

Coronavirus Infects Surveys, Too: Nonresponse Bias During the Pandemic in the CPS ASEC*

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Abstract

The Coronavirus pandemic has had wide-ranging impacts on the lives and well-being of individuals and households. Surveys of those individuals and households are an important input into understanding those impacts. However, survey operations themselves have also been affected by the pandemic. We evaluate how response in the Current Population Survey Annual Social and Economic Supplement (CPS ASEC) was affected by COVID-19. We link addresses in the survey (for both respondents and nonrespondents) to administrative and prior decennial census and survey data to assess nonresponse. We show that survey nonresponse was unique in the 2020 CPS ASEC – nonresponse increased substantially and was more strongly associated with income than in prior years. In addition, response patterns changed by education, Hispanic origin, and citizenship and nativity. We use inverse probability weights to correct for potential nonresponse bias in the 2017 through 2020 CPS ASEC. In 2020, this nonresponse biased income estimates up and poverty statistics down. From the survey, real median household income was \$68,700 in 2019, up 6.8 percent from 2018. After adjusting for nonresponse bias, we estimate that real median household income in 2019 was 2.8 percent lower than the survey estimate at \$66,790. With the nonresponse bias correction, we estimate a poverty rate of 11.1 percent in 2019, compared to the official estimate of 10.5 percent.

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The Coronavirus pandemic has had wide-ranging impacts on the lives and well-being of individuals and households. Surveys of those individuals and households are an important input into understanding those impacts. However, survey operations themselves have also been affected by the pandemic.

In this paper, we evaluate how response in one survey was affected by COVID-19. In particular we are interested in evaluating how response patterns changed for different groups, including by race, ethnicity, citizenship status, income, and education, and how those changes might bias estimates derived from the survey data.

We study the 2020 Current Population Survey Annual Social and Economic Supplement (CPS ASEC). The CPS is jointly sponsored the Census Bureau and the Bureau of Labor Statistics (BLS) and fielded monthly by the Census Bureau in order to track the nation's labor force statistics, including the unemployment rate. Each year between February and April, the Census Bureau administers the ASEC by telephone and in-person interviews, with the majority of data collected each March. This supplemental questionnaire asks respondents about their income, health insurance status, etc. for the prior calendar year. Data from the 2020 CPS ASEC is used to generate estimates of the income distribution, poverty, and health insurance coverage in 2019, prior to the start of the COVID-19 pandemic in the United States.

In 2020, data collection faced extraordinary circumstances. On March 11, 2020 the World Health Organization announced that COVID-19 was a pandemic. Interviewing for CPS ASEC in March began on March 15. In order to protect the health and safety of Census Bureau staff and respondents, the survey suspended in-person interviewing and closed the two Computer Assisted Telephone Interviewing (CATI) Centers on March 20. Through April, the Census Bureau continued to attempt all interviews by phone. For those whose first month in the survey was March or April, the Census Bureau used vendor-provided telephone numbers associated with the sample address to try to reach households.¹

Nonresponse in the 2020 CPS ASEC

While the Census Bureau went to great lengths to complete interviews by telephone, the response rate for the Basic CPS was 73 percent in March 2020, about 10 percentage points lower than in preceding months and the same period in 2019.² Figure 1 shows the unweighted response rate of the Basic CPS from 2011 to April 2020. The sharp decline in response in March and April is clearly visible.

Additionally, the BLS stated in their FAQs accompanying the April 3 release of the March Employment Situation, "Response rates for households normally more likely to be interviewed in person were particularly low. The response rate for households entering the sample for their first month was over 20 percentage points lower than in recent months, and the rate for those in the fifth month was over 10 percentage points lower."³

¹ For a more complete description of data collection during the pandemic, see Berchick, Mykyta, and Stern (2020).

² This paper focuses on response at the housing unit level, or unit nonresponse. In unit nonresponse, no response information is available from any individual in the household. Nonresponse is also possible at the item level. For item nonresponse, an individual responds to the survey but does not answer a particular question. Because the CPS ASEC is a supplement to the Basic CPS, it is also possible for an individual to be a supplement nonrespondent. In that case, the individual answers the Basic CPS but does not provide enough information to questions in the ASEC supplement to be considered a respondent.

³ <https://www.bls.gov/cps/employment-situation-covid19-faq-march-2020.pdf>. The Basic CPS uses a 4-8-4 design, where housing units are in sample for four months, called month-in-sample (MIS) 1-4, then out of sample for 8 months and then back in sample for 4 months, MIS 5-8.

The CPS ASEC response rate is complicated by the different months and samples that feed into the survey.⁴ Further, it includes an adjustment factor to account for those who responded to the Basic survey but did not answer the supplement. The Census Bureau estimates that the combined supplement unweighted response rate was 61.1 percent in 2020, down from 67.6 percent in 2019.

In processing responses to the CPS ASEC (or any survey), the Census Bureau has methods in place to adjust for nonresponse. For the CPS ASEC, this includes several stages of adjustment. One adjustment controls for differential response rates of housing units within and outside of Metropolitan Statistical Areas. Additional weighting adjustments control the CPS ASEC sample to independent population estimates by age, sex, race, and Hispanic origin at the national and state levels. These controls ensure that the weighted shares of groups in the CPS ASEC match closely to their independently estimated shares in the target population.⁵

However, it is possible that tools that appropriately address nonresponse in a normal year are not sufficient during a pandemic. To assess nonresponse in the CPS ASEC in 2020 and prior years, we link addresses selected for inclusion in the sample to various sources of administrative and prior survey and decennial census data. This data includes administrative earnings and income as well as demographic information such as individual age, race, gender, citizenship, and education. Using this information, we can evaluate how households that do and do not respond to the survey differ in 2020 compared to prior years.⁶ We can also show how the weighting adjustments control for these differences over time.

We find evidence that the pattern of nonresponse to the 2020 CPS ASEC was unique relative to prior years, which has the potential to bias estimates generated from the data. Although response rates were down for all groups, they declined less for high-income households than low-income ones. This would likely bias income statistics up, overestimating the true values. We also find evidence of differential nonresponse that biases estimates toward higher levels of education and lower shares of non-citizens. There were also changes to nonresponse for Hispanic-origin and various age groups, although the survey weights are designed to correct for nonresponse for these demographic groups.

Research on Nonresponse Bias

Nonresponse bias has concerned survey sponsors throughout the development of scientific household surveys, so the literature on nonresponse bias is extensive and varied. Groves and Peytcheva (2008) survey 59 nonresponse analyses across a variety of research designs. Their meta-analysis comprises comparisons using survey frame variables, comparing responses to an earlier screener interview or other waves of the same survey, comparisons by the respondent's reported willingness to respond to a later interview, comparing respondents recruited from varying levels of field effort (e.g., rounds of follow-up or varying incentives), as well as the method we use: individually linking data from auxiliary records to

⁴ Additional housing units are added to the CPS ASEC sample to oversample Hispanics and households with children, as discussed later in the paper.

⁵ For a more complete description, see the technical documentation at <https://www2.census.gov/programs-surveys/cps/methodology/CPS-Tech-Paper-77.pdf> and <https://www.census.gov/programs-surveys/cps/technical-documentation/methodology/weighting.html>

⁶ Households may not respond to a survey for a variety of reasons, such as inability to contact a household member, refusal to respond, or inability to respond (for example, due to language barriers). In 2020 in particular, one of those reasons could have been the inability of Census Field Representatives to reach a member of the household. Noninterview households may be a more accurate way to describe the households that could not be reached or refused the CPS interview. However, as nonresponse is the term used in the literature, we use that in this paper.

sample units. They find that nonresponse bias is only weakly correlated to a given survey's response rate, and that the bias can vary widely across various estimates from the same survey.

Many analysts have previously measured nonresponse bias in the CPS specifically. Groves and Couper (1998) match CPS sampled households to their responses in the 1990 decennial census, finding differences by demographic characteristics. John Dixon, working at BLS, has written a series of CPS nonresponse analyses. For example his 2007 paper, matching the 2006 Basic CPS to the 2000 decennial census, finds slightly less biased unemployment rates during the summer months. A group at the World Bank (e.g., Korinek, et al. (2006a,b), Hlasny and Verme (2018), Hlasny (2020)) has applied to the CPS an iterated method based on the observed relationship of income to nonresponse across geographic areas. Heffetz and Reeves (2019) use difficult-to-reach respondents as proxies for nonrespondents.

The methods we employ in this paper follow most directly from a line of nonresponse papers developed at the U.S. Census Bureau. Extending Sabelhaus, et al.'s (2015) linkage of Consumer Expenditure Survey and CPS ASEC samples to IRS ZIP-code-level income tables, Bee, Gathright, and Meyer (2015) pioneered the method of linking nonrespondents of nationally representative surveys to administrative records via the Master Address File. Linking IRS Form 1040 records to the 2012 CPS ASEC, they find little selection into response across much of the unconditional income distribution, but uncover some selection on other demographic characteristics like marital status and number of children in the sampled household.

Brummet, et al. (2018) apply this method to the Consumer Expenditure Survey, finding that high-income households are less likely to respond. Mattingly, et al. (2013) apply the method to the Wave 1 2008 SIPP, finding no evidence of nonresponse bias. Eggleston and Westra (2020) extend the address-linking method to estimate new weights for Wave 1 2014 SIPP respondents, finding similarly negligible biases across the income distribution.

Our method, in turn, extends Eggleston and Westra along a number of dimensions. First, we link a wider set of auxiliary data. Second, we link multiple survey years to track trends in nonresponse functions over time. Third, we use a different reweighting mechanism: Eggleston and Westra employ Chi-Square Automatic Interaction Detection while we use logit regression.

The linking methods we exploit here were developed independently by Census Bureau researchers. Wagner and Layne (2014) describe the Person Identification Validation System (PVS) used to assign individual PIK values for linkage. Brummet (2014) describes the development and performance of the system used to link household records, via residential address fields, to the Master Address File (MAF), called the "MAF Match".

Berchick, Mykyta, and Stern (2020) also examine the 2020 CPS ASEC for evidence of nonresponse bias, with a particular focus on estimates of health insurance coverage. They examine changes in the characteristics of respondents over time and compare health insurance estimates from the CPS ASEC to estimates from other surveys.

Nonresponse and Selection Using Only Survey Data

In the CPS ASEC, we conduct a simple test of selection across years into the sample given a set of relatively time-invariant observable characteristics in the data. In this test, we pool two years of data and regress an indicator for one year on the time-invariant characteristics using a linear probability model, without using survey weights. A given characteristic may predict inclusion in the data for a given survey year for two reasons (besides random sampling variation): 1) changes in the prevalence of the

characteristic in the population over time, or 2) selection of that group into the sample in one year relative to the other. For example, as the population ages, we should expect to see differences over time in the age of the sample. Therefore, age may be a predictor in the selection regression.

To separate out changes over time from unique selection into response in the 2020 CPS ASEC, we run the regressions on two pairs of years: 1) comparing 2019 to 2018, and 2) comparing 2020 to 2019, with the results shown in Table 1. In Column (1), we show the comparison between 2019 and 2018. The regression indicates that the unweighted 2019 sample is older and more educated than the 2018 sample, both of which are ongoing trends in the population.⁷ In Column (2), we show the comparison between 2020 and 2019, with additional differences in unweighted sample composition. However, to separate the unique selection into response in 2020 from ongoing trends in the data, we subtract the differences in (1) from (2). This gives us an estimate of the unique composition of respondents in 2020 (relative to 2019) controlling for the year-to-year change in composition we saw between 2019 and 2018. From this difference-in-difference comparison, we find that the 2020 sample is older, has a higher share of children (conditional on age), is more educated, has a lower share of Hispanics, and, especially, a lower share of non-citizens.

