



Information and Advice on 2020 Federal Data Quality and Use

The COVID-19 Pandemic Disrupted Data Collection

While the COVID-19 pandemic has disrupted daily routines, schooling, work, health, and the economy around the world, it has also significantly impacted U.S. data collection for annual federal surveys and the release of statistics on the well-being of children and families. The disruptions in data collection limit our understanding of how the pandemic impacted families in 2020 and will have ramifications for data quality and availability for the next several years.

All major federal surveys implemented methodological changes in response to the COVID-19 pandemic. However, federal agencies faced different challenges and choices based on how their surveys were originally designed. Some agencies continued data collection efforts by shifting from in-person to phone or online interviewing modes while others suspended operations or delayed or extended data collection periods. New surveys, such as the Household Pulse Survey, were also developed to provide up-to-date information about how the pandemic was affecting the U.S. population, families, and children.

This brief summarizes changes to several U.S. Census Bureau surveys and programs that provide data on children and families—the American Community Survey (ACS), Current Population Survey (CPS), 2020 Census, and Population Estimates—as well as how to access data, evaluate data quality and usability, and what to do if the data you typically rely on are not available. A short outline of these changes, as well as information about many additional data sources, is available in companion tables in the appendix, The COVID-19 Pandemic’s Impact on Federal Statistical Systems Data Collection and Data Quality.

Key Takeaways and Recommendations

American Community Survey (ACS)

- The Census Bureau did not release the standard 2020 ACS 1-year data products. Instead, it produced experimental estimates.
- The 2020 ACS 1-year experimental data release included selected tabulated data for the United States, the 50 states and the District of Columbia, and a 1-year Public Use Microdata Sample (PUMS) data set with the experimental weights.
- The 2020 ACS 1-year experimental data should not be compared to any other ACS data or decennial census data.
- Estimates for Public Use Microdata Areas (PUMAs), which can combine or split counties, should be used with caution as the experimental weights are not optimized to produce estimates for these areas.
- The 2016-2020 ACS 5-year data were released under a waiver process because they did not meet the Census Bureau's quality standards.
- ACS 5-year data users need to pay close attention to the margins of error, which may be substantially larger than usual for all data releases that include the 2020 data (that is, the 2016-2020 through the 2020-2024 data release).
- Data users who require a 1-year estimate should use 2019 data.
- Data users who require a 5-year estimate can use 2016-2020 data. These data can be compared to prior non-overlapping 5-year data (that is, 2011-2015).

Current Population Survey

- Data users should use caution when comparing results from the 2020 Annual Social and Economic Survey (ASEC) with prior years and can refer to the [2020 ASEC documentation](#) for more information.

2020 Census

Redistricting data file (P.L.-94) recommendations include:

- Data users should consider aggregating small geographic areas to larger geographic areas with population sizes of 500 or more (for example, combine multiple census block groups together).
- Data users should not divide data across tables (for example, do not divide the population by the number of housing units to obtain the average household size).
- Data users may subtract data across tables (for example, subtract adult population from the total population to obtain count of children).
- 2020 Census results can generally be compared to prior censuses and ACS data.

Demographic and Housing Characteristics Tables

- Those who are looking for data that have not yet been released (for example, data for 5-year age groups by sex and race) can first look to the Population Estimates Program to see if the desired data are available in the population estimates.
- If the geographic area or characteristics are not available in Population Estimates, then data users can use the 2016-2020 ACS 5-year data. Please note that these data are period estimates covering 2016-2020 and data users should pay close attention to the margins of error.

U.S. Population Estimates

- Vintage 2021 population estimates were produced using a blended base that incorporates data from multiple sources.
- Data users should pay attention to trends over time in case the Vintage 2021 estimates are substantially higher or lower than the 2020 Census data or Vintage 2020 estimates.

American Community Survey

The American Community Survey (ACS) is an ongoing, nationwide survey designed to provide communities with reliable and timely social, economic, housing, and demographic data every year. In a typical year, the ACS has an annual sample size of about 3.5 million addresses, with survey information collected nearly every day of the year. Data are pooled across a calendar year to produce estimates for that year.

In March 2020, the [U.S. Census Bureau made several changes to the ACS data collection operations in response to the COVID-19 pandemic](#).

- The Census Bureau stopped mailing invitations, reminders, and questionnaires from mid-March through June 2020; they continued to suspend mailings for reminders and follow-up attempts from July through December 2020.
- The Bureau initially suspended in-person interviews with nonresponding households; these interviews resumed for some areas of the country in July 2020.

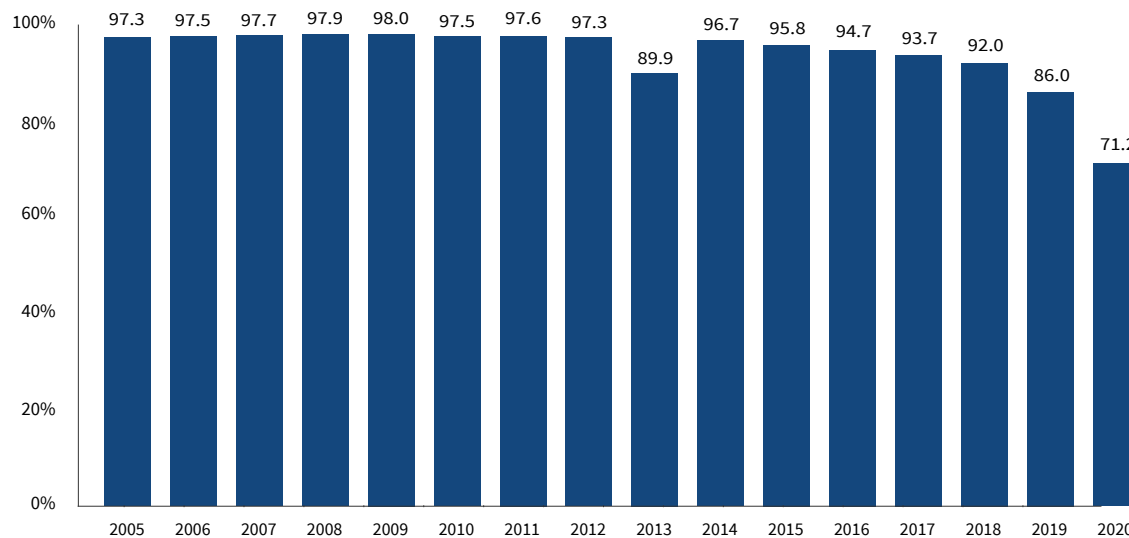
Many households were not notified by the Census Bureau that they had been selected to participate in the ACS and so had no opportunity to respond. These changes to data collection operations significantly impacted the number of completed interviews and the final data quality for the 2020 ACS estimates.

