates are the highest. Discussion highlights some of the potential explanations for the findings

U.S. Census Bureau (2014). "Historical Examination of Net Coverage Error for Children in the U.S. Decennial Census: 1950 to 2010." *Center for Survey Measurement Study Series (Survey Methodology #2014-03)*. William O'Hare, U.S. Census Bureau. Available online at <http://www.census.gov/srd/papers/pdf/ssm2014-03.pdf>.

Recent studies have highlighted the high net undercount of children, particularly young children, in the 2010 U.S. Decennial Census. However, this issue has received little systematic attention from demographers historically. Given the extensive use of decennial census data, the high net undercount of young children is both a data and a social equity problem. This study examines patterns and trends in the net undercount of children in the U.S. Decennial Census from 1950 to 2010. The focus is on trends in the net undercount of children relative to adults. The initial emphasis on all children (age 0 to 17) shifts to a focus on young children (age 0 to 4) where net undercount rates are higher than any other age group. Differences between net undercount rates of Black and Non-Black populations are also examined over the 1950 to 2010 period. Results show that the differential net undercount of young children relative to adults as well as older children is now larger than the differential net undercount of Blacks and Non-Black

O'Hare, W.P. (2014). "The Net Undercount of Children the 2010 U.S. Decennial Census," in *Emerging Techniques in Applied Demography*, (edited by M. Hoque and L. Potter), Applied Demography Series, Volume 4, pp 39-51, October

This article provides basic data on the undercount of young children in the U.S. Census including trends over time, and differential undercounts.

O'Hare, W.P. (2014). Assessing Net Coverage for Young Children in the 2010 U.S. Decennial Census, *International Journal of Population Research*, Volume 2014, <http://dx.doi.org/10.1155/2014/671715>.

The U.S. Census Bureau's Demographic Analysis shows the population age 0 to 4, experienced a net undercount rate of 4.6 percent in the 2010 Decennial Census. This is more than twice as high as any other age group. Despite the fact that the relatively high net undercount of young children was uncovered more than fifty years ago, this problem has received little systematic attention from demographers. To help fill that gap in the literature, this study examines the accuracy of the count of children in the 2010 Decennial Census. The initial focus on all children shifts to a focus on young children (age 0 to 4) where the net undercount rate is the highest. Discussion highlights some of the potential explanations for the findings.

O'Hare, W. P., and Jensen, E. B. (2014). *The Representation of Young Children in the American Community Survey*, presentation at the ACS Users Group Conference, Washington, DC. May 29-30. Available on line at http://acsdatacommunity.leveragesoftware.com/wiki_entry_view.aspx?topicid=1347f3da2bd24cf18d1034ff306d1f06

This presentation focuses on under-reporting of young children in major Census Bureau surveys in the American Community Survey. Data show that young children (age 0 to 4) had lower coverage rates than other age groups, and minority children had lower coverage rates than Non-Hispanic whites.

Vitrano, F., (2014). Counting young children in censuses and surveys. Blog for Associate Director 2020 Census. Washington DC. U.S. Census Bureau. <https://www.census.gov/newsroom/blogs/research-matters/2014/08/counting-young-children-in-censuses-and-surveys.html>

This blog discusses the high priority the Census Bureau is putting on improving the count of young children in the 2020 Census.

O'Hare, W.P. (2014). State-Level 2010 Census Coverage Rates for Young Children, *Population Research and Policy Review*, Volume 33, no. 6, pages 797-816. <https://www.semanticscholar.org/paper/State-Level-2010-Census-Coverage-Rates-for-Young-O'hare/79463051376c4fc194c4eebeaf0d5a59bb2f5>

Following every U.S. decennial census since 1960, the U.S. Census Bureau has evaluated the completeness of coverage using two different methods. Demographic Analysis (DA) compares the census counts to a set of independent population estimates to infer coverage differences by age, sex, and race. The survey-based approach (also called Dual System Estimation or DSE) provides coverage estimates based on matching data from a post-enumeration survey to census records. This paper reviews the fundamentals of the two methodological approaches then initially examines the results of these two methods for the 2010 decennial census in terms of consistency and inconsistency for age groups. The authors find the two methods produce relatively consistent results for all age groups, except for young children. Consequently, the paper focuses on the results for children. Results of the 1990, 2000, and 2010 decennial censuses are shown for the overall population in this age group and by demographic detail (age, race, and Hispanic origin). Among children, the DA and DSE results are most inconsistent for the population aged 0 to 4 and most consistent for ages 10 to 17. Results also show that DA and DSE are more consistent for Black than Non-Black populations. The authors discuss possible explanations for the differences in the two methods for young children and conclude the DSE approach may underestimate the net undercount of young children due to correlation bias.