Age and Hispanic origin are accounted for in the survey weighting adjustment, whereas citizenship and education are not. Estimates of sample composition with weights are shown in Table 2. The share of the sample with each characteristic is shown by year in columns (1)-(4). In (5)-(7), we observe year-to-year changes in characteristics such as race, education, and age. However, we are interested in differences that are unique to 2020, which can be seen in columns (8) and (9). Each of these shows the difference-in-difference comparison of pairs of year-to-year changes. The table shows, even after weights have been added, a unique decline in the 2020 sample of individuals with less than a high school degree and a decline in the share of non-citizens.⁸

Nonresponse and Selection with Administrative Data

However, survey information may not be sufficient to characterize nonresponse in the 2020 CPS ASEC as nonrespondents could differ from respondents in ways that we cannot observe in the survey. For this comparison, we need the same set of information for both respondent and nonrespondent households. We use administrative data linked to the address of the surveyed housing unit, which therefore is available for all households, independent of response type.

In Table 3, we summarize the data used. A diagram of this process is also shown in Figure 2. We start with the *CPS ASEC household file* to get sample frame information. From that file, we get information on household response type (respondent, Type A non-interview, and Type B and C non-interview)⁹ and the Master Address File ID (MAFID) for each housing unit in sample. The Master Address File (MAF) is the comprehensive address database maintained by the Census Bureau for its survey operations. Housing units in the CPS ASEC are selected from the MAF. Administrative data sets with addresses are also

⁷ For the aging of the population, see <https://www.census.gov/library/stories/2018/03/graying-america.html>. For the increase over time in education, see <https://www.census.gov/content/dam/Census/library/publications/2016/demo/p20-578.pdf>.

⁸ There are also differences by Hispanic origin and age in Column (9), but they are less worrisome given the results by Hispanic origin and age in Column (8).

⁹ Type A non-interview housing units are nonrespondents. Type B non-interviews are vacant units. Type C non-interviews are non-residential addresses and are thus also ineligible for inclusion the survey.

linked to the MAF using probabilistic linking on the address string. As a result, the MAFID can be used to link addresses across data sets.

We use the MAFID to link to the *1099 Information Return Master File (IRMF)*. This file contains data on information returns filed on behalf of individuals, including for Forms W-2, 1098, 1099-DIV, 1099-G, 1099-INT, 1099-MISC, 1099-R, 1099-S, and SSA-1099. There is no income information on this file, as it only includes a flag that indicates which forms were filed. The file contains address information, including the corresponding MAFIDs, which we use to link it to the sample frame information. It also contains Protected Identification Keys (PIKs) for the individuals that received the information returns.¹⁰

These PIKs enable all further links to other administrative and survey information. The PIKs do not necessarily identify all residents of a given housing unit, just those that received information returns. However, this roster of individuals is available for responding and nonresponding housing units. It does not necessarily correspond to the set of individuals we observed or would have observed living in the housing unit in the CPS ASEC.

We use these PIKs to get income information from the *W-2 Master File* and the *1099-R Information Return Master File*. The W-2 files include taxable wage and salary earnings and deferred compensation amounts for all W-2 covered jobs. The 1099-R files include income amounts from pension plans and withdrawals from defined-contribution retirement plans (such as 401(k)s) as well as income from survivor and disability pension plans, but excluding rollovers. For both files, the income covered matches the CPS ASEC reference period. We use only those forms posted to IRS databases by week 19 of the CPS ASEC calendar year, to match the data availability for 2020.¹¹ Data from these returns is due by January 31 to individual recipients and by March 31 to the IRS.

Next, we link the PIKs to the *1040 Returns Master File* from the *prior* calendar year. Due to the pandemic, the 2020 tax filing deadline was extended to July 15. We do not use 1040s filed in 2020 as we are concerned about non-random selection of households into early filing in 2020, which might affect comparisons to prior years. Instead, for each CPS ASEC year, we use 1040s filed by the linked individuals in the prior calendar year for income from the year before the CPS ASEC reference period. For example, for the 2020 CPS ASEC, individuals report income for 2019 in the survey, but the linked 1040 filed in 2019 covers income from 2018. Although this income is not from the CPS ASEC reference period, it does provide information on the characteristics of responding and non-responding households. For tax filers, the 1040 file contains information on adjusted gross income (AGI), wage and salary earnings, interest, dividends, gross rental income, and social security income. The 1040 also contains information on marital status (through joint filings) and PIKs for up to four dependents.

¹⁰ PIKs are assigned by a probabilistic matching algorithm that compares characteristics of records in administrative and survey data to characteristics of records in a reference file constructed from the Social Security Administration (SSA) Numerical Identification System (or Numident) as well as other federal administrative data. These characteristics may include Social Security Number (SSN), full name, date of birth, address, place of birth, and parents' names depending on the information available in the data source. The PIK uniquely identifies a particular person and is consistent for that person over time. PIKs correspond one-to-one with a particular SSN. Consequently, the PIK allows us to link individuals across data sources. In administrative data with SSNs, that one-to-one mapping can be used to easily assign PIKs to individuals. See Wagner and Layne (2014) for more information on the assignment of PIKs to survey and administrative data.

¹¹ Week 19 ended May 10, 2020, and May 12, 2019.

We also use the PIKs to link to several other sources of demographic and socioeconomic information. From the Social Security Administration’s (SSA) *Numident file*, we get information on each individual’s age, gender, and citizenship status.¹² From the *2010 Decennial Census short form file*, we get information on age, gender, race, and Hispanic origin. From the *American Community Survey (ACS)*, we get information on an individual’s education if that individual was surveyed in any ACS from 2001 to 2018.

CPS ASEC Weighting for Nonresponse

The CPS ASEC sample is a combination of several subsamples. The largest portion of the sample comes from the March Basic CPS. In 2019, 75 percent (71,000) of the approximately 95,000 housing units sampled for the ASEC came from the March Basic CPS sample. In addition, the CPS ASEC is supplemented with a sample of Hispanic households identified the previous November, which we call the Hispanic oversample. The Hispanic oversample comprised 7 percent (6,600) of the housing units in the 2019 ASEC sample. Finally, the CPS ASEC includes additional households, primarily to improve the precision of children’s health insurance coverage estimates, called the SCHIP oversample.¹³ The SCHIP oversample has three components: 1) asking the ASEC Supplement questions of one-quarter of the February and April CPS samples; 2) interviewing selected sample households from the preceding August, September, and October CPS samples during the February–April period using the ASEC Supplement; and 3) increasing the monthly CPS sample in states with high sampling errors for uninsured children. The SCHIP oversample comprises 18 percent (17,000) of the housing units in the ASEC sample.

Each subsample is selected separately and each household has a weight defined by the probability of selection into that subsample. For the final CPS ASEC file, those weights are adjusted to account for the following factors:

- (1) The probability of selection into each sample group (the initial subsample base weight),
- (2) Adjustments for special weighting (for selection into the main or each oversample),
- (3) Noninterview adjustment for differential nonresponse for those inside and outside of Metropolitan Statistical Areas,
- (4) Two-stage coverage procedure (national-level and state-level coverage ratios) and a three step iterative raking procedure to match to external estimates of state population totals by age, sex; to race population totals by age and sex; and to Hispanic origin population totals by age and sex.

The result of these adjustments is the supplement person weight. The person weight for the “householder” is the supplement household weight.¹⁴

Step (4) in the weighting process simultaneously adjusts weights for differential nonresponse across age, sex, race, and Hispanic origin and accounts for oversampling of various demographic groups as part of the Hispanic and SCHIP oversamples.¹⁵ This step is not amenable to adjustment for differential

¹² The Numident, or Numerical Identification System, contains information on all individuals that have ever filed for an SSN.

¹³ CHIP, for the Children’s Health Insurance Program.

¹⁴ The householder is the person (or one of the people) in whose name the home is owned or rented. If a married couple owns the home jointly, either spouse may be listed as the householder, depending on who responded to the survey.

¹⁵ The base weights account for the probability of selection into each sample group: the March Basic CPS sample, the Hispanic oversample, and the SCHIP oversample. Without differential nonresponse by demographic group, the

nonresponse by many additional characteristics, such as various measures of income, education, citizenship, etc., that are used in this paper.¹⁶

We proceed with two samples. In the first, we use the March Basic CPS sample that comprises about 75 percent of the CPS ASEC sample. In doing so, we can avoid the oversampling adjustment at the cost of decreased precision in our estimates, due to the smaller sample. We can simply adjust the base probability of selection into the sample to reflect patterns of nonresponse at the housing unit level conditional on the observable information in our linked data.

In the second sample, we use the full CPS ASEC sample. For the full sample, we must first adjust the base weights as they reflect only the probability of inclusion in each of the subsamples: the March Basic CPS sample, the Hispanic oversample, and the SCHIP oversample. We do so by assigning weights that approximate the distribution of observable characteristics (from the linked data, not the survey) in the base-weighted March Basic CPS sample. We can then adjust these base weights for survey nonresponse as we did in the first sample.¹⁷

In both samples, we have base weights that allow us to characterize the distribution of observable characteristics in the linked data for respondent and nonrespondent households. These characteristics include race, age, W-2 earnings, 1040 adjusted gross income, etc. After we adjust for survey nonresponse at the housing unit level, we can also test whether the distribution of these characteristics for weighted respondents matches the distribution of the full base-weighted sample.

Differential Nonresponse Using Linked Data

Table 4 shows the share of housing units that can be linked to each source of data used, either at the address/MAFID level for the 1099 IRMF or at the person/PIK level for the other files. In non-pandemic years (2017-2019, in Columns (1)-(3)), respondents and nonrespondents differ slightly in the forms that can link to their addresses. Respondents are more likely to have any information return in the 1099 IRMF, less likely to have a W-2, more likely to have a 1099-R, more likely to have filed a 1040 (in the prior year), and more likely to have an individual that can be linked to a 2010 census or ACS respondent. However, the relationships are not statistically different over time as the year-to-year comparisons of respondents and nonrespondents show in Columns (5) and (6).

However, as shown in Column (7), the year-to-year change in the differences between respondents and nonrespondents is larger in 2020 for most linked data sets. The results show that response in 2020 was increasingly associated with the presence of an information return (1099 IRMF), the presence of a W-2, filing a tax return (1040) in the prior year, and linkage to the 2010 census.

With the linked data, we can summarize the characteristics of responding and nonresponding housing units, complementing the prior analysis, which used survey-based observable time-invariant characteristics. Table 5 shows summary statistics on race, Hispanic origin, nativity, and education for linked housing units. Race and Hispanic origin use the linked 2010 census. The value for a given

adjustment in (4) will decrease the weight on Hispanic individuals in the March Basic CPS, for example, to adjust for the additional individuals present in the Hispanic oversample. However, if Hispanic individuals are also more or less likely than non-Hispanics to respond to the survey, the relative weights of the two groups in (4) will also change to control for the differential nonresponse.

¹⁶ The challenge is both in the higher dimensionality of the weighting adjustment in this paper and in the complicated nature of the current code.

¹⁷ In this section, we focus on selection into nonresponse and leave the detailed discussion of weights for later in the paper.

household is set to one if at least one individual in the housing unit is in that race or Hispanic-origin group in the 2010 census and zero otherwise. Nativity information comes from the Numident and again, the categories are set to one if a household member is in each group in the Numident and zero otherwise. Education information comes from the ACS, and a household is categorized by the reported education of the most educated linked individual. Housing units are only included in the sample for each summary statistic if at least one member is linked to the corresponding source data set.

In Columns (1)-(4), Table 5 compares the characteristics of respondents and nonrespondent in each year from 2017 to 2020. In each year, respondents are less likely to be Black and they are more likely to be White and Hispanic.¹⁸ Columns (5)-(7) again show the change each year in the estimates shown in (1)-(4). The results show that response in 2020 was increasingly associated with being non-Hispanic, and native born.

Using the linked data, we can also evaluate how household response correlates with administrative income. We test two measures of income: 1) the sum of all W-2 earnings at the address in the prior year (matching the survey reference year) and 2) the sum of adjusted gross income (AGI) for income one year before the reference period on tax returns filed by linked individuals at the address in the survey year.