- The sample size decreased from a target of 3.5 million households to 2.87 million households.
- The number of completed interviews decreased by 32%, from 2.06 million in 2019 to 1.41 million in 2020.
- The response rate fell to its lowest level in the history of the survey (71%, down from 86% in 2019 and 92% in 2018; see figure).
- The sample had significant nonresponse bias because the people who responded to the survey were systematically different than those who did not respond—interviewed respondents were more likely to be white, college-educated, live in a single-family home, and have high incomes.

The Census Bureau determined that the 2020 ACS estimates did not meet their [statistical quality standards](#) and released a limited set of experimental estimates, rather than their standard 1-year data products. The Census Bureau released several short [blogs](#) and a [report](#) detailing how data collection efforts shifted in response to the pandemic, the impact on ACS data quality, and how the Census Bureau changed estimation methods to address some of the data quality problems.

FIGURE

AMERICAN COMMUNITY SURVEY HOUSING UNIT RESPONSE RATE, 2005-2020



Source: U.S. Census Bureau, [American Community Survey Response Rates](#).

Accessing and Using 2020 ACS Data

1-Year Experimental Estimates

The Census Bureau did not release the standard set of 2020 ACS 1-year data products. Instead, the Bureau produced experimental estimates using a new weighting method called entropy balancing. This method reweights the respondent sample so that the distribution of characteristics in the sample data matches the target population. Because these are experimental data, the [Census Bureau has recommended against comparing 2020 ACS 1-year](#) data to any other ACS estimates or other census data.

The Census Bureau released a limited set of data tables for a small number of geographic areas using the 2020 ACS 1-year experimental estimates.

- **Fewer data tables are available.** In a typical year, the Census Bureau releases more than 1,350 tables as part of the standard 1-year data release. The experimental data release contains only 54 tables.
- **Data are available for fewer geographic areas.** One-year data are usually available for geographic areas with populations of 65,000 or more. The experimental estimates are only available for the nation, 50 states, and the District of Columbia.
- **Tabulated data are only available via Excel table downloads.** Data are not available on data.census.gov, in the Application Programming Interface (API), or in summary files.
- **No data are available for Puerto Rico.** Data collection activities were similarly disrupted in Puerto Rico but the experimental methodology could not be extended there.

The 1-year experimental data tables can be accessed online at the [ACS Experimental Data page](#). These 54 tables cover social, economic, housing, and demographic characteristics. The tables only contain weighted counts and margins of error (MOEs). All prevalence estimates and associated margins of error need to be manually calculated. Refer to the ACS handbook, [Understanding and Using American Community Survey Data: What All Users Need to Know](#), for more information on calculating prevalence estimates and MOEs.

The Census Bureau suggests that users who typically use the 1-year ACS estimates to allocate funds, conduct program evaluations, make decisions, or for any other program purposes use an alternative data source for 2020 (for example, 2019 ACS 1-year, 2015-2019 ACS 5-year, or 2016-2020 ACS 5-year data). The Census Bureau produced a [flow chart to help data users determine if their application of ACS data is impacted by the changes to the 2020 1-year ACS data](#).

Public-Use Microdata Sample (PUMS)

In addition to the tabulated data, the Census Bureau released the [2020 ACS 1-Year PUMS With Experimental Weights](#). The microdata are available for the nation, regions, divisions, states, and Public Use Microdata Areas (PUMAs). While the 2020 ACS 1-year PUMS data files function the same as a typical year, the Census Bureau urges data users to exercise caution when using these experimental data and determine whether they are suitable for their particular use. The 2020 ACS 1-year PUMS data should not be compared to other PUMS data.

The 2020 ACS 1-year PUMS with experimental weights was designed primarily to produce estimates for states and large counties. Estimates for PUMAs, which can combine or split counties, should be used with caution as the experimental weights are not optimized to produce estimates for these areas.

The Census Bureau will not be releasing design factors to calculate margins of error using a generalized variance formula (GVF). Instead, data users must calculate margins of error using the successive difference replicate (SDR) method. Data users should note that due to the use of experimental weights, margins of error may be smaller than expected.

The 2020 ACS 1-year PUMS data are not available through the Bureau's online microdata access tool (MDAT), but data users can access the files from the [Census Bureau's file transfer protocol \(FTP\) site](#).

Integrated Public Use Microsample (IPUMS)

IPUMS USA has also released data from the 2020 ACS 1-year PUMS files with experimental weights. The IPUMS-harmonized 2020 ACS 1-year PUMS file is formatted in the same manner as prior years and can be accessed in the same way on the IPUMS USA website. The data are available to download as microdata and for analysis using the online data analysis system. However, although these data are harmonized—meaning data are processed in a way that would typically allow for comparing estimates across time—they should not be compared with ACS estimates for prior years. Additionally, IPUMS does not include the 2020 1-year data among the default samples on the sample selection list. Data users will need to select the 2020 1-year sample using the “select samples” function to analyze these data.

The IPUMS USA website has [more information about 2020 ACS data quality and how IPUMS incorporated the 2020 1-year ACS PUMS file into the data system](#).

2020 ACS 5-Year Data

The U.S. Census Bureau released the full suite of standard data products using the 2016-2020 ACS 5-year data. These data cover the time period from January 1, 2016 through December 31, 2020. The Census Bureau incorporated the 2020 data into the 5-year estimates using a [revised methodology](#) and experimental weights for the 2020 data.

With the revised methods and resulting improvements to the quality of the 5-year estimates, the Census Bureau decided that the data were fit for use. However, these data [did not meet the Census Bureau’s data quality standards](#) and were released under a waiver.

Data users need to pay close attention to the margins of error, which may be substantially larger than usual. The 2020 ACS 5-year data are based on fewer interviews than in prior years. The average county saw an 8.5% decrease in final interviews for the 2016-2020 survey, and the decrease was much larger in certain parts of the country. A [PRB analysis of the pandemic’s impact on ACS data collection](#) found that rural areas were particularly hard hit and may have much larger margins of error. The increased margins of error will be a factor to consider for all future 5-year products that contain the 2020 data, which would include data releases through 2020-2024.

The Census Bureau released a blog to [help data users understand how to use the ACS 5-year data](#), especially when social and economic conditions are rapidly changing as they were during 2020.

Current Population Survey

The [Current Population Survey \(CPS\)](#) is a monthly survey that aims to provide up-to-date data on the U.S. employment situation. The CPS includes a basic monthly survey and a series of annual and biennial supplements that capture more information about U.S. social and economic conditions. The CPS Annual Social and Economic Survey (ASEC) is the source of the official poverty rate and provides data on income, health insurance coverage, and the supplemental poverty measure.

The Census Bureau and Bureau of Labor Statistics (BLS) continued to collect CPS data throughout 2020, though they shifted from in-person and telephone-based data collection centers to other methods of phone-based interviewing from April 2020 through June 2020. Limited in-person interviews resumed in July 2020 and expanded to all areas of the country in September 2020. However, the [2020 CPS response rates](#) were about 10 percentage points lower than in previous years.