Dolson, D. (2013) Differential Coverage Error for Young Children in the Canadian Census, Power Point Presentation at 2013 Joint Statistical Meetings.

This presentation provides information on the undercount of young children in the Canadian Census.

O'Hare W. P. (2013). "Net Undercount of Children in the U.S. Decennial Census," Proceedings of the 2013 Joint Statistical Meetings, Montreal, Canada, Sponsor: Social Statistics Section,
<https://ww2.amstat.org/MembersOnly/proceedings/2013/data/presinfo/presinfo49277.cfm>

This presentation provides basic data about the net undercount of young children in the U.S. Decennial Census, and it is intended to lay the groundwork for the presentations that follow. Results of Demographic Analysis show that young children (under age 5) had a net undercount rate of 4.6 percent in the 2010 Decennial Census. This amounts to a net undercount of almost one million persons ages 0-4. The net undercount rate of persons age 0-4 is higher than any other age group. Moreover, the net undercount rate for young black and young Hispanic children is significantly higher than the total undercount rate for this age group. Since 1980, the net undercount rate for young children has increased steadily while that for adults has declined.

O'Hare, W.P., Jensen, E. & O'Hare, B.C. (2013, May). *Assessing the Undercount of Young Children in the U.S. Decennial Census: Implications for Survey Research and Potential Explanations*. Paper presented at the 2013 American Association of Public Opinion Researchers Annual Conference, Boston, MA.

This presentation focuses on under-reporting of young children in major Census Bureau surveys including the American Community Survey, The Current Population Survey, and the Survey of Income and Program Participation. Data show that young children (age 0 to 4) had lower coverage rates than other age groups, and minority children had lower coverage rates than Non-Hispanic whites.

Hogan, H. (2013). "Undercount of Young Children in Official Statistics: Discussion" Sponsor: Social Statistics Section Proceedings of the 2013 Joint Statistical Meetings, Montreal, Canada, Sponsor: Social Statistics Section, <https://ww2.amstat.org/MembersOnly/proceedings/2013/data/presinfo/presinfo49170.cfm>

Despite evidence that young children (under age 5) have had relatively high net undercount rates in the U.S. Census at least since 1950, and many other developed countries experience high net undercount rates for young children, this issue has received very little attention among demographers. Results of the 2010 Census show that young children (under age 5) have a net undercount rate of 4.6 percent which is higher than any other age group. Moreover, the net undercount rate for young black and young Hispanic children is significantly higher than the total undercount rate for this age group. Since 1980, the net undercount rate for young children has increased consistently and substantially while that for adults has declined.

This session will provide historic and current data on the undercount of children in the U.S. Decennial Census, as well as steps that have been taken in the past to reduce such undercounts. It will also provide information on the Census Bureau's plans for trying to achieve a more accurate count of young children in the 2020 Census.

O'Hare, W.P. (2012b), "The Undercount of Children in the 2010 Decennial Census and Its Implications," presentation at the Joint Statistical Meeting, San Diego Ca, Aug. 2, 2012

Goodkind, D. (2011). "Child Underreporting, Fertility and Sex Ratio Imbalance in China," *Demography*, Vol. 48, pp 291-316.
https://www.jstor.org/stable/41237721#metadata_info_tab_contents

O'Hare, W.P. (2011), "What Demographic Analysis Tells Us About the Count of Children in the 2010 Census," Paper presented at the Southern Demographic Association annual conference, Tallahassee, Fl., October

Groves, R. (2010). *Children Count Too!* Census Bureau Directors' Blog, March 9, Washington, DC.

O'Hare, W. P., (2009), *Why Are Young Children Missed So Often in the Census,* KIDS COUNT Working Paper, December, Available online at <http://www.aecf.org/~media/Pubs/Other/W/WhoAreYoungChildrenMissedSoOftenintheCensus/final%20census%20undercount%20paper.pdf>

This working paper from the Annie E. Casey Foundation provides an overview regarding evidence of the undercount of young children prior to the 2010 Census. In addition to data about net undercounts, the paper provides some discussion of possible reasons why young children are missed in the Census and provides some information about the implications of Census undercounts.