In Table 6, we compare the mean and various percentiles (10th, 25th, median, 75th, and 90th) of income for respondents and non-respondents over time, with the results shown in Figures 3 and 4 as well. The annual estimates from 2017 to 2020 are shown in Columns (1)-(4). While there are differences between respondents and nonrespondents from 2017 to 2019, most comparisons of W-2 and AGI income statistics are not statistically different. However in 2020, respondents have higher income than nonrespondents at nearly every percentile in the table.¹⁹ The difference-in-difference comparisons in Columns (5)-(7) also highlight how unique selection into response on income was in 2020. For every statistic except mean AGI, respondents had higher incomes relative to nonrespondents than in 2019, whereas the same was not true for most other year-to-year comparisons of respondents and nonrespondents.

However, it is possible that income is highly correlated with observable characteristics, such as age, which are controlled for in the current weighting system. The state-level race, Hispanic origin, age, and gender information could in principle fully adjust the weights to account for selection into response by income. To test whether this is likely, we regress survey response on administrative income (in various income bins) with and without conditioning on the other demographic and socioeconomic information available in the linked data. In the controls, we include information from linked individuals on race, age, Hispanic origin, education, citizenship status, dummies for each linked administrative data source, state fixed effects, and the number of linked household members. As before, we run the regressions on each year and compare the year-to-year changes to evaluate whether the change from 2019 to 2020 is different than in other years.

The results are shown in Table 7, Figure 4 (no controls), and Figure 5 (full controls) for W-2 earnings. For AGI in the prior year, the results are shown in Table 8, Figure 6 (no controls), and Figure 7 (full

¹⁸ They are also less likely to be high school graduates and more likely to be college graduates in three of the four years.

¹⁹ In 2020, responding housing units have higher incomes at the mean and 25th, 50th, 75th, and 90th percentiles of W-2 earnings as well as at the 10th, 25th, 50th, 75th, and 90th percentiles of prior-year AGI.

controls). With or without controls, response in 2020 was more strongly associated with income than prior years, whether income was measured as W-2 earnings or prior-year 1040 AGI.²⁰

Weighting Adjustments Using Linked Data

From 2017 to 2019, we do not see strong evidence of nonresponse bias due to differential nonresponse by low- and high-income households. This is consistent with the results in Bee, Gathright, and Meyer (2015), which does not find strong evidence of nonresponse bias using 1040 data in the 2011 CPS ASEC.

However, there is strong evidence of a nonresponse gradient by income in the 2020 CPS ASEC. High-income households, as measured by their W-2 earnings or 1040 AGI in the prior year, are more likely to respond than low-income households. Conditioning on observable demographic and socioeconomic data did not eliminate this variation in nonresponse by income.

Differential nonresponse has the potential to bias many estimates generated from CPS and CPS ASEC data. The observed pattern of nonresponse would likely bias income up and poverty down, with additional effects on other correlated statistics such as health insurance coverage, education, etc. To address these potential biases, we create weights that condition on the information available in our linked data. For each year, we use a logistic model and regress a response indicator on housing-unit level summary statistics on age, race, Hispanic origin, education, citizenship, dummies for the various data linkages, state fixed effects, and binned values for W-2 earnings, 1040 AGI, and 1099-R retirement income. From that regression, we create an inverse probability weight (IPW) of response to adjust the initial base weights. In our March Basic CPS sample, this is the only step needed to create our IPW-adjusted estimates.²¹

For the full CPS ASEC sample, we would like the base weights to reflect the prevalence of household characteristics in the population. However, due to the Hispanic and SCHIP oversamples, using within-sample base weights will over-represent housing units with certain characteristics, in particular with Hispanic individuals and children.

The monthly Basic CPS is a stratified random sample with sampling probabilities defined based on the selection of units from the MAF. This allows us to estimate the distribution of observable characteristics (using the linked data) in the population. Our goal is to reweight the full CPS ASEC sample to match this distribution.

To adjust the base weights for oversampling, we create an indicator for inclusion in the March Basic CPS sample. We regress the March Basic indicator on the same regressors as used in the IPW, again using logistic regression. For each housing unit, we predict their probability of inclusion in a sample not affected by oversampling based on observable characteristics of individuals in the housing unit. We multiply the within-sample²² base weight by the predicted probability of inclusion in the March Basic CPS to get an adjusted base weight. This controls for oversampling by reducing the relative weights for

²⁰ We also conducted robustness checks to test whether was primarily due to respondents in the 1st and 5th month is sample, where face-to-face interviews are more often required. We found selection in income for both groups when we divided the sample into: 1) months in sample 1 and 5, and 2) months in sample 2-4 and 6-8.

²¹ IPW only adjusts for differences in response based on observable characteristics. However, if selection into response is based on other information not available to us, it will be unobservable. For example, response rates were lower for non-citizens (as shown in Tables 1 and 2). If non-citizens are less likely to receive information returns and file taxes, then we will not observe their income in the administrative data. As a result, the adjusted weights may not fully account for any relationship between income and nonresponse for non-citizens.

²² Samples used here are the March Basic sample, the Hispanic oversample, and the SCHIP oversample.

housing units with Hispanic residents and children, whether those units were in the March Basic sample or one of the oversamples. We use these weights when comparing respondents to nonrespondents in the full CPS ASEC sample (as in Tables 4, 5, and 6, for example). From this adjusted base-weight sample, we create the IPW nonresponse adjustment for the full CPS ASEC sample as above.

For valid inference, we repeat the above regressions 160 additional times using the baseline successive difference replicate factors created during the sampling process, which are available for all households regardless of response status. This simultaneously accounts for the sample design and uncertainty in the regression coefficients used in the weighting adjustments. All standard errors reported in this paper use these replicate weights or the official survey replicate weights.²³

Table 9 shows summary statistics in the linked data using the unadjusted base weights for three samples. The first is the March Basic CPS sample, including responding and nonrespondent housing units. As these estimates should best represent the distribution of the linked characteristics in the population, this is the target distribution for the IPW adjustment. The second sample is of respondent households in the Full CPS ASEC sample. The third sample is of respondent households in the Basic March CPS sample. As expected, without adjusting for oversampling or selection into response, there are important differences in the samples. For example, there are many more households with a Hispanic member in the Full CPS ASEC sample than in the baseline March Basic sample, as expected given the Hispanic oversample.

Table 10 shows the same summary statistics for the same three samples after the IPW adjustment. The post-adjustment point estimates are much closer in the respondent samples to the target, with many fewer statistically significant differences.²⁴

Next, we compare the different weights (base, survey, and IPW) by income bin in each survey year for respondent households. For W-2 earnings (Figure 8), the adjusted base weight (for the full CPS ASEC sample) and survey weights show a U-shaped pattern in each year. Low- and high-earnings households have relatively higher weights, as do households with no linked W-2. The same is true for the nonresponse adjusted weights in Panel C, except in 2020. The same general pattern is visible in Figure 9 for 1040 AGI and Figure 10 for survey-reported household income. For each income type, the weights from the IPW adjustment were higher in 2020 for low income households and lower for high income households, reflecting the unique selection into response by income in 2020.^{25,26}

Table 11 summarizes various demographic and socioeconomic characteristics using the different weights, with comparisons between the survey and alternative weights shown in Table 12.²⁷ There are differences

²³ See https://cps.ipums.org/cps/resources/repwt/Use_of_the_Public_Use_Replicate_Weight_File_final_PR.doc for more information on replicate weights in the CPS ASEC.

²⁴ See Appendix Tables 3 and 4 for comparisons of the respondent sample statistics to the target sample before and after IPW, respectively.

²⁵ This pattern is descriptive in nature only and has not been tested for statistical significance. In the next section, we formally test the impact of alternative weights on various statistics of interest from the survey over time.

²⁶ One possible concern about the response in 2020 is that classification of households as vacant or nonvacant would be more difficult for Field Representatives during the pandemic, leading to potential misclassification. As we exclude vacant units for our analysis, vacancy misclassification could also introduce bias into our estimates if that error were related to household characteristics, such as income. Large variations in weights in Panel A of Figures 9-11 would provide evidence of this bias. While we do see some differences between 2020 and other years in each Panel A, we do not believe this is a meaningful area of concern, in particular because pandemic-induced moves may also change the distribution households in nonvacant units, which could also change the relative base weights of households by income level.

²⁷ Person-level summary statistics and comparisons are shown in Appendix Tables 3 and 4, respectively.

in the estimates. For example, the alternative weights estimate lower education levels than estimated using survey weights.

Results

Using the alternative weights, we estimate various statistics of income, poverty, and health insurance status to assess the bias from selection into response, for survey years 2017 to 2020 (and reference years 2016 to 2019).

Note that we continue to refer to the survey years in the text, tables, and figures to keep the year references consistent across table and more clearly identify the 2020 CPS ASEC as the one affected by the pandemic. However, keep in mind that the reference period is the prior year in the CPS ASEC. Therefore, for example, when we discuss statistics for the 2020 CPS ASEC, we are discussing income earned or received in 2019.

Household Income

In Table 13, we estimate household income at five-percent intervals from the 5th to 95th percentile, using linear interpolation. In Table 14 and Figure 11, we show comparisons between the estimates using the survey weights and alternative weights (denoted IPW or Full IPW for the full CPS ASEC sample and March IPW for the March Basic CPS sample). Using the Full IPW, we find few statistically significant differences between the survey estimates and IPW estimates from 2017 to 2019, although the Full IPW estimates less income at the bottom of the distribution in 2017 and 2018. The March IPW estimates for 2017 to 2019 are slightly lower than the estimates incorporating survey weights at low-income levels in 2017 and across the distribution in 2018. However, in 2020 both the Full IPW and March IPW estimate much lower income across the distribution than with survey weights. For the Full IPW, the estimates are 3.7 percent, 2.8 percent, and 1.8 percent lower at the 25th, 50th, and 75th percentiles respectively. For the March IPW, the estimates are 3.9 percent, 3.1 percent, and 2.1 percent lower at the 25th, 50th, and 75th percentiles respectively.²⁸

Table 15 and Figure 12 show estimates of year-to-year growth in real household income using each weight. As Panels A and B of Figure 12 clearly show, year-to-year changes as estimated in the CPS ASEC in 2018 and 2019 tracks very closely to the estimates using alternative weights. However, there is a level difference in the estimates from the 2020 ASEC, with both nonresponse-adjusted weights (IPW and March IPW) estimating substantially lower growth in income, especially at lower income levels.

In the 2020 CPS ASEC, real median household income increased 6.8 percent using the survey weights, compared to 4.1 percent with the Full CPS ASEC IPW and 3.9 percent with the March Basic CPS IPW. This would change the year-to-year increase estimated from the 2020 CPS ASEC from the largest point estimate increase in the series (going back to 1967) to the 93rd percentile of year-to-year changes. The adjusted estimates would indicate that 2019 (from the 2020 CPS ASEC) was still a very good year for income, even if it did not necessarily have the most year-to-year growth in the historical income series.

Poverty

²⁸ At each percentile noted, the Full and March IPW estimates are not statistically different from each other. Additionally for the both the Full and March IPW, the 25th and 50th percentile differences are not statistically different from each other.

Poverty estimates are shown in Table 16. The official poverty measure, using survey weights, estimates a decline of 1.3 percentage points using the 2020 CPS ASEC. With the Full CPS ASEC IPW, we estimate a poverty decline of 0.9 percentage points, which although still large in magnitude is smaller than the official estimate. With the March Basic CPS IPW, the estimated decline is 1.0 percentage points.²⁹

Estimates for the Supplemental Poverty Measure (SPM) are shown in Table 17.³⁰ With survey weights, the SPM declines 1.0 percentage points using the 2020 CPS ASEC. With the Full CPS ASEC IPW, we estimate an SPM decline of 0.5 percentage points.

Health Insurance Coverage

The CPS ASEC is also used to generate estimates of health insurance coverage at the national level. Income and health insurance are correlated, with high-income households more likely to have coverage than low-income households, as shown in Figure 13. Because nonresponse in 2020 was uniquely correlated with household income, estimates of health insurance coverage may also be biased.