CPS ASEC interviews are conducted in March and April each year via computer-assisted person interviews and computer-assisted telephone interviews. As with the ACS, CPS data collection was interrupted by the COVID-19 pandemic. In-person data collection for the 2020 CPS ASEC, which began a mere four days before the first stay-at-home orders were issued (March 15 and March 19, respectively), was quickly suspended and a reduced number of workers switched to telephone methods by the end of the month. Telephone-only data collection methods for the CPS and CPS ASEC continued from April through June 2020 for all households. For the 2021 CPS ASEC, the Census Bureau continued to only conduct in-person interviews when telephone interviews could not be completed.

Nonresponse bias in the 2020 and 2021 ASEC is strongly associated with income and education—respondents in the 2020 and 2021 ASEC had higher incomes and were more educated than nonrespondents. Data users should use caution when comparing results from the 2020 and 2021 ASEC with prior years and can refer to the [2020 ASEC documentation](#) for more information. Additionally, IPUMS has a summary of how the [COVID-19 pandemic has impacted CPS data collection](#).

The BLS also added [five new questions to the monthly CPS](#) about work and employment during the COVID-19 pandemic. [Data files and tables](#) with these estimates are available from BLS.

2020 Decennial Census

The 2020 Census Program faced many challenges in collecting data during the pandemic. Data collection had just gotten underway when the World Health Organization declared the COVID-19 outbreak a pandemic, and the U.S. government declared a national emergency shortly after. Planned 2020 Census operations were adapted or delayed to balance the need to protect the health of the public and Census Bureau employees with the requirement of obtaining a complete and accurate count of the nation's population.

The COVID-19 Pandemic Disrupted Data Collection

The pandemic had direct impacts on all aspects of the [2020 Census data collection schedule](#) as well as data processing and data delivery.

- The self-response period was extended until October 15, 2020.
- Nonresponse follow-up, update leave, and in-person group quarters data collection efforts were delayed.
- Field offices were closed from early March through early May 2020, with a phased re-opening beginning May 4, 2020.
- Mobile questionnaire assistance operated with a limited capacity.

In addition to the COVID-19 pandemic, multiple natural disasters—wildfires in California and Oregon and hurricanes in Louisiana—displaced people and limited Census Bureau employees' ability to follow up with non-responding households.

The pandemic led to a delay in processing and releasing the 2020 Census results, as well as conducting and releasing results from the Post-Enumeration Survey, a key resource used in evaluating census results.

The Census Bureau Assesses Data Quality in Multiple Ways

These data collection challenges raise questions about the quality of the 2020 Census results. The Census Bureau evaluates census results in multiple ways.

It conducts an operations review that consists of operational quality metrics and internal and external reviews that together measure how well the Census Bureau conducted the census. Despite the pandemic's impact on data collection efforts, the Census Bureau reports that the self-response rate for the 2020 Census exceeded expectations, with 67% of households responding via self-response. The Census Bureau also reported that 99.9% of households were enumerated. However, these responses are only as accurate as the responses given. The [Census Bureau provides many tools and reports about their operations review and operational quality metrics](#).

The Bureau also compares census results with those based on other demographic methods to provide an estimate of how well the census covered the U.S. population. In every census some people are missed, some people are counted when they shouldn't be, and sometimes people are added to the census through imputation. By comparing census results to other measures of the population, we can get a sense of how many people may have been missed and any characteristics associated with being missed.

The Census Bureau uses a few tools to compare decennial census results to other population estimates.

- Decennial census results of population change compared to historical population trends.
- Decennial census data on population size compared to Population Estimates, which are not independent of the decennial census.
- Demographic Analysis (DA) that uses methods independent of the decennial census.
- Independent [Post-Enumeration Survey \(PES\)](#) results matched against the decennial census data.

As of May 2022, the Census Bureau has released many of these data and provided information about the quality of the 2020 Census. The [PES results for the national population](#) show a net coverage error of -0.24% and the middle series of DA show a net coverage error of -0.35%. Both values indicate a slight net undercount of the population. These values are similar to those in the 2010 Census, and we can conclude that the "[quality of the 2020 Census total population count is robust and consistent with recent censuses](#)."

But significant variations by age, race and ethnicity, and geography are evident.

The 2020 PES and 2020 Demographic Analysis find that [young children ages 0 to 4 were missed in enumeration at a much higher rate than other children](#). And the net undercount of young children was higher in 2020 than it was in 2010. The table summarizes the results for children.

TABLE

POST-ENUMERATION SURVEY AND DEMOGRAPHIC ANALYSIS ESTIMATES OF NET COVERAGE ERROR (PERCENT) BY AGE, APRIL 1, 2020

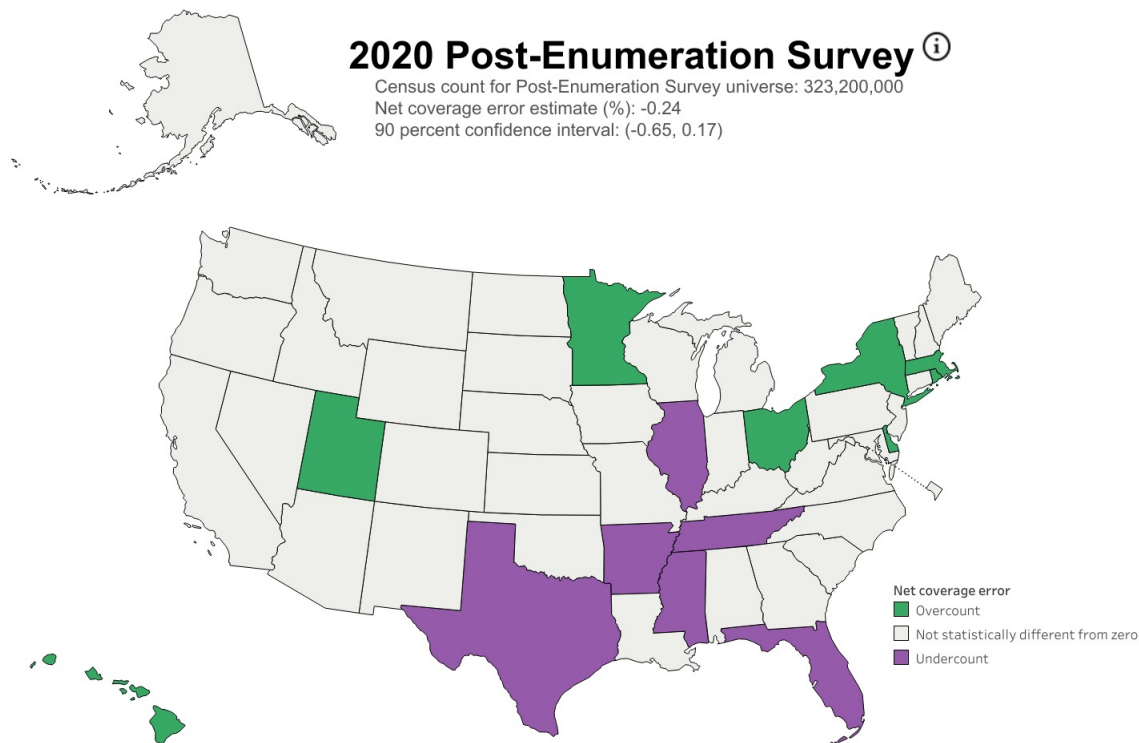
Ages	Post-Enumeration Survey		Demographic Analysis (Middle Series)	
	2020	2010	2020	2010
0 - 17	-0.84%*	0.33%	-2.1%	-1.7%
0 - 9	-1.40%*	-0.20%	-3.4%	-3.4%
0 - 4	-2.79%*	-0.72%*	-5.4%	-4.6%
5 - 9	-0.10%	0.33%	-1.4%	-2.2%
10 - 17	-0.21%	0.97%	-0.6%	0.5%