O'Hare, W. P., (2008), *Data on Children in Foster Care from the U.S. Decennial Census Bureau,* The Annie E. Casey Foundation, Baltimore MD, available online at <http://www.aecf.org/~media/PublicationFiles/FosterChildrenJuly2508.pdf>

Zeller, A., (2006) "Inconsistency Between Accuracy and Coverage Evaluation Revision II and Demographic Analysis Estimates for Children 0 to 9 Years of Age," paper delivered at the American Statistical Association annual conference, available in proceedings

Zeller, A., (2006) "Inconsistency Between Accuracy and Coverage Evaluation Revision II and Demographic Analysis Estimates for Children 0 to 9 Years of Age," paper delivered at the American Statistical Association annual conference, available in proceedings

Pitkin, J & Park, J. (2005) "The Gap Between Births and Decennial Census Counts of Children Born in California: Undercount or Transnational Movement?" Paper presented at the Population Association of America Conference, Philadelphia PA March

Lowenthal, T. (2005). "Counting Kids in Census 2000: Results and Challenges KIDS COUNT/PRB Report on Census 2000, <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.593.1156&rep=rep1&type=pdf>

Anderson, B. A., (2004), *Undercount in China's 2000 Decennial Census in Comparative Perspective,* PSC Research Report, NO. 04-565, Population Studies Center, University of Michigan, Ann Arbor, MI

Daponte, B.O. & Wolfson, L.J., (2003), "How Many American Children are Poor? Considering U.S. Decennial Census Undercount by Comparing U.S. Decennial Census to Administrative Data" Carnegie Mellon University, February 7

Edmonston, B. (2002) The Undercount in the 2000 Census, A KIDS COUNT/PRB Report on U.S. Decennial Census 2000, The Annie E. Casey Foundation, Baltimore, MD.

Edmonston, B. (2001) Effects of Decennial Census Undercoverage on Analyses of School Enrollments: A Case Study of Portland Public Schools, U.S. Decennial Census Monitoring Board, Report Series Report No. 05, February.

O'Hare, W. P., (1999). *The Overlooked Undercount: Children Missed in the Decennial Census*. Baltimore, MD: Annie E. Casey Foundation.
<http://caseyconnectionv2.aecf.org/C14/Reports/Document%20Library/overlooked%20undercount.pdf> or <http://eric.ed.gov/?id=ED437494>

The Census Bureau estimates that more than two million children were missed in the 1990 Census, accounting for more than half the total net undercounted population. This undercount has financial implications because Census data are used to distribute public funds. This paper provides detailed statistics related to the children missed in the 1990 Census, and it highlights trends that will make it more difficult to obtain a complete count of children in the 2000 Census. Among the many reasons children are missed in the count is the uncertain living arrangements of many poor children. A child's "usual place of residence" may not be clear. Children missed in the Census are disproportionately minority children. In every population group except Hispanics, children are missed more often than adults. Native American children living on reservations are missed more often than any other racial/ethnic group. The places where the best data is needed on children are often the places where the actual data is the worst. Large cities have high child poverty rates and high child undercount rates, something that affects the distribution of public funds and the planning of educators and social service delivery systems. A number of trends have been identified that will make the 2000 Census more difficult to conduct than the 1990 Census, and, unless special efforts are made, the undercount of children will be worse in 2000 than in 1990. Gaining an accurate picture of U.S. children in the 2000 Census should be given the highest priority.

West, K. & Robinson, J.G., (1999), What Do We Know About the Undercount or Children? U.S. Decennial Census Bureau, Washington, DC , August 1999 Population Division Working Paper No. 39,

<https://www.census.gov/population/www/documentation/twps0039/twps0039.html>

This is one of the first papers written on the undercount of children in the U.S. Census, but it focuses on all children, not young children. (BILL SEE what is said about young children).

There is a pressing need for statistics to inform policy makers of the size and characteristics of the nation's children. Decennial data provide most of these statistics either directly or indirectly when used as population controls for surveys. In this paper, we summarize what we know about the undercount of children. While considerable amount of attention has been devoted to the undercount for the U.S. population overall and to specific subgroups such as young black men in inner cities, less attention has been given to the undercount of children. We bring together data from the 1990 Post Enumeration Survey and Demographic Analysis results in an attempt to learn as much as we can from these sources about the coverage of children in the decennial census.

Anderson, B. A. & Silver, B.D., (1985), "Estimating U.S. Decennial Census Undercount from School Enrollment Data: An Application to the Soviet Censuses on 1959 and 1970," Demography, Vol. 22, No. 2 (May) pp 289-308.