To test for this bias, we estimate health insurance coverage rates, shown in Table 18. Estimates of year-to-year changes in insurance coverage are shown in Table 19. Under the official estimates, the share of the population with health insurance increased by 0.4 percentage points (from 91.5 to 91.9 percent). With the Full IPW, insurance coverage increased by 0.3 percentage points. For the March IPW, there was not a statistically significant change in the share insured. Compared to the survey estimates, the year-to-year change in the rate of health insurance coverage was lower for the March IPW, but not statistically different between the Full IPW and survey estimates. Berchick, Mykyta, and Stern (2020) offer a more detailed analysis of how health insurance estimates may have been affected by the pandemic in the CPS ASEC.

Conclusion

The Coronavirus pandemic affected survey operations and, potentially, respondent behavior. As a result, response rates declined substantially in the CPS beginning in March 2020. In evaluating characteristics such as age, race, citizenship, and education, we showed that the increase in nonresponse varied by respondent characteristic, including Hispanic origin, citizenship, and education. This kind of selection into nonresponse has the potential to bias survey estimates of income, poverty, health insurance, and other measures of well-being.

We further evaluated selection into nonresponse using administrative, survey, and decennial census data linked to respondent and nonrespondent addresses. We found that nonresponse varied by income in 2020 in particular, with high-income households more likely to respond than low-income households, due to the COVID-19 pandemic. This relationship between income and nonresponse held even after controlling for other observable demographic and socioeconomic characteristics. Finally, we used inverse probability weights to adjust for selection into nonresponse in the CPS ASEC from 2017 to 2020. This adjustment had relatively small or no significant effect on income estimates from 2017 to 2019. However, estimates in 2020 were adjusted downward substantially, especially at the bottom of the income distribution.

While we did not see as large an impact of the IPW adjustment on prior years, there are still differences between the IPW-based estimates and the estimates using existing survey weights. We believe this approach has the potential to improve survey weights and reduce bias in survey-based estimates. We also

²⁹ The Full IPW and March IPW year-to-year differences are not statistically different.

³⁰ For more information about the Supplemental Poverty Measure, see Fox (2020).

plan to explore methods to combine the two methods – to use external estimates of population moments in conjunction with linked data at the household level to better adjust for selection into nonresponse. Lastly, we plan to research the assignment of vacancy status to housing units, as measurement error in which units are classified as vacant could also introduce bias into adjustments for selection into nonresponse.

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Table 1: Difference in Unweighted Sample Composition across CPS Years

	In 2019 vs. 2018	In 2020 vs. 2019	Difference in Difference
	(1)	(2)	(2)-(1)
			(3)
Age			
0-5	-0.0012 (0.0053)	-0.0231*** (0.0054)	-0.0220*** (0.0076)
6-12	-0.0049 (0.0050)	-0.0195*** (0.0052)	-0.0146** (0.0072)
13-17	-0.0017 (0.0052)	-0.0186*** (0.0054)	-0.0169** (0.0075)
18-24	-0.0042 (0.0045)	-0.0194*** (0.0047)	-0.0152** (0.0065)
25-34	-0.0014 (0.0033)	-0.0110*** (0.0035)	-0.0096** (0.0048)
45-54	-0.0082** (0.0033)	0.0049 (0.0034)	0.0131*** (0.0047)
55-64	0.0087*** (0.0034)	0.0153*** (0.0034)	0.0066 (0.0048)
65+	0.0127*** (0.0034)	0.0311*** (0.0034)	0.0184*** (0.0048)
Relationship to Head			
Head/Spouse	-0.0003 (0.0038)	-0.0066* (0.0039)	-0.0063 (0.0055)
Child	-0.0048 (0.0042)	0.0186*** (0.0043)	0.0234*** (0.0060)
Grandchild	-0.0124* (0.0071)	0.0261*** (0.0073)	0.0385*** (0.0102)
Education			
High School or Less	-0.0024 (0.0024)	-0.0118*** (0.0025)	-0.0094*** (0.0035)
Bachelor's or Above	0.0102*** (0.0026)	0.0125*** (0.0026)	0.0023 (0.0037)
Ever on Active Duty	-0.0088** (0.0039)	-0.0095** (0.0040)	-0.0006 (0.0055)
Disability	-0.0020 (0.0032)	0.0003 (0.0032)	0.0023 (0.0045)
Race			
Asian	0.0068 (0.0057)	0.0094 (0.0058)	0.0027 (0.0081)
American Indian or Alaskan Native	-0.0041 (0.0059)	-0.0099 (0.0063)	-0.0058 (0.0087)
Black	-0.0001 (0.0054)	-0.0058 (0.0056)	-0.0057 (0.0077)
Hawaiian or Pacific Islander	0.0047 (0.0097)	-0.0179* (0.0101)	-0.0226 (0.0140)
White	0.0088* (0.0052)	-0.0003 (0.0054)	-0.0091 (0.0075)
Hispanic	0.0038* (0.0023)	-0.0061*** (0.0023)	-0.0099*** (0.0033)
Marital Status			
Married	0.0071*** (0.0027)	0.0095*** (0.0028)	0.0025 (0.0039)
Never Married	0.0150*** (0.0035)	0.0129*** (0.0036)	-0.0021 (0.0050)
Non-Citizen	-0.0021 (0.0035)	-0.0200*** (0.0037)	-0.0178*** (0.0051)
Intercept	3.4830*** (0.0070)	1.4630*** (0.0073)	
Observations	360,000	338,000	

Source: U.S. Census Bureau 2018-2020 Current Population Annual Social and Economic Supplement

Note: This table shows the results of a regression testing change in the composition of the CPS ASEC sample across years. In the regression, an indicator for which year the observation is in is regressed on a set of time-invariant characteristics. The results show which characteristics are more common in one year than another. Standard errors are shown in parenthesis. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively.

Table 2: Shares of Characteristics of the CPS ASEC Sample

Characteristic	Estimate				Difference			Difference in Difference	
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2018 - 2017 (5)	2019 - 2018 (6)	2020 - 2019 (7)	(2019-2018) - (2018-2017) (8)	(2020-2019) - (2019-2018) (9)
Race									
Asian	0.0648*** (0.000429)	0.0667*** (0.000541)	0.0680*** (0.000699)	0.0691*** (0.000426)	0.00194*** (0.000122)	0.00130** (0.000556)	0.00101** (0.000447)	-0.000642 (0.000666)	-0.000294 (0.00100)
Native American	0.0215*** (0.000621)	0.0215*** (0.000211)	0.0211*** (0.000219)	0.0202*** (0.000363)	0.0000234 (0.000727)	-0.000383 (0.000371)	-0.000919** (0.000434)	-0.000407 (0.000854)	-0.000535 (0.000588)
Black	0.143*** (0.0000440)	0.144*** (0.000682)	0.145*** (0.000650)	0.146*** (0.000407)	0.000870 (0.000682)	0.000829*** (0.000169)	0.00113 (0.00101)	-0.0000404 (0.000742)	0.000302 (0.000973)
Pacific Islander	0.00545*** (0.000269)	0.00537*** (0.000977)	0.00551*** (0.000144)	0.00525*** (0.000226)	-0.0000801 (0.000211)	0.000143*** (0.0000547)	-0.000261 (0.000364)	0.000223 (0.000262)	-0.000404 (0.000417)
White	0.792*** (0.000148)	0.791*** (0.000377)	0.790*** (0.000185)	0.789*** (0.000406)	-0.00155*** (0.000269)	-0.000896** (0.000413)	-0.000803* (0.000430)	0.000650 (0.000632)	0.0000935 (0.000317)
Hispanic	0.180*** (0.0000208)	0.183*** (0.0000601)	0.185*** (0.0000141)	0.187*** (0.0000588)	0.00328*** (0.0000764)	0.00200*** (0.0000658)	0.00141*** (0.0000711)	-0.00128*** (0.000142)	-0.000587*** (0.000131)
Citizenship									
Native	0.863*** (0.0000941)	0.859*** (0.000587)	0.859*** (0.000685)	0.862*** (0.000834)	-0.00358*** (0.000500)	-0.000669 (0.000798)	0.00320*** (0.00118)	0.00291** (0.00113)	0.00387* (0.00198)
Foreign-Born Citizen	0.0638*** (0.000356)	0.0677*** (0.000437)	0.0687*** (0.000480)	0.0699*** (0.000310)	0.00393*** (0.000130)	0.00103*** (0.000216)	0.00120* (0.000621)	-0.00290*** (0.000323)	0.00170 (0.000806)
Non-citizen	0.0732*** (0.000389)	0.0729*** (0.000586)	0.0725*** (0.000268)	0.0681*** (0.000548)	-0.000356 (0.000380)	-0.000363 (0.000639)	-0.00440*** (0.000564)	-0.00000639 (0.000868)	-0.00404*** (0.00120)
Education									
< High School	0.104*** (0.000875)	0.102*** (0.000908)	0.0992*** (0.0000973)	0.0906*** (0.000140)	-0.00201** (0.00102)	-0.00270*** (0.000846)	-0.00863*** (0.000181)	-0.000692 (0.00164)	-0.00593*** (0.000903)
High School	0.288*** (0.00226)	0.285*** (0.000436)	0.281*** (0.000353)	0.276*** (0.00169)	-0.00304 (0.00266)	-0.00398*** (0.000628)	-0.00496*** (0.00160)	-0.000945 (0.00328)	-0.000975 (0.00118)
Some College	0.266*** (0.00155)	0.263*** (0.000258)	0.259*** (0.000987)	0.258*** (0.00144)	-0.00332** (0.00149)	-0.00378*** (0.000785)	-0.00128** (0.000517)	-0.000453 (0.00217)	0.00250*** (0.00384)
Bachelor's	0.213*** (0.000893)	0.219*** (0.000605)	0.225*** (0.000737)	0.234*** (0.00177)	0.00612*** (0.000616)	0.00612*** (0.000912)	0.00839*** (0.00110)	-0.00000344 (0.00144)	0.00227*** (0.000249)
Advanced Degree	0.128*** (0.00109)	0.131*** (0.000839)	0.135*** (0.00149)	0.141*** (0.00133)	0.00225 (0.00154)	0.00434*** (0.000752)	0.00648*** (0.000202)	0.00209*** (0.000789)	0.00214** (0.000881)
Age									
0-5	0.0746*** (0.0000921)	0.0740*** (0.0000406)	0.0732*** (0.0000423)	0.0720*** (0.0000371)	-0.000524*** (0.0000951)	-0.000859*** (0.0000798)	-0.00115*** (0.00000595)	-0.000335** (0.000154)	-0.000287*** (0.0000857)
6-12	0.0901*** (0.000230)	0.0893*** (0.000172)	0.0887*** (0.0000844)	0.0882*** (0.000154)	-0.000803*** (0.000171)	-0.000611*** (0.000204)	-0.000509** (0.000233)	0.000192 (0.000221)	0.000102 (0.000354)
13-17	0.0665*** (0.000245)	0.0659*** (0.000190)	0.0657*** (0.000186)	0.0647*** (0.000307)	-0.000646** (0.000262)	-0.000229 (0.000266)	-0.000955** (0.000472)	0.000417 (0.000312)	-0.000726 (0.000624)
18-24	0.0917*** (0.000139)	0.0905*** (0.0000692)	0.0897*** (0.000119)	0.0893*** (0.000115)	-0.00120*** (0.000104)	-0.000870*** (0.000187)	-0.000329 (0.000215)	0.000326* (0.000179)	0.000541 (0.000392)
25-34	0.138*** (0.0000251)	0.139*** (0.0000472)	0.139*** (0.0000526)	0.139*** (0.0000738)	0.000706*** (0.0000583)	0.000586*** (0.0000363)	-0.000232** (0.000102)	-0.000120* (0.0000622)	-0.000818*** (0.000137)
35-44	0.125*** (0.00000827)	0.126*** (0.0000335)	0.126*** (0.00000971)	0.127*** (0.0000494)	0.000830*** (0.0000390)	0.000655*** (0.0000241)	0.000829*** (0.0000406)	-0.000175*** (0.0000631)	0.000173*** (0.0000600)
45-54	0.131*** (0.0000433)	0.129*** (0.0000397)	0.125*** (0.0000192)	0.122*** (0.000286)	-0.00264*** (0.0000127)	-0.00304*** (0.0000247)	-0.00377*** (0.0000275)	-0.000401*** (0.0000214)	-0.000727** (0.000300)
55-64	0.129*** (0.000466)	0.129*** (0.000128)	0.129*** (0.000337)	0.130*** (0.000131)	0.0000959 (0.000383)	-0.000345 (0.000358)	0.000871*** (0.000242)	-0.000354 (0.000664)	0.00122** (0.000567)
65+	0.154*** (0.000439)	0.158*** (0.0000735)	0.163*** (0.000289)	0.168*** (0.000315)	0.00427*** (0.000372)	0.00472*** (0.000286)	0.00524*** (0.0000305)	0.000449 (0.000544)	0.000525** (0.000266)
Relationship (Relative to Head)									
Head/Spouse	0.587*** (0.00111)	0.587*** (0.00174)	0.588*** (0.000306)	0.587*** (0.000896)	0.000203 (0.00274)	0.000897 (0.00143)	-0.000735 (0.000590)	0.000694 (0.00415)	-0.00163 (0.00202)
Parent	0.0174*** (0.000248)	0.0175*** (0.000100)	0.0183*** (0.000361)	0.0172*** (0.000318)	0.0000487 (0.000343)	0.000835** (0.000426)	-0.00116*** (0.000228)	0.000786 (0.000745)	-0.00199*** (0.000543)
Child	0.292*** (0.000720)	0.292*** (0.00152)	0.291*** (0.000561)	0.292*** (0.00130)	0.000192 (0.000921)	-0.00167* (0.000965)	0.00147* (0.000765)	-0.00186 (0.00185)	0.00314* (0.00167)
Grandchild	0.0198*** (0.0000483)	0.0187*** (0.000119)	0.0185*** (0.000416)	0.0202*** (0.000238)	-0.00110*** (0.000114)	-0.000158 (0.000317)	0.00163*** (0.000421)	0.000937*** (0.000209)	0.00179*** (0.000686)
Other Relative	0.0341*** (0.000413)	0.0322*** (0.000467)	0.0326*** (0.000215)	0.0332*** (0.000820)	-0.00181** (0.000834)	0.000387 (0.000254)	0.000550 (0.00103)	0.00220** (0.00108)	0.000162 (0.000786)
Non-relative	0.0500*** (0.00101)	0.0525*** (0.000372)	0.0522*** (0.000485)	0.0504*** (0.000623)	0.00246*** (0.000644)	-0.000289 (0.000238)	-0.00175 (0.00108)	-0.00275*** (0.000704)	-0.00146 (0.00128)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement

Note: This table shows weighted summary statistics of the sample over time. Note that the race groups are not mutually exclusive, and an individual can be classified as in one or more groups based on their survey response. Standard errors are shown in parenthesis. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively. Asterisks are not shown in Columns (1)-(4) for readability as all the estimates are statistically significant at the 1-percent level.

Table 3: Data Used in this Paper

Data Set	Link Variable	Description	Variables Added
CPS ASEC Household File		Sampling and geographic information for <i>all</i> households in the CPS ASEC sample, whether they responded or not	MAFID, housing unit survey identifiers , location, response type, other sampling information, and survey information for responding households
CPS ASEC Person File	Housing unit survey IDs	Survey information for responding individuals	
1099 Information Returns Master File	MAFID	Person-level file of information returns filed for each individual by week 19 of the survey year. Covers income earned during the CPS ASEC reference period. No income information is contained in this file.	PIK for individuals receiving returns, flags for forms: W-2, 1098, 1099-DIV, 1099-G, 1099-INT, 1099-MISC, 1099-R, 1099-S, and SSA-1099
W-2 Return Master File	PIK	Universe of job-level earnings filed through week 19 of the survey year. Covers income earned during the CPS ASEC reference period.	Taxable earnings, deferred compensation
1099-R Return Master File	PIK	Universe level information return covering defined-contribution and defined-benefit pension plan earnings, as well as other survivor and disability income. Includes returns filed through week 19. Covers income earned during the CPS ASEC reference period.	Income from pension plans, withdrawals from defined-contribution retirement plans (such as 401(k)s), income from survivor and disability pension plans
1040 Master File	PIK	Universe of 1040 filings filed in the prior calendar year for income earned the year before the CPS ASEC reference period.	Adjusted gross income, wage and salary income, interest income, dividend income, gross rental income for tax units that filed taxes in the year prior to the CPS ASEC
SSA Numident	PIK	SSA master file of individuals with Social Security Numbers	Age and citizenship status
Census 2010 Short Form	PIK		Race and age
American Community Survey	PIK	Pooled responses to all ACS files from 2001-2018	Education, potentially information on job characteristics (such as occupation and industry)

Note: This table shows the administrative and survey data sets that are linked to CPS ASEC respondents and nonrespondent households. The initial link is at the address level to the 1099 IRMF file of information returns. Each subsequent is conditional on the 1099 IRMF link at the housing unit level, and all subsequent links are at the person level, using PIKs. Because the tax filing deadline was delayed in 2020 until July 15, we do not use 1040s filed in 2020 due to concerns about non-random selection of households into early filing in 2020 that would make comparisons to prior years difficult.

Table 4: Linkage Rates for Various Data Sources to CPS ASEC Respondents and Nonrespondents

Households Linked To:	Year				Difference		
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2018-2017 (5)	2019-2018 (6)	2020-2019 (7)
1099 IRMF							
Respondents	0.8242 (0.002398)	0.8231 (0.002194)	0.8128 (0.00247)	0.8355 (0.002483)	-0.001084 (0.002215)	-0.01039*** (0.002427)	0.02272*** (0.00231)
Nonrespondents	0.7874 (0.004893)	0.7818 (0.005006)	0.7663 (0.004175)	0.753 (0.00427)	-0.00552 (0.006337)	-0.01557*** (0.006122)	-0.01324** (0.005414)
Respondents - Nonrespondents	0.03687*** (0.004346)	0.04131*** (0.004687)	0.04649*** (0.004347)	0.08246*** (0.004233)	0.004436 (0.006175)	0.005185 (0.00632)	0.03596*** (0.005657)
W2							
Respondents	0.6498 (0.002841)	0.6429 (0.002458)	0.6338 (0.002646)	0.6542 (0.002746)	-0.006874** (0.002852)	-0.00907*** (0.002542)	0.02037*** (0.002668)
Nonrespondents	0.6718 (0.005939)	0.6571 (0.005405)	0.643 (0.004737)	0.6352 (0.004768)	-0.01473** (0.007297)	-0.0141** (0.006294)	-0.007778 (0.006114)
Respondents - Nonrespondents	-0.02206*** (0.005712)	-0.0142*** (0.005199)	-0.009173* (0.004795)	0.01898*** (0.004823)	0.007856 (0.00746)	0.005027 (0.006604)	0.02815*** (0.006238)
1099R							
Respondents	0.3329 (0.002643)	0.3374 (0.00252)	0.3342 (0.002456)	0.2261 (0.00215)	0.004502* (0.002714)	-0.003161 (0.002761)	-0.1081*** (0.002675)
Nonrespondents	0.2711 (0.005178)	0.2763 (0.005119)	0.2708 (0.004891)	0.1548 (0.003345)	0.005221 (0.006475)	-0.005457 (0.006036)	-0.116*** (0.005695)
Respondents - Nonrespondents	0.06181*** (0.005116)	0.06109*** (0.005028)	0.06338*** (0.004787)	0.0713*** (0.003249)	-0.000719 (0.006818)	0.002296 (0.006185)	0.00792 (0.005749)
1040							
Respondents	0.7429 (0.002759)	0.7403 (0.002573)	0.7304 (0.002757)	0.7565 (0.002556)	-0.002518 (0.002593)	-0.009947*** (0.002707)	0.02609*** (0.002507)
Nonrespondents	0.7148 (0.005585)	0.7124 (0.005328)	0.6936 (0.004713)	0.6737 (0.004435)	-0.002396 (0.00706)	-0.01883*** (0.006589)	-0.01991*** (0.006105)
Respondents - Nonrespondents	0.02805*** (0.005222)	0.02793*** (0.005312)	0.03681*** (0.004905)	0.0828*** (0.004651)	-0.0001225 (0.007043)	0.008878 (0.006956)	0.04599*** (0.006414)
2010 Census							
Respondents	0.7713 (0.002574)	0.7706 (0.002395)	0.756 (0.002686)	0.7746 (0.002847)	-0.0006161 (0.002384)	-0.01461*** (0.002554)	0.01858*** (0.002557)
Nonrespondents	0.7178 (0.00524)	0.7066 (0.005369)	0.6929 (0.004752)	0.6733 (0.004834)	-0.01118 (0.006953)	-0.01367** (0.006289)	-0.01957*** (0.006093)
Respondents - Nonrespondents	0.05351*** (0.004855)	0.06407*** (0.004953)	0.06313*** (0.00481)	0.1013*** (0.004546)	0.01056 (0.006844)	-0.0009447 (0.006451)	0.03816*** (0.006291)
ACS							
Respondents	0.2224 (0.002129)	0.2226 (0.002122)	0.2184 (0.002031)	0.2252 (0.002251)	0.0001277 (0.002293)	-0.004171** (0.002127)	0.00678*** (0.002275)
Nonrespondents	0.1863 (0.004637)	0.1767 (0.004057)	0.1716 (0.003738)	0.18 (0.003587)	-0.009546 (0.005825)	-0.005138 (0.004584)	0.008451* (0.004433)
Respondents - Nonrespondents	0.03618*** (0.004613)	0.04586*** (0.004023)	0.04682*** (0.00389)	0.04515*** (0.003929)	0.009674 (0.006117)	0.0009676 (0.00508)	-0.001671 (0.004869)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to each data set in the table.

Note: This table shows the unconditional link rate between housing units in the CPS ASEC and each data set in Table 3. The initial link is at the address level to the 1099 IRMF file of information returns. Each subsequent is conditional on the 1099 IRMF link at the housing unit level, and all subsequent links are at the person level, using PIKs. For person-/PIK-based links, a housing unit is classified as linked if at least one PIK can be linked. Standard errors are shown in parenthesis. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively, but asterisks are only shown for differences as all estimates for respondents and nonrespondents are significant at the 1-percent level.