Note: An asterisk (*) denotes a (percent) net coverage error that is significantly different from zero.

Sources: U.S. Census Bureau, 2010 and 2020 Post-Enumeration Survey and Demographic Analysis Estimates (middle series).

MAP

2020 POST-ENUMERATION SURVEY NET COVERAGE ERROR BY STATE



Note: Post-Enumeration Survey (PES) estimates are subject to sampling and nonsampling errors. The PES universe does not include people living in group quarters. More information regarding data collection, definitions, sampling error, nonsampling error, and estimation methodology is available at the [Post-Enumeration Surveys](#) site.

The [Post-Enumeration Survey](#) also shows that people identifying as Black or African American, Hispanic or Latino, and American Indian and Alaska Native living on reservations were [undercounted at much higher rates in 2020](#) than in 2010.

Undercounts and overcounts also varied across states. The map above shows eight states with an overcount, six states with an undercount, and 36 states plus Washington, DC, with no statistically significant net coverage error.

Additional experimental DA results for young children at the state and county levels will be released in summer 2022.

The results from the 2020 DA and the PES show that much more work needs to be done to obtain an accurate count for people across different age, racial, and ethnic groups.

Data Availability and Access

The 2020 Census results will be available on [Census.gov](#) and on [data.census.gov](#). As of May 2022, the Census Bureau has released limited data and a few details about several key data products to be released in 2023. All the 2020 Census data releases are delayed because of the COVID-19 pandemic.

- **Apportionment** relies on total state-level population counts (released April 26, 2021).
- **P.L. 94-171 Redistricting Data Files** (released September 16, 2021).
- **Demographic Profile** tables will provide data for the population by five-year age groups, sex, race, Hispanic or Latino origin, household type, relationship to householder, group quarters population, housing occupancy, and housing tenure down to the place and minor civil division geographic levels (to be released May 2023).
- **Demographic and Housing Characteristics file (DHC)** will provide more detailed population counts by age, sex, race, Hispanic or Latino origin, household type, family type, relationship to householder, group quarters population, housing occupancy, and housing tenure down to small geographic areas, including census blocks for some tables (to be released May 2023).
- **Detailed Demographic and Housing Characteristics File A (Detailed DHC-A)** will provide population counts and sex by age statistics for detailed racial and ethnic groups and American Indian and Alaska Native tribal and village population groups (to be released August 2023).
- **Detailed Demographic and Housing Characteristics File B (Detailed DHC-B)** will provide data on household type and tenure information for the same detailed race and ethnicity groups and American Indian and Alaska Native tribal and village population groups as in the Detailed DHC-A (release date to be determined).
- **Supplemental Demographic and Housing Characteristics (S-DHC)** will provide data on households and people living in households, such as average household size, household and family type for those under age 18, and population by tenure. These tables are frequently referred to as “complex person-household join tables” or “join tables” (release date to be determined).

Data users who were relying on more detailed 2020 Census results sooner than the current release schedule provides can look to the Population Estimates and the 2016-2020 ACS 5-year data for more recent data than the 2010 Census. Data users should keep the caveats of those data sources in mind when using them in place of decennial census results.

Disclosure Avoidance in the 2020 Census

The Census Bureau is legally required to protect the privacy of respondents and the confidentiality of their data. Across the decades, the Census Bureau has used different methods of privacy protection. Protecting privacy has always required swapping or blurring the data slightly so that individuals cannot be identified in small geographic areas or by characteristics that only a few people share. Blurring the data adds some degree of uncertainty and with that, some degree of diminished accuracy.

In response to new vulnerabilities created by today's modern computing technologies, the [Census Bureau developed a new disclosure avoidance system](#) based on a framework known as differential privacy to protect the results. Differential privacy defines and quantifies the tradeoff between respondent privacy and data accuracy.

Differential privacy injects noise—adding or subtracting small amounts to the data—but the level of noise is guided by a number—known as the privacy-loss budget—that defines how much noise can be added. The higher the budget, the lower the noise, and the more accurate the data. The total privacy-loss budget is allocated across characteristics and geographies.

The 2020 Census is the first census to have the privacy protection method of differential privacy applied to the results.

To date, the Redistricting Files are the only data to be released under the new differential privacy framework. For these data, the noisy data are adjusted in the post-processing step to align with a set of invariant data points, meaning there are certain statistics in the redistricting data file that match the actual enumeration in the census.

- State, District of Columbia, and Puerto Rico total populations.
- Number of housing units in each block.
- Number of occupied group quarter facilities by type.

Additional constraints are also implemented to ensure results are non-negative and consistent within and across tables.

The Census Bureau has been seeking data user feedback through a series of [demonstration products](#). These products allow data users to compare the released 2010 Census results to what would have been released under the new differential privacy framework.

Results to date show that applying differential privacy with the current set of parameters has little impact on the data for states and large counties. Small areas and small population groups have more error. And some results are impossible or improbable, such as city blocks with children but no adults.

These results mean that data users:

- Should aggregate small geographic areas to a larger geographic area with a population size of 500 or more (for example, combine multiple census blocks together).
- Should not divide data across tables (for example, do not divide the population by the number of housing units to obtain the average household size).
- May subtract data across tables (for example, subtract adult population from the total population to obtain a count of children).
- May compare 2020 Census results to prior censuses and to ACS data.

The Census Bureau has released a differential privacy handbook, [Disclosure Avoidance for the 2020 Census](#), for more information.

U.S. Census Population Estimates

The Census Bureau's [Population Estimates Program \(PEP\)](#) data are widely used for decision-making. Distribution of federal funding to states and local governments relies on population estimates to ensure each jurisdiction gets its fair share. Local governments use population estimates for planning purposes such as planning for schools, hospitals, roads, and business development. Population estimates are also used to weight survey responses from the American Community Survey, Current Population Survey, National Survey of Children's Health, and many other federal surveys.

[Population estimates are updated annually](#), incorporating the latest data on births, deaths, and migration to develop a time-series of estimates for that year, known as the Vintage year, and all years back to the latest decennial census. Each annual update begins with a base population that has typically been based on the latest decennial census. Then, following the next decade's census, the new census counts serve as the new base for building the decade's postcensal estimates.

The PEP Vintage 2021 population estimates base would have been the 2020 Census. However, delays related to the COVID-19 pandemic and other changes to the delivery of the 2020 Census results mean the PEP would not receive all necessary variables and data in time to develop the Vintage 2021 population estimates using the 2020 Census counts as the base.

- COVID-19 delayed the 2020 Census data production and release schedule.
- Use of the new disclosure avoidance system eliminated some variables needed to use the census counts in the population estimates.
- PEP evaluates all data inputs for suitability and was not able to apply their best practices to the 2020 Census results.

As a result, PEP developed a blended base to generate the Vintage 2021 population estimates. The blended base uses the 2020 Census national, state, and county population totals from the P.L. 94-171 redistricting file and supplements these data from other sources to create the most accurate population estimates.

The blended base incorporates data from the 2020 Census, the 2020 Demographic Analysis (DA) estimates, and the Vintage 2020 population estimates.

- 2020 Census results are used for the national, state, and county-level totals.
- 2020 DA estimates provide the national age and sex structure, which is then used as a control for lower levels of geography.
- Vintage 2020 population estimates provide the full level of age, sex, race, and Hispanic origin detail at the county level needed to fill in any remaining gaps.

The components from these three data sources together create the new blended base. The blended base is then modified with updated data on births, deaths, migration, and group quarters population. For these estimate components, PEP also had to make a few changes to the data they would typically use for the first postcensal Vintage.

- Data on births are incorporated by combining National Center for Health Statistics' provisional monthly totals from 2020 and applying the distribution of sex, race, and Hispanic origin characteristics from the 2019 birth data to the provisional totals. Lower birth rates resulting from the pandemic are reflected in the data.
- Data on deaths followed a similar approach, combining provisional monthly totals from 2020 with the distribution of characteristics from 2019. Excess mortality because of COVID-19 is reflected in the data.
- For domestic migration, the only change was to continue to use 2010 Census data on race and Hispanic origin in processing the most up-to-date data on domestic migration. The PEP program found they did not need to incorporate an adjustment for the COVID-19 pandemic.
- For international migration, PEP typically uses the most recent ACS data; however, the pandemic's impacts were so severe that these 2020 ACS estimates were not usable. Instead, PEP used data from other sources, such as the U.S. Department of Justice, Department of State, and Department of Homeland Security. They also used airline passenger data to improve estimates of net migration between Puerto Rico and the rest of the world.

- Group quarters data were updated as part of the blended base development. The proportion of the population in group quarters in the Vintage 2020 estimates was applied to the blended base to obtain the Vintage 2021 group quarters base.

The Census Bureau evaluated the use of the blended base approach and found advantages:

- Less age heaping. That is, the 2020 Census results show more people at ages that end in “5” and “0” than would be expected. The blended base approach resulted in smoother data.
- Less undercounting of young children. Using the 2020 DA estimates as part of the blended base reduces the impact of the undercount of young children because the U.S. vital records system is robust and nearly all children are captured in the birth certificates from National Center for Health Statistics.

These methodological changes may have some impact on data quality and trends. Data users should pay attention to trends over time in case the Vintage 2021 estimates are substantially higher or lower than the 2020 Census data or Vintage 2020 estimates. These methodological changes may also affect the ability to use these estimates in showing trends for various rates such as births, deaths, and injuries. Data users should note any large, unexplained changes in historical trends.

City, town, and housing unit estimates were released in May 2022, and national, state, and county-level data with age, sex, race, and Hispanic origin characteristics became available in June 2022.

Looking ahead to the Vintage 2022 data (tentatively scheduled for release beginning in December 2022), the Census Bureau has not yet announced how the Vintage 2022 population base and component estimates will be developed.

The Census Bureau has resources describing these changes and the implications in more detail. For more information:

Christine Hartley, Luke Rogers, and Catherine Doren, “[Population Estimates at the Start of the Decade](#),” U.S. Census Bureau, Dec. 16, 2021.

Luke Rogers and Christine Hartley, “[Adapting Population Estimates to Address COVID-19 Impacts on Data Availability](#),” U.S. Census Bureau, April 14, 2022.

U.S. Census Bureau, “[Methodology Updates for the Vintage 2021 Estimates](#),” Nov. 23, 2021.

Frequently Asked Questions

Where can I find estimates of poverty rates, income, and other measures of economic well-being for 2020?

- For state-level estimates, use the 2021 CPS ASEC estimates. These data should provide reliable estimates at the state-level for large populations (all people, all children, etc.). Note that the poverty estimates from the CPS ASEC are not the same as from the ACS because of differences in how information about income is collected. PRB wrote an [article summarizing the key differences between CPS ASEC estimates and ACS data](#).
- Economic data are included in the 2020 ACS 1-year experimental estimates, though data users will likely need to use the PUMS data file to develop estimates. These data cannot be compared to prior years, so they are not useful for understanding trends in poverty rates and other measures of economic well-being.
- The 2016-2020 ACS 5-year estimates are available for small geographic areas and can be used to disaggregate data by race and ethnicity. These data can be used for trend analyses when compared to another non-overlapping 5-year period and are available in tables on data.census.gov and through the PUMS data file.
- The 2019 ACS 1-year estimates can continue to be used.
- [Small Area Income and Poverty Estimates](#) (SAIPE) for 2020 are available. The U.S. Census Bureau did not provide updated methodological information, so the 2020 ACS data were likely incorporated into the model as usual.
- The [Household Pulse Survey](#) provides data on economic well-being during the COVID-19 pandemic. These data should be used with caution as they are experimental and do not have a pre-pandemic benchmark.

Where can I find estimates of health insurance coverage for 2020?

- For state-level estimates, use the 2021 CPS ASEC estimates. Note that health insurance estimates from the CPS ASEC are not comparable to those from the ACS. See a [summary of differences between CSP ASEC estimates and ACS data by PRB](#) for more information.
- Health insurance estimates are included in the 2020 ACS 1-year experimental estimates, though data users will likely need to use the PUMS data file to develop estimates. These data cannot be compared to prior years, so they are not useful for understanding trends.
- The 2016-2020 ACS 5-year estimates are available for small geographic areas and can be used to disaggregate data by race and ethnicity. These data can be used for trend analyses when compared to another non-overlapping 5-year period and are available in tables on data.census.gov and through the PUMS data file.
- The 2019 ACS 1-year estimates can continue to be used.
- [Small Area Health Insurance Estimates](#) (SAHIE) are planned to be released in summer 2022.
- The [State Health Access Data Assistance Center](#) (SHADAC) produced state-level estimates for 2020 using the CPS ASEC data.