Table 5: Shares of Characteristics of the CPS ASEC Sample from Linked Data for Respondent and Nonrespondent Households

Characteristic	Year				Difference		
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2018-2017 (5)	2019-2018 (6)	2020-2019 (7)
Race							
Black							
Respondents	0.1346 (0.002732)	0.1351 (0.002495)	0.1343 (0.002792)	0.1339 (0.002672)	0.0005482 (0.002313)	-0.0008427 (0.002457)	-0.0003569 (0.002567)
Nonrespondents	0.1603 (0.00547)	0.1672 (0.005189)	0.1678 (0.004515)	0.17 (0.004825)	0.006914 (0.006216)	0.0005049 (0.005836)	0.002292 (0.005562)
Respondents - Nonresponden	-0.02574*** (0.004726)	-0.03211*** (0.004624)	-0.03346*** (0.004101)	-0.0361*** (0.004617)	-0.006366 (0.006011)	-0.001348 (0.005752)	-0.002649 (0.005462)
White							
Respondents	0.8238 (0.00265)	0.8247 (0.002753)	0.8291 (0.003036)	0.8252 (0.002845)	0.0009772 (0.002588)	0.004374 (0.002727)	-0.003901 (0.002806)
Nonrespondents	0.809 (0.005653)	0.8064 (0.005382)	0.8016 (0.00513)	0.7901 (0.005239)	-0.002527 (0.006817)	-0.00486 (0.006179)	-0.01142* (0.00592)
Respondents - Nonresponden	0.01481*** (0.005273)	0.01832*** (0.004814)	0.02755*** (0.004708)	0.03507*** (0.004809)	0.003504 (0.006625)	0.009233 (0.006028)	0.00752 (0.005805)
Hispanic							
Respondents	0.1323 (0.002136)	0.1341 (0.002664)	0.1383 (0.002455)	0.1365 (0.002416)	0.001735 (0.002475)	0.004197* (0.002448)	-0.001798 (0.002651)
Nonrespondents	0.1145 (0.004388)	0.1171 (0.00448)	0.1283 (0.004521)	0.1522 (0.004117)	0.002521 (0.005229)	0.01126** (0.005666)	0.02385*** (0.005161)
Respondents - Nonresponden	0.0178*** (0.004211)	0.01701*** (0.004347)	0.009949** (0.003949)	-0.0157*** (0.003738)	-0.000786 (0.0054)	-0.007062 (0.005691)	-0.02565*** (0.004885)
Citizenship							
Native Born							
Respondents	0.9269 (0.001543)	0.9245 (0.001599)	0.9215 (0.001657)	0.9246 (0.001639)	-0.002374 (0.001801)	-0.003045* (0.001711)	0.003089* (0.001756)
Nonrespondents	0.9332 (0.003027)	0.9228 (0.00326)	0.9278 (0.003279)	0.9161 (0.002978)	-0.01038*** (0.003904)	0.004958 (0.004149)	-0.01172*** (0.003758)
Respondents - Nonresponden	-0.0063** (0.00276)	0.001701 (0.002986)	-0.006302** (0.003151)	0.00851*** (0.00275)	0.008001** (0.00387)	-0.008003* (0.004415)	0.01481*** (0.003744)
Education							
High School Diploma (or above)							
Respondents	0.8832 (0.003073)	0.8726 (0.003014)	0.8666 (0.003197)	0.8635 (0.003497)	-0.01064*** (0.0038)	-0.006029 (0.003962)	-0.00308 (0.004122)
Nonrespondents	0.8781 (0.008419)	0.8944 (0.007178)	0.8497 (0.00854)	0.8167 (0.007535)	0.01629 (0.01038)	-0.0447*** (0.01057)	-0.03304*** (0.01145)
Respondents - Nonresponden	0.005123 (0.009429)	-0.02181*** (0.007941)	0.01687* (0.008876)	0.04683*** (0.008142)	-0.02693** (0.01141)	0.03867*** (0.01176)	0.02996** (0.01232)
Bachelor's Degree (or above)							
Respondents	0.3523 (0.005294)	0.3491 (0.005068)	0.3565 (0.004909)	0.3645 (0.005132)	-0.003183 (0.005653)	0.00742 (0.005655)	0.008027 (0.005252)
Nonrespondents	0.324 (0.01196)	0.3469 (0.01238)	0.3129 (0.01194)	0.2836 (0.009781)	0.02286 (0.01511)	-0.03393** (0.0161)	-0.02933** (0.01258)
Respondents - Nonresponden	0.02825** (0.01256)	0.002204 (0.01207)	0.04356*** (0.01212)	0.08091*** (0.01008)	-0.02605* (0.01574)	0.04135** (0.01732)	0.03735*** (0.01396)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to each data set in the table.

Note: This table shows the summary statistics for respondents and nonrespondents conditional on linkage to the source linked data set. Race and Hispanic-origin information is from the 2010 decennial census, citizenship information is from the Numident, and education information is from the ACS. Standard errors are shown in parenthesis. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively; but asterisks are only shown for differences as all estimates for respondents and nonrespondents are significant at the 1-percent level.

Table 6: Administrative Income for Linked CPS ASEC Respondent and Nonrespondent Households

Characteristic	Year				Difference		
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2018-2017 (5)	2019-2018 (6)	2020-2019 (7)
W-2							
Mean							
Respondents	96,360 (1,391)	94,680 (1,003)	97,100 (1,141)	100,700 (1,144)	-1,677 (1,325)	2,421* (1,416)	3,615*** (1,252)
Nonrespondents	94,710 (2,182)	95,610 (1,880)	96,910 (2,215)	93,880 (2,732)	900 (2,626)	1,297 (2,502)	-3,028 (3,462)
Respondents - Nonrespondents	1,645 (2,528)	-932 (1,943)	193 (2,318)	6,836** (2,861)	-2,577 (3,019)	1,125 (2,862)	6,643* (3,710)
10th Percentile							
Respondents	11,840 (235)	11,810 (273)	11,480 (244)	13,250 (242)	-28 (328)	-330 (329)	1,776*** (316)
Nonrespondents	12,710 (571)	12,920 (464)	13,150 (556)	12,880 (464)	210 (687)	240 (678)	-277 (720)
Respondents - Nonrespondents	-870 (568)	-1,107** (527)	-1,677*** (581)	376 (504)	-238 (741)	-569 (776)	2,053*** (781)
25th Percentile							
Respondents	32,160 (356)	32,280 (365)	32,530 (355)	34,840 (310)	127 (424)	245 (411)	2,307*** (399)
Nonrespondents	32,180 (667)	32,860 (711)	34,190 (739)	31,500 (518)	679 (967)	1,322 (959)	-2,689*** (862)
Respondents - Nonrespondents	-27 (672)	-580 (761)	-1,657** (796)	3,339*** (547)	-553 (1,014)	-1,077 (1,047)	4,996*** (987)
Median							
Respondents	67,300 (497)	67,320 (540)	68,200 (493)	71,730 (574)	18 (572)	881 (557)	3,523*** (603)
Nonrespondents	64,710 (947)	66,200 (888)	68,710 (885)	64,140 (787)	1,486 (1,156)	2,514** (1,140)	-4,571** (1,522)
Respondents - Nonrespondents	2,593** (1,013)	1,125 (927)	-508 (917)	7,586** (793)	-1,468 (1,300)	-1,632 (1,253)	8,094*** (1,281)
75th Percentile							
Respondents	120,100 (903)	119,600 (977)	121,800 (835)	126,200 (1,029)	-481 (1,007)	2,184** (982)	4,447*** (998)
Nonrespondents	114,000 (1,697)	118,700 (1,711)	118,700 (1,743)	114,200 (1,568)	4,743** (2,116)	-18 (2,154)	-4,439** (2,093)
Respondents - Nonrespondents	6,129*** (1,821)	905 (1,764)	3,107* (1,820)	11,990*** (1,560)	-5,224** (2,308)	2,202 (2,293)	8,886*** (2,350)
90th Percentile							
Respondents	190,700 (1,848)	189,200 (1,698)	192,000 (1,794)	200,200 (1,877)	-1,439 (1,757)	2,772 (2,043)	8,178*** (1,972)
Nonrespondents	186,300 (4,885)	192,100 (3,353)	189,700 (3,467)	182,800 (2,561)	5,822 (5,348)	-2,431 (4,141)	-6,954* (3,827)
Respondents - Nonrespondents	4,399 (4,945)	-2,932 (3,394)	2,271 (3,521)	17,400*** (2,785)	-7,351 (5,433)	5,203 (4,649)	15,130*** (4,396)
1040							
Mean							
Respondents	116,800 (3,022)	113,100 (2,315)	115,200 (1,514)	125,100 (3,173)	-3,733 (3,555)	2,102 (2,583)	9,947*** (3,381)
Nonrespondents	131,200 (9,067)	116,700 (4,281)	115,900 (9,274)	118,000 (9,132)	-14,460 (9,697)	-825 (9,625)	2,125 (11,600)
Respondents - Nonrespondents	-14,400 (9,193)	-3,667 (4,638)	-740 (9,297)	7,083 (9,688)	10,730 (10,510)	2,927 (10,510)	7,822 (12,450)
10th Percentile							
Respondents	16,010 (237)	16,090 (215)	16,560 (212)	16,830 (243)	77 (283)	469* (269)	276 (288)
Nonrespondents	15,880 (509)	15,720 (505)	17,250 (460)	15,290 (316)	-163 (672)	1,590** (678)	-1,962*** (539)
Respondents - Nonrespondents	129 (525)	369 (538)	-693 (465)	1,545*** (383)	240 (715)	-1,061 (725)	2,238*** (600)
25th Percentile							
Respondents	36,830 (359)	36,730 (416)	37,510 (345)	39,240 (357)	-102 (429)	786* (428)	1,727*** (424)
Nonrespondents	35,250 (833)	36,360 (656)	37,100 (669)	33,280 (588)	1,104 (977)	746 (929)	-3,829*** (865)
Respondents - Nonrespondents	1,576* (814)	370 (735)	410 (681)	5,966*** (645)	-1,206 (1,032)	40 (968)	5,556*** (945)
Median							
Respondents	75,510 (587)	75,100 (628)	76,120 (585)	79,610 (651)	-404 (661)	1,019 (622)	3,487*** (726)
Nonrespondents	71,910 (1,024)	73,220 (877)	72,940 (953)	68,690 (841)	1,306 (1,261)	-372 (1,176)	-4,155*** (1,171)
Respondents - Nonrespondents	3,598*** (1,084)	1,888* (987)	3,279*** (927)	10,920*** (933)	-1,711 (1,360)	1,392 (1,274)	7,642*** (1,351)
75th Percentile							
Respondents	132,300 (1,011)	129,700 (949)	133,100 (1,024)	137,900 (1,006)	-2,632** (1,072)	3,401*** (1,046)	4,772*** (1,142)
Nonrespondents	127,000 (1,944)	129,500 (1,804)	127,900 (1,556)	122,700 (1,754)	2,447 (2,221)	-1,592 (2,156)	-5,197** (2,052)
Respondents - Nonrespondents	5,328*** (2,018)	249 (1,821)	5,242*** (1,682)	15,210*** (1,807)	-5,079** (2,294)	4,993** (2,298)	9,969*** (2,356)
90th Percentile							
Respondents	218,600 (2,073)	215,000 (2,112)	218,400 (2,137)	227,300 (2,102)	-3,603* (2,185)	3,439 (2,254)	8,844*** (2,501)
Nonrespondents	215,900 (5,107)	217,900 (3,349)	220,400 (4,527)	204,400 (3,004)	1,988 (5,846)	2,474 (5,191)	-16,090** (4,777)
Respondents - Nonrespondents	2,657 (5,123)	-2,934 (3,501)	-1,969 (4,254)	22,900*** (3,262)	-5,591 (6,047)	965 (5,284)	24,870*** (5,114)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to each data set in the table.

Note: This table shows income estimates and the difference in income by address between respondents and nonrespondents. The top half shows total W-2 earnings at that address in the reference year of the survey. The bottom half shows total 1040 AGI in the prior year for linked individuals at the survey address. A value of greater than zero indicates higher income for respondents than nonrespondents for that statistic and year. Standard errors are shown in parenthesis. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively, but asterisks are only shown for differences as all estimates for respondents and nonrespondents are significant at the 1-percent level.