Where can I find 2020 birth data?

- The pandemic did not impact the collection of birth data. Use usual sources and methods, such as your state Department of Health office, National Center for Health Statistics reports, and [CDC Wonder](#).

Where can I find 2020 mortality data?

- The pandemic did not impact the collection of mortality data. Use usual sources and methods, such as your state Department of Health office, National Center for Health Statistics reports, and [CDC Wonder](#).

Where can I find additional child health data?

- One option is to use data from the [National Survey of Children's Health](#) (NSCH). For state-level estimates, data users should pool two to three years of data together.
- The COVID-19 pandemic had no impact on response rates or data quality for the 2020 data.

Where can I access education-related statistics in 2020?

- For updating trends, data users will need to determine if the original data provider made any changes in 2020.
 - For state-provided administrative data or state test scores obtained through states' Departments of Education, data users will need to find out how the state handled attendance records, state-testing, etc., when schools were closed, in remote-only learning modes, and hybrid-learning modes.
 - For data submitted to the federal government and released through the [National Center of Education Statistics](#) (NCES): NCES has not announced what data will be available or any concerns about data quality; however, some 2019-2020 school-year data are delayed relative to prior year release dates.
 - For achievement data through [National Assessment for Educational Progress](#) (NAEP): The 2021 assessments were delayed until 2022. New data are expected in late 2022.
- The [Household Pulse Survey](#) included some questions about the delivery and receipt of education over the course of the pandemic. Data users should be aware that these data are experimental and that the Household Pulse Survey has a very low response rate (less than 5%). The questions also changed and have not been asked in all phases of the survey.
- Data from the ACS and the CPS can also be used for school enrollment and educational attainment data.

APPENDIX: TABLE 1. THE COVID-19 PANDEMIC'S IMPACT ON FEDERAL STATISTICAL SYSTEMS DATA COLLECTION AND DATA QUALITY

Data Source	Pandemic's Impact on Data Collection and Data Quality	Changes to 2020 Data Products and Recommendations for Use	More Information
Key Data Sources for National and State-Level Data on Child and Family Well-Being (Survey-Based Data Sources)			
American Community Survey (ACS)	<ul style="list-style-type: none"> Key data collection and data processing activities were suspended from March through June 2020 and reduced through December 2020. 32% drop in the number of completed interviews for 2020. Reduction in completed interviews was unevenly dispersed across states and counties. Significant nonresponse bias in the data collected in 2020. Continued pandemic-related impacts on data quality in 2021 are unknown as of June 2022. 	<ul style="list-style-type: none"> Standard 1-year data products were not released. 1-year experimental estimates were released in November 2021. All standard 5-year data products were released, but on a delayed schedule. 	<p>U.S. Census Bureau, An Assessment of the COVID-19 Pandemic's Impact on the 2020 ACS 1-Year Data.</p> <p>U.S. Census Bureau, Adapting the American Community Survey Amid COVID-19.</p>
2020 ACS 1-Year Estimates	<ul style="list-style-type: none"> Respondents had different characteristics than nonrespondents (nonresponse bias). Standard 2020 ACS 1-year estimates did not meet the Census Bureau's Statistical Quality Standards. 	<ul style="list-style-type: none"> Standard 1-year data products were not released. 1-year experimental estimates using an alternative weighting methodology to correct for nonresponse bias were released in November 2021. 1-year PUMS file with experimental weights was released in November 2021. No data for Puerto Rico were released. 	<p>U.S. Census Bureau, Changes for 2020 ACS 1-Year Estimates.</p>
2020 ACS 5-Year Estimates	<ul style="list-style-type: none"> The Census Bureau used a revised estimation methodology and determined that the 2016-2020 ACS 5-year data products were fit for public release and data use. Margins of error are larger than usual and key statistical quality thresholds were not met. Data were released under a waiver process because, as the only source of local estimates, there is a critical need for it. 	<ul style="list-style-type: none"> All standard 5-year data products were released, but on a delayed schedule. Larger margins of error and potential issues making comparisons with small geographic areas and small subpopulations. Data users are encouraged to examine the margins of error for any estimate and make informed decisions about its reliability. Data quality impacts will be present through 2020-2024 ACS data. 	<p>U.S. Census Bureau, New Statistics Available From the 2016-2020 American Community Survey 5-Year Estimates.</p> <p>U.S. Census Bureau, Our Commitment to Quality: A Revised American Community Survey Estimation Methodology in the Complexity of a Pandemic.</p> <p>U.S. Census Bureau, Increased Margins of Error in the 5-Year Estimates Containing Data Collected in 2020.</p> <p>PRB, Capturing COVID's Impact on the American Community Survey Across Counties.</p>

Data Source	Pandemic's Impact on Data Collection and Data Quality	Changes to 2020 Data Products and Recommendations for Use	More Information
<p>Current Population Survey (CPS), Annual Social and Economic Supplement (ASEC)</p>	<ul style="list-style-type: none"> • 2020 ASEC: In-person interviewing was suspended on March 20, 2020, with all interviews conducted by phone for the rest of March and April. • 2021 ASEC: Most interviews were conducted by phone. • Basic monthly: Suspension of in-person interviews through June 2020, though reduction of in-person interviewing continued in some areas through September 2021. • Response rates are lower than usual. • Nonresponse bias may be a problem, but nonresponse bias analysis demonstrated that the survey weights and usual estimation procedures were sufficient. 	<ul style="list-style-type: none"> • No change in release of data products. • Data users may want to use caution comparing estimates from the 2020 ASEC and the 2021 ASEC to prior years. • 2020 and 2021 ASEC Geographic Mobility data (as well as data from Basic CPS and supplements) might be affected by changes in survey operations and nonresponse changes. 	<p>U.S. Census Bureau, How Did the Pandemic Affect Survey Response: Using Administrative Data to Evaluate Nonresponse in the 2021 Current Population Survey Annual Social and Economic Supplement.</p> <p>Center on Budget and Policy Priorities, Research Note: How the Pandemic Could Skew Official Poverty Figures for 2019.</p>
<p>National Survey of Children's Health (NSCH)</p>	<ul style="list-style-type: none"> • The share of respondents using web response significantly increased due to many Americans conducting more of their lives online. • No change in overall response rates. • National and state estimates are representative and comparable to prior years. 	<ul style="list-style-type: none"> • No changes specifically related to the COVID-19 pandemic. • Refer to the methodology documentation for questionnaire changes. • Estimates for "Percent of children missing 11+ days of school in past 12 months due to illness or injury" are noticeably different than prior years due to increased use of remote learning. 	<p>U.S. Census Bureau, Methodology and Data User FAQs.</p> <p>Data Resource Center for Child & Adolescent Health, The National Survey of Children's Health.</p>
<p>National Assessment of Educational Progress (NAEP)</p>	<ul style="list-style-type: none"> • NAEP assessments scheduled for 2021 were delayed until 2022. 	<ul style="list-style-type: none"> • No 2021 NAEP assessment results. • 2022 NAEP assessment results to be available in fall 2022. 	<p>National Center for Education Statistics, NAEP: COVID-19 Planning and Resources.</p> <p>National Center for Education Statistics, Assessment Calendar.</p>

Data Source	Pandemic's Impact on Data Collection and Data Quality	Changes to 2020 Data Products and Recommendations for Use	More Information
<p>National Survey of Drug Use and Health (NSDUH)</p>	<ul style="list-style-type: none"> • 2020 data collection only in January-March and October-December. • Nearly all data collection moved online for Quarter 4 in 2020. • Many fewer interviews completed. • Estimates are not as precise as in prior years. • New questions added in October 2020. 	<ul style="list-style-type: none"> • Including 2020 data in multiyear combinations (pooling data) is permissible.¹ • Comparing single-year 2020 estimates to prior years is not recommended and no comparison tables with 2020 data will be released. • More estimates are suppressed than in prior years. 	<p>¹The criteria used to categorize substance use disorder (SUD) changed from the fourth edition of the <i>Diagnostic and Statistical Manual of Mental Disorders</i> (DSM-IV) to the fifth edition (DSM-5); 2020 data on SUD are not comparable and should not be combined with prior years.</p> <p>U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA), 2020 National Survey of Drug Use and Health (NSDUH) Releases.</p> <p>U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA), 2019-2020 National Survey on Drug Use and Health: Guide to State Tables and Summary of Small Area Estimation Methodology.</p>
<p>National Immunization Survey-Child</p>	<ul style="list-style-type: none"> • No reported disruption in data collection. • No reported change in data quality. • Slight year-over-year increase in response rates. 	<ul style="list-style-type: none"> • No changes reported. 	<p>U.S. Centers for Disease Control and Prevention (CDC), National Immunization Survey-Child (NIS-Child).</p>
<p>Youth Risk Behavior Survey (YRBS)</p>	<ul style="list-style-type: none"> • No known impact as survey is conducted in odd-numbered years and no data collection was planned in 2020. 	<ul style="list-style-type: none"> • Data are only collected and released in odd-numbered years. 	<p>CDC, Youth Risk Behavior Surveillance System (YRBSS).</p>
<p>Behavioral Risk Factor Surveillance System (BRFSS)</p>	<ul style="list-style-type: none"> • No information reported by the CDC. • Each state implements its survey independently. • Number of completed interviews appear much lower than previous years in some states. 	<ul style="list-style-type: none"> • No information reported. • May need to contact individual state coordinators. 	<p>CDC, Behavioral Risk Surveillance System.</p>

Data Source	Pandemic's Impact on Data Collection and Data Quality	Changes to 2020 Data Products and Recommendations for Use	More Information
Small Area Income and Poverty Estimates (SAIPE) Program	<ul style="list-style-type: none"> No information provided. 	<ul style="list-style-type: none"> 2020 SAIPE estimates were released with no changes to the methodology. 	U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE) Program .
Small Area Health Insurance Estimates (SAHIE) Program	<ul style="list-style-type: none"> No information provided. 	<ul style="list-style-type: none"> 2020 SAHIE estimates have not been released as of April 2022. 	U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE) Program .
U.S. Census Bureau Population Data Sources			
2020 Census	<ul style="list-style-type: none"> All data collection periods were extended for all response types, populations, and geographies. Update Leave and Nonresponse Followup were delayed. Mobile questionnaire help was limited. 	<ul style="list-style-type: none"> Apportionment counts (released April 26, 2021) and Redistricting data delayed (released August 12, 2021). No net coverage error (same as 2010), but some groups appear to have higher net undercount than in prior censuses (children, people who identify as Black or African American, and people who identify as Hispanic or Latino) whereas others have higher overcount (people who identify as non-Hispanic white or Asian). Most data have not been released yet. Differential privacy has been applied. 	<p>U.S. Census Bureau, 2020 Census Operational Adjustments Due to COVID-19.</p> <p>U.S. Census Bureau, Census Bureau Releases Estimates of Undercount and Overcount in the 2020 Census.</p> <p>U.S. Census Bureau, Detailed Coverage Estimates for the 2020 Census Released Today.</p> <p>U.S. Census Bureau, Despite Efforts, Census Undercount of Young Children Persists.</p>
U.S. Census Bureau, Population Estimates	<ul style="list-style-type: none"> Delays in official 2020 Census data by sex, age, and race prompted the Population Estimates Program to develop a modified methodology (blended base) for Vintage 2021 population estimates. Methodology for Vintage 2022 estimates is still being determined. 	<ul style="list-style-type: none"> Blended base for Vintage 2021 estimates used national, state, and county population totals from the 2020 Census, 2020 Demographic Analysis as a control for lower levels of geography, and Vintage 2020 estimates. Updates to the blended base included using NCHS provisional birth and death counts and adjustments to immigration data by combining data from administrative sources with 2019 ACS estimates. 	<p>U.S. Census Bureau, Population Estimates at the Start of the Decade.</p> <p>U.S. Census Bureau, Adapting Population Estimates to Address COVID-19 Impacts on Data Availability.</p>