Table 7: Probability of Response by Total W-2 Earnings at Address – Full CPS ASEC Sample
A. No Controls

	Regression					Comparison			
	2017 (1)	2018 (2)	2019 (3)	Pooled (2017-2019) (4)	2020 (5)	2018 - 2017 (6)	2019 - 2018 (7)	2020 - 2019 (8)	2020 - Pooled (9)
Has W-2	-0.02041*** (0.004426)	-0.01102** (0.004379)	-0.01558*** (0.004382)	-0.01510*** (0.002722)	-0.008350 (0.005627)	0.009390 (0.005829)	-0.004564 (0.006215)	0.007234 (0.007065)	0.006753 (0.006194)
0-25,000	0.01120** (0.005547)	0.006967 (0.005630)	0.02195*** (0.006053)	0.01342*** (0.003394)	0.007422 (0.006408)	-0.004238 (0.007721)	0.01499* (0.008151)	-0.01453* (0.008650)	-0.006003 (0.007250)
50,000-75,000	0.0009069 (0.005627)	0.00003118 (0.005166)	0.006789 (0.005358)	0.002484 (0.002987)	0.01885*** (0.007015)	-0.0008757 (0.007553)	0.006758 (0.007876)	0.01207 (0.008962)	0.01637** (0.007476)
75,000-100,000	0.009000 (0.005899)	0.003237 (0.005557)	0.003223 (0.006942)	0.005085 (0.003607)	0.02771*** (0.006897)	-0.005763 (0.008390)	-0.00001407 (0.009157)	0.02448** (0.009901)	0.02262*** (0.007651)
100,000-150,000	0.01469*** (0.005255)	0.007415 (0.005291)	0.01050* (0.005703)	0.01057*** (0.003530)	0.03455*** (0.007066)	-0.007277 (0.007270)	0.003085 (0.007037)	0.02405*** (0.008945)	0.02398*** (0.007856)
150,000-200,000	0.02980*** (0.007087)	0.007100 (0.007363)	0.01817*** (0.006910)	0.01781*** (0.004047)	0.04749*** (0.008334)	-0.02270** (0.009947)	0.01107 (0.01028)	0.02932*** (0.01079)	0.02968*** (0.009382)
>= 200,000	0.01432** (0.007118)	0.0005016 (0.007063)	0.01536** (0.007527)	0.01004** (0.004545)	0.06031*** (0.007713)	-0.01382 (0.008620)	0.01486 (0.009850)	0.04495*** (0.01088)	0.05026*** (0.008915)
Constant	0.8761*** (0.002505)	0.8647*** (0.002272)	0.8439*** (0.002386)	0.8608*** (0.001492)	0.7577*** (0.003348)	-0.01142*** (0.003120)	-0.02076*** (0.003107)	-0.08620*** (0.003672)	-0.1031*** (0.003552)
R-Squared	0.00	0.00	0.00	0.00	0.00				
Observations	81,000	79,500	82,000	242,000	79,500				

B. With Full Controls

	Regression					Comparison			
	2017 (1)	2018 (2)	2019 (3)	Pooled (2017-2019) (4)	2020 (5)	2018 - 2017 (6)	2019 - 2018 (7)	2020 - 2019 (8)	2020 - Pooled (9)
0-25,000	0.01018* (0.005578)	0.005000 (0.005474)	0.01832*** (0.006123)	0.01141*** (0.003368)	0.002713 (0.006411)	-0.005177 (0.007429)	0.01332 (0.008298)	-0.01561* (0.008719)	-0.008692 (0.007324)
50,000-75,000	0.001130 (0.005528)	-0.0009626 (0.005290)	0.004465 (0.005312)	0.001336 (0.002945)	0.01677** (0.006875)	-0.002093 (0.007566)	0.005427 (0.007948)	0.01231 (0.008925)	0.01544** (0.007378)
75,000-100,000	0.008198 (0.005900)	0.001123 (0.005864)	-0.0009271 (0.007169)	0.002470 (0.003663)	0.02398*** (0.007081)	-0.007075 (0.008594)	-0.002051 (0.009486)	0.02491** (0.01040)	0.02151*** (0.007874)
100,000-150,000	0.01294** (0.005431)	0.004141 (0.005503)	0.003807 (0.006023)	0.006430* (0.003519)	0.02985*** (0.006625)	-0.008795 (0.007720)	-0.0003348 (0.007719)	0.02604*** (0.009085)	0.02342*** (0.007455)
150,000-200,000	0.02756*** (0.007336)	0.002676 (0.007430)	0.01100 (0.007429)	0.01290*** (0.004103)	0.04216*** (0.008249)	-0.02488** (0.01032)	0.008320 (0.01064)	0.03116*** (0.01123)	0.02926*** (0.009334)
>= 200,000	0.01027 (0.007289)	-0.003848 (0.007636)	0.006404 (0.008027)	0.003764 (0.004649)	0.05138*** (0.008167)	-0.01412 (0.009073)	0.01025 (0.01101)	0.04497*** (0.01159)	0.04761*** (0.009181)
R-Squared	0.01	0.01	0.01	0.01	0.02				
Observations	81,000	79,500	82,000	242,000	79,500				

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows the coefficient estimates from a regression of housing unit response on W-2 earnings at that address. Positive values indicate individuals in that income range are more likely to respond than the baseline group (\$25,000-\$50,000). Panel A shows the results without controls for linkage rates and available demographic and socioeconomic information (such as race, Hispanic origin, citizenship, etc.). Panel B shows the results with those controls included.

Table 8: Probability of Response by Total Adjusted Gross Income in Prior Year – Full CPS ASEC Sample
A. No Controls

	Regression					Comparison			
	2017 (1)	2018 (2)	2019 (3)	Pooled (2017-2019) (4)	2020 (5)	2018 - 2017 (6)	2019 - 2018 (7)	2020 - 2019 (8)	2020 - Pooled (9)
Filed 1040	0.007607* (0.004146)	0.01008** (0.004736)	0.01445*** (0.004197)	0.01134*** (0.002701)	0.04607*** (0.006013)	0.002475 (0.006175)	0.004366 (0.005974)	0.03162*** (0.007280)	0.03473*** (0.006657)
0-25,000	0.006339 (0.004995)	0.007106 (0.005883)	0.01663*** (0.005055)	0.01021*** (0.003182)	0.001922 (0.006759)	0.0007670 (0.007600)	0.009525 (0.007572)	-0.01471* (0.008530)	-0.008290 (0.007462)
50,000-75,000	0.007476 (0.005426)	0.006014 (0.005323)	-0.0009206 (0.005066)	0.003825 (0.003166)	0.02841*** (0.006950)	-0.001463 (0.007746)	-0.006934 (0.006745)	0.02933*** (0.008540)	0.02458*** (0.007570)
75,000-100,000	0.01219** (0.005331)	0.009287 (0.005822)	0.01217** (0.005412)	0.01113*** (0.003406)	0.03744*** (0.006706)	-0.002906 (0.007715)	0.002885 (0.007548)	0.02526*** (0.008196)	0.02630*** (0.007416)
100,000-150,000	0.01319*** (0.004861)	0.01573*** (0.005260)	0.01369*** (0.004887)	0.01418*** (0.003242)	0.04606*** (0.006289)	0.002540 (0.007089)	-0.002048 (0.006569)	0.03237*** (0.008092)	0.03188*** (0.007131)
150,000-200,000	0.01860*** (0.006095)	0.01107 (0.006774)	0.02704*** (0.006660)	0.01900*** (0.004259)	0.05720*** (0.008149)	-0.007536 (0.008024)	0.01597* (0.008290)	0.03016*** (0.01037)	0.03821*** (0.009215)
>= 200,000	0.01173** (0.005834)	0.003152 (0.005840)	0.01313** (0.005628)	0.009344*** (0.003484)	0.06307*** (0.006916)	-0.008579 (0.007728)	0.009980 (0.007807)	0.04994*** (0.009073)	0.05373*** (0.008046)
Constant	0.8566*** (0.002807)	0.8471*** (0.002856)	0.8227*** (0.002834)	0.8412*** (0.001780)	0.7112*** (0.004011)	-0.009515** (0.003745)	-0.02445*** (0.003849)	-0.1115*** (0.004563)	-0.1300*** (0.004374)
R-Squared	0.00	0.00	0.00	0.00	0.01				
Observations	81,000	79,500	82,000	242,000	79,500				

B. With Full Controls

	Regression					Comparison			
	2017 (1)	2018 (2)	2019 (3)	Pooled (2017-2019) (4)	2020 (5)	2018 - 2017 (6)	2019 - 2018 (7)	2020 - 2019 (8)	2020 - Pooled (9)
0-25,000	0.00009845 (0.004959)	0.002192 (0.005839)	0.01139** (0.005153)	0.004797 (0.003161)	-0.008443 (0.006801)	0.002094 (0.007450)	0.009201 (0.007704)	-0.01984** (0.008609)	-0.01324* (0.007562)
50,000-75,000	0.008165 (0.005307)	0.004437 (0.005327)	-0.003075 (0.005129)	0.002712 (0.003149)	0.02496*** (0.007099)	-0.003728 (0.007665)	-0.007512 (0.006808)	0.02804*** (0.008736)	0.02225*** (0.007692)
75,000-100,000	0.01260** (0.005104)	0.006879 (0.005767)	0.007929 (0.005504)	0.008883*** (0.003346)	0.03250*** (0.006692)	-0.005719 (0.007523)	0.001050 (0.007683)	0.02457*** (0.008268)	0.02362*** (0.007353)
100,000-150,000	0.01338*** (0.004791)	0.01255** (0.005436)	0.008604* (0.005140)	0.01127*** (0.003285)	0.03895*** (0.006349)	-0.0008218 (0.007193)	-0.003950 (0.007008)	0.03034*** (0.008204)	0.02767*** (0.007117)
150,000-200,000	0.01838*** (0.006153)	0.008406 (0.006863)	0.02181*** (0.007040)	0.01607*** (0.004374)	0.04850*** (0.008213)	-0.009978 (0.008235)	0.01340 (0.008664)	0.02669** (0.01068)	0.03243*** (0.009322)
>= 200,000	0.01031* (0.005995)	-0.0006266 (0.006098)	0.005452 (0.006338)	0.004672 (0.003734)	0.05063*** (0.007266)	-0.01093 (0.007981)	0.006078 (0.008661)	0.04518*** (0.009653)	0.04596*** (0.008270)
R-Squared	0.01	0.01	0.01	0.01	0.02				
Observations	81,000	79,500	82,000	242,000	79,500				

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table figure the coefficient estimates from a regression of housing unit response on total prior-year AGI for linked individuals at that address. Positive values indicate individuals in that income range are more likely to respond than the baseline group (\$25,000-\$50,000). Panel A shows the results without controls for linkage rates and available demographic and socioeconomic information (such as race, Hispanic origin, citizenship, etc.). Panel B shows the results with those controls included.

Table 9: Before Inverse Probability Weighting – Linked Data Summary Statistics using the Base Weights