Data Source	Pandemic's Impact on Data Collection and Data Quality	Changes to 2020 Data Products and Recommendations for Use	More Information
Administrative Data			
USDA Data on Supplemental Nutrition Assistance Program (SNAP) Participation	<ul style="list-style-type: none"> • Benefits temporarily increased: All benefits increased by 15% (expired on September 30, 2021) and all households were boosted to the maximum benefit for their household size. • Temporarily and partially suspended the time limit for Able-Bodied Adults Without Dependents (ABAWD) participation in SNAP. 	<ul style="list-style-type: none"> • Separating increases in SNAP participation due to need versus expanded eligibility may be difficult. 	U.S. Department of Agriculture (USDA), Food and Nutrition Service (FNS), SNAP Benefits - COVID-19 Pandemic and Beyond . USDA, FNS, FNS Responds to COVID-19 .
National Center for Education Statistics, Common Core of Data	<ul style="list-style-type: none"> • Waivers expanded access to free/reduced lunch through the 2021-22 school year. It is unclear how this expansion will impact reporting as no data are available past the 2018-19 school year. • School closings and remote learning will likely impact all school data. 	<ul style="list-style-type: none"> • Data for 2019-20 school years and beyond have not been released. • No official guidance issued as of May 2022, but data reported during the pandemic are likely to be inconsistent with prior years. 	Education Week, Education Department Delays Civil Rights Data Collection, Citing COVID-19 . Data Quality Campaign, Civil Rights Data Provides a Fuller Picture of COVID-19 Impact .
Office of Civil Rights (OCR), Civil Rights Data Collection	<ul style="list-style-type: none"> • Data collection for 2019-20 was delayed to 2020-21; data collection will occur in 2021-22. • School closings and remote learning will likely impact data quality and year-to-year consistency. 	<ul style="list-style-type: none"> • OCR officials provided guidance to school districts about collecting data from remote and hybrid learning. • Data from 2020-21 and guidance for data users have not been released as of May 2022. 	Education Week, Education Department Delays Civil Rights Data Collection, Citing COVID-19 . Data Quality Campaign, Civil Rights Data Provides a Fuller Picture of COVID-19 Impact .
National Center for Health Statistics (NSCH) – Mortality Data	<ul style="list-style-type: none"> • Several new data products available, including: (1) a COVID-19 mortality overview; (2) daily updates of provisional state-level COVID-19 deaths by week; (3) weekly updates of state-level COVID-19 deaths by selected characteristics, including age, sex, race, Hispanic origin, and number of comorbidities; (4) visualizations of COVID-19 deaths by race, Hispanic origin, and age; and (5) visualizations of excess deaths related to COVID-19. 	<ul style="list-style-type: none"> • New resources available to monitor the impact of COVID-19. 	CDC, COVID-19 Death Data and Resources . CDC, Coronavirus Disease 2019 (COVID-19) FAQs .
NSCH – Natality Data	<ul style="list-style-type: none"> • 14 states and DC collected information on confirmed or presumed COVID-19 cases among pregnant women (through October 2021). • NSCH provides monthly provisional data on selected pregnancy characteristics and birth outcomes that may be relevant to the direct and indirect impacts of COVID-19 covering 2018 through 2021. 	<ul style="list-style-type: none"> • New resources available to monitor COVID-19's impact. 	CDC, COVID-19 Birth Data and Resources . CDC, What Happened With Births in 2020? CDC, Provisional Estimates for Selected Maternal and Infant Outcomes by Month, 2018-2021 .

APPENDIX: TABLE 2. NEW SURVEYS AND COVID-19-RELATED DATA COLLECTION ACTIVITIES

New Surveys and COVID-19-Related Data Collection Activities	Geography for Reporting (national, state, etc.)	Time Frame (when in the field, what periods can be used for reporting)	Key Topics Covered	Data Availability (reports, tables, microdata, etc.)
Household Pulse Survey	National State 15 metropolitan areas	Data collection began on April 23, 2020 and has been conducted in multiple phases. Data collection is ongoing in summer 2022.	Online survey designed to rapidly assess the social and economic effects of the COVID-19 pandemic. Includes questions on child care, education, employment, energy use, food security, health, housing, spending, and COVID-19 vaccination.	Tabulated data are released one to two weeks after data collection at Household Pulse Survey Data Tables (U.S. Census Bureau). Microdata are available one to two weeks after the tables are released at Household Pulse Survey Public Use File (U.S. Census Bureau).
Current Population Survey (CPS) – COVID Supplement	National State	May 2020 through the present, until the questions are removed from the survey. The survey will be in the field monthly, and a separate extract file will be available each month. The data should be used in combination with regular monthly CPS file.	Labor force characteristics (e.g., employment, place of work); medical care.	Microdata available monthly for 2020, 2021, and 2022 at COVID-19 Data From the CPS: 2022 (U.S. Census Bureau).
Adolescent Behaviors and Experiences Survey (ABES)	National	January–June 2021. The survey was one-time only.	Accidents and violence; alcohol and drug use; attitudes about racism; COVID-19 pandemic impact; dietary behaviors; health care/telemedicine; mental health; obesity and overweight; physical activity; sexual behaviors; tobacco use.	Report in <i>Morbidity and Mortality Weekly Report Supplements</i> , April 1, 2022 (covering January–June 2021). Tables can be viewed or downloaded at ABES Results (CDC). Microdata can be downloaded at ABES Data & Documentation (CDC).
COVID Experiences Surveys (CovEx)	National	Fall 2020, for both children ages 5 to 12 (as reported by their parents) and adolescents ages 13 to 19 (directly), then repeated with same respondents six months later (i.e., in spring 2021).	Ages 5 to 12: educational services; emotional well-being; health-promoting activities/behaviors; health services; physical and mental health; psychosocial stressors/experiences. Ages 13 to 19: experiences with racism; experiences with violence; mental health; parental communication; school/family connectedness; substance use. Parents of children ages 5 to 12: access to health/educational services for child; experiences with COVID-19; psychosocial stressors.	Report in <i>Morbidity and Mortality Weekly Report</i> , March 2021 (ages 5–12, children and parents, for Oct.–Nov. 2020). Online summary, available at CovEx Results (CDC).

New Surveys and COVID-19-Related Data Collection Activities	Geography for Reporting (national, state, etc.)	Time Frame (when in the field, what periods can be used for reporting)	Key Topics Covered	Data Availability (reports, tables, microdata, etc.)
National School COVID-19 Prevention Study (NSCPS)	National	Summer 2021, with periodic follow-ups through the 2021-2022 school year.	COVID-19 cases among students and staff; efforts to promote COVID-19 vaccinations; mask use policies and practices; physical distancing; quarantine, isolation, and contact tracing; school ventilation improvements and practices; screening and diagnostic testing for COVID-19.	No data available as of May 2022.
National Assessment of Educational Progress (NAEP) 2022 School Pulse Panel	National Regional	Monthly, January through June 2022 (follow-up to earlier NAEP school surveys conducted in summer 2021 and September 2021).	Core topics: learning modes; school health policies. Single-month topics: school staffing (January); mitigation strategies (February); parent, staff, and student concerns (March); food and nutrition (March); mental health (April); absenteeism (May); classroom management (May); learning recovery (June); 2021-22 reflections (June); summer 2022 plans (June).	Dashboard tables available by topic at 2022 School Pulse Survey (Institute of Education Sciences). Full set of results available via download.
2021 NAEP School Survey	National Regional Selected states and school districts	Monthly surveys conducted January through May 2021.	Attendance; enrollment; live instruction; number of days in hybrid mode; priorities for in-person instruction; school hybrid type; vaccinations. (Note: Attendance and vaccinations for selected months only.)	Monthly and trend dashboard tables available at Monthly School Survey Dashboard (Institute of Education Sciences). Full set of results available via download.
2021-22 NAEP Pre-Assessment Data	National Regional	December 2021 and January 2022.	Learning mode; masking in schools; social distancing measures.	Dashboard tables available by topic at NAEP 2022 Learning Mode, Masking, and Social Distancing Dashboard (Institute of Education Sciences). Full set of data available via download.
Family Experiences During the COVID-19 Pandemic	National State (California, possibly other states)	3 waves of panels (November 2020, March 2021, July 2021).	Finances; education; family and interpersonal relationships.	Reports for the United States available at American Family Snapshots: Life During the Pandemic (American Academic of Pediatrics). Academic of Pediatrics California data available at KidsData.org .

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