Characteristic	March Base Weights				Full CPS ASEC Respondents (Base Weights Before Oversampling Adjustment)				March Basic CPS Respondents			
	2017	2018	2019	2020	2017	2018	2019	2020	2017	2018	2019	2020
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Percentage of Housing Units												
Age (At Least One Individual in Range)												
18-24	14.97 (0.18)	14.67 (0.16)	14.31 (0.16)	14.48 (0.16)	16.26 (0.17)	16.18 (0.16)	15.55 (0.15)	15.44 (0.14)	14.95 (0.19)	14.66 (0.17)	14.22 (0.18)	14.04 (0.17)
25-34	22.24 (0.21)	22.23 (0.20)	21.55 (0.21)	22.26 (0.22)	23.57 (0.19)	23.36 (0.18)	22.54 (0.19)	22.96 (0.21)	22.01 (0.21)	22.03 (0.22)	21.24 (0.23)	21.72 (0.25)
35-44	20.72 (0.20)	20.64 (0.19)	20.30 (0.19)	20.85 (0.18)	23.56 (0.18)	23.47 (0.19)	22.87 (0.19)	23.38 (0.19)	20.51 (0.22)	20.47 (0.21)	20.09 (0.20)	20.60 (0.20)
45-54	21.93 (0.22)	21.29 (0.21)	20.33 (0.18)	20.00 (0.21)	23.19 (0.19)	22.82 (0.20)	21.66 (0.18)	21.81 (0.20)	21.70 (0.24)	21.08 (0.22)	20.13 (0.20)	19.99 (0.23)
55-64	22.36 (0.20)	21.73 (0.19)	21.65 (0.20)	21.96 (0.20)	21.14 (0.19)	20.90 (0.17)	20.67 (0.18)	21.98 (0.22)	22.53 (0.21)	22.02 (0.21)	22.08 (0.22)	23.15 (0.25)
65 Plus	27.08 (0.23)	28.11 (0.24)	27.86 (0.21)	28.17 (0.21)	24.76 (0.21)	26.13 (0.20)	26.41 (0.19)	28.25 (0.21)	28.63 (0.25)	29.80 (0.24)	29.80 (0.22)	31.49 (0.24)
Native Born	76.02 (0.27)	75.55 (0.25)	74.29 (0.26)	75.32 (0.28)	74.71 (0.23)	74.81 (0.23)	73.56 (0.25)	76.10 (0.24)	76.55 (0.27)	76.35 (0.26)	75.18 (0.28)	77.75 (0.29)
Education (Most Educated Linked Individual)												
High School Diploma	19.19 (0.20)	18.89 (0.20)	18.28 (0.19)	18.37 (0.20)	19.02 (0.17)	18.93 (0.18)	18.49 (0.18)	19.10 (0.20)	19.77 (0.21)	19.55 (0.21)	19.12 (0.21)	19.76 (0.23)
Bachelor's Degree	7.60 (0.14)	7.54 (0.13)	7.40 (0.11)	7.49 (0.13)	7.66 (0.12)	7.58 (0.12)	7.65 (0.11)	8.12 (0.13)	7.90 (0.15)	7.83 (0.14)	7.85 (0.13)	8.39 (0.15)
Graduate Degree	3.29 (0.09)	3.12 (0.09)	3.03 (0.09)	3.11 (0.09)	3.33 (0.08)	3.18 (0.08)	3.16 (0.08)	3.44 (0.09)	3.47 (0.10)	3.25 (0.09)	3.25 (0.10)	3.51 (0.11)
Hispanic	9.95 (0.16)	10.04 (0.19)	10.21 (0.18)	10.50 (0.19)	13.94 (0.19)	14.10 (0.18)	13.80 (0.18)	13.84 (0.19)	10.02 (0.17)	10.08 (0.22)	10.21 (0.20)	10.13 (0.20)
Race												
Black	10.53 (0.21)	10.61 (0.19)	10.39 (0.20)	10.63 (0.20)	12.23 (0.19)	12.41 (0.19)	11.79 (0.19)	11.99 (0.22)	10.23 (0.21)	10.28 (0.20)	9.86 (0.21)	9.95 (0.22)
White	62.82 (0.31)	62.64 (0.33)	61.55 (0.33)	61.43 (0.32)	59.96 (0.30)	59.94 (0.27)	59.41 (0.32)	61.02 (0.31)	63.89 (0.32)	64.01 (0.34)	63.34 (0.36)	64.90 (0.35)
Income Statistics												
W-2 Earnings Percentile												
10th	11,970 (238)	11,900 (258)	11,790 (251)	13,200 (230)	12,510 (213)	12,500 (232)	12,230 (237)	14,130 (236)	11,860 (254)	11,640 (296)	11,500 (265)	13,220 (272)
25th	32,280 (369)	32,430 (337)	32,870 (356)	34,070 (312)	32,940 (306)	33,110 (283)	33,540 (324)	36,000 (296)	32,230 (391)	32,240 (392)	32,720 (387)	34,850 (362)
50th	66,770 (451)	67,070 (520)	68,360 (483)	70,060 (561)	68,730 (455)	68,790 (431)	69,800 (434)	73,880 (522)	67,190 (505)	67,160 (579)	68,470 (550)	71,840 (612)
75th	119,100 (748)	119,600 (947)	121,500 (814)	123,500 (989)	121,700 (801)	121,500 (758)	123,500 (695)	129,100 (825)	120,100 (908)	119,600 (1,032)	122,400 (866)	126,500 (1,106)
90th	190,100 (1,646)	189,300 (1,662)	191,700 (1,713)	196,500 (1,778)	191,900 (1,523)	190,800 (1,394)	193,700 (1,421)	203,600 (1,542)	190,600 (1,720)	188,400 (1,803)	192,800 (1,749)	200,600 (1,819)
1040 AGI Percentile												
10th	15,940 (237)	16,010 (218)	16,710 (218)	16,430 (218)	16,560 (201)	16,600 (192)	17,050 (195)	17,660 (225)	15,900 (244)	16,030 (240)	16,600 (240)	16,790 (274)
25th	36,560 (377)	36,860 (389)	37,550 (334)	37,900 (349)	37,250 (317)	37,290 (360)	37,930 (289)	40,150 (367)	36,720 (387)	36,930 (437)	37,710 (334)	39,550 (408)
50th	75,030 (562)	74,810 (570)	75,550 (562)	77,190 (575)	75,810 (501)	75,590 (535)	77,040 (488)	81,060 (585)	75,530 (636)	75,060 (641)	76,350 (604)	80,070 (688)
75th	131,700 (908)	129,500 (916)	132,400 (988)	134,900 (1,033)	132,400 (877)	130,800 (865)	133,700 (846)	139,000 (838)	132,600 (1,043)	129,200 (975)	133,800 (1,070)	138,700 (1,059)
90th	218,600 (2,286)	215,300 (1,973)	218,800 (2,298)	223,400 (2,025)	217,700 (1,686)	213,900 (1,786)	217,600 (1,682)	229,200 (2,050)	219,200 (2,412)	214,300 (2,121)	219,100 (2,266)	228,800 (2,303)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows various demographic and socioeconomic summary statistics at the household level using the base weights with no adjustment for oversampling or selection into response. In Columns (1)-(4), we show estimates using the base weights on the March Basic CPS sample, including responding and nonrespondent housing units. These estimates should best represent the distribution of the linked characteristics in the population and are therefore the target distribution for the IPW adjustment. In Columns (5)-(8), we show estimates for respondents in the Full CPS ASEC sample. In Columns (9)-(12), we show the estimates for respondents in the March Basic CPS sample. Comparisons between each year's respondent sample (5)-(12) and that year's baseline sample (1)-(4) are shown in Appendix Table 3. Standard errors are shown in parenthesis. Education requires a link to the ACS, and the reported values are unconditional.

Table 10: After Inverse Probability Weighting – Linked Data Summary Statistics using the Base Weights

Characteristic	March Base Weights				Full IPW				March IPW			
	2017	2018	2019	2020	2017	2018	2019	2020	2017	2018	2019	2020
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Percentage of Housing Units												
Age (At Least One Individual in Range)												
18-24	14.97 (0.18)	14.67 (0.16)	14.31 (0.16)	14.48 (0.16)	14.97 (0.18)	14.66 (0.16)	14.32 (0.16)	14.49 (0.16)	14.97 (0.18)	14.66 (0.16)	14.32 (0.16)	14.49 (0.16)
25-34	22.24 (0.21)	22.23 (0.20)	21.55 (0.21)	22.26 (0.22)	22.24 (0.20)	22.23 (0.20)	21.55 (0.21)	22.24 (0.22)	22.23 (0.20)	22.23 (0.20)	21.54 (0.21)	22.23 (0.22)
35-44	20.72 (0.20)	20.64 (0.19)	20.30 (0.19)	20.85 (0.18)	20.72 (0.21)	20.65 (0.19)	20.30 (0.19)	20.84 (0.18)	20.72 (0.20)	20.65 (0.19)	20.30 (0.19)	20.85 (0.18)
45-54	21.93 (0.22)	21.29 (0.21)	20.33 (0.18)	20.00 (0.21)	21.93 (0.22)	21.29 (0.21)	20.33 (0.18)	20.01 (0.21)	21.93 (0.22)	21.29 (0.21)	20.33 (0.18)	20.02 (0.21)
55-64	22.36 (0.20)	21.73 (0.19)	21.65 (0.20)	21.96 (0.20)	22.36 (0.20)	21.73 (0.19)	21.65 (0.20)	21.96 (0.20)	22.37 (0.20)	21.74 (0.19)	21.65 (0.20)	21.95 (0.20)
65 Plus	27.08 (0.23)	28.11 (0.24)	27.86 (0.21)	28.17 (0.21)	27.08 (0.23)	28.11 (0.24)	27.86 (0.21)	28.17 (0.21)	27.09 (0.23)	28.11 (0.24)	27.86 (0.21)	28.18 (0.21)
Native Born	76.02 (0.27)	75.55 (0.25)	74.29 (0.26)	75.32 (0.28)	76.01 (0.27)	75.54 (0.25)	74.28 (0.26)	75.30 (0.28)	76.02 (0.27)	75.55 (0.25)	74.28 (0.26)	75.30 (0.28)
Education (Most Educated Linked Individual)												
High School Diploma	19.19 (0.20)	18.89 (0.20)	18.28 (0.19)	18.37 (0.20)	19.21 (0.20)	18.85 (0.19)	18.23 (0.20)	18.37 (0.20)	19.21 (0.20)	18.82 (0.20)	18.27 (0.19)	18.39 (0.21)
Bachelor's Degree	7.60 (0.14)	7.54 (0.13)	7.40 (0.11)	7.49 (0.13)	7.60 (0.14)	7.54 (0.13)	7.40 (0.12)	7.49 (0.13)	7.60 (0.14)	7.54 (0.13)	7.40 (0.12)	7.48 (0.13)
Graduate Degree	3.29 (0.09)	3.12 (0.09)	3.03 (0.09)	3.11 (0.09)	3.33 (0.08)	3.19 (0.08)	3.08 (0.08)	3.16 (0.09)	3.33 (0.09)	3.13 (0.09)	3.06 (0.09)	3.11 (0.09)
Hispanic	9.95 (0.16)	10.04 (0.19)	10.21 (0.18)	10.50 (0.19)	9.95 (0.16)	10.04 (0.19)	10.21 (0.18)	10.52 (0.19)	9.95 (0.16)	10.04 (0.19)	10.21 (0.19)	10.53 (0.19)
Race												
Black	10.53 (0.21)	10.61 (0.19)	10.39 (0.20)	10.63 (0.20)	10.52 (0.22)	10.60 (0.19)	10.37 (0.20)	10.61 (0.20)	10.52 (0.21)	10.60 (0.19)	10.36 (0.20)	10.59 (0.20)
White	62.82 (0.31)	62.64 (0.33)	61.55 (0.33)	61.43 (0.32)	62.83 (0.31)	62.64 (0.33)	61.56 (0.33)	61.42 (0.32)	62.84 (0.31)	62.65 (0.33)	61.56 (0.33)	61.42 (0.32)
Income Statistics												
W-2 Earnings Percentile												
10th	11,970 (238)	11,900 (258)	11,790 (251)	13,200 (230)	11,940 (246)	11,960 (254)	11,730 (241)	13,200 (221)	12,000 (252)	11,840 (263)	11,750 (260)	13,250 (234)
25th	32,280 (369)	32,430 (337)	32,870 (356)	34,070 (312)	32,150 (351)	32,370 (336)	32,790 (338)	34,130 (290)	32,260 (370)	32,430 (336)	32,940 (367)	34,170 (317)
50th	66,770 (451)	67,070 (520)	68,360 (483)	70,060 (561)	66,860 (470)	67,270 (510)	68,210 (479)	70,130 (553)	66,780 (463)	67,240 (517)	68,280 (501)	70,230 (567)
75th	119,100 (748)	119,600 (947)	121,500 (814)	123,500 (989)	119,300 (770)	119,600 (940)	121,400 (803)	123,700 (992)	119,100 (762)	119,900 (968)	121,600 (819)	123,800 (968)
90th	190,100 (1,646)	189,300 (1,662)	191,700 (1,713)	196,500 (1,778)	190,000 (1,760)	189,500 (1,627)	191,400 (1,764)	196,400 (1,759)	190,000 (1,637)	189,300 (1,649)	191,600 (1,685)	196,600 (1,747)
1040 AGI Percentile												
10th	15,940 (237)	16,010 (218)	16,710 (218)	16,430 (218)	16,030 (230)	16,110 (207)	16,740 (209)	16,380 (220)	15,970 (236)	16,080 (227)	16,780 (233)	16,390 (243)
25th	36,560 (377)	36,860 (389)	37,550 (334)	37,900 (349)	36,690 (359)	36,640 (393)	37,570 (329)	37,950 (328)	36,600 (379)	36,840 (402)	37,700 (325)	38,030 (365)
50th	75,030 (562)	74,810 (570)	75,550 (562)	77,190 (575)	75,040 (560)	74,820 (577)	75,600 (577)	77,340 (601)	75,050 (567)	74,830 (574)	75,610 (582)	77,360 (601)
75th	131,700 (908)	129,500 (916)	132,400 (988)	134,900 (1,033)	131,800 (969)	129,700 (930)	132,400 (955)	135,000 (985)	131,800 (929)	129,400 (942)	132,700 (1,000)	135,200 (1,053)
90th	218,600 (2,286)	215,300 (1,973)	218,800 (2,298)	223,400 (2,025)	218,400 (2,018)	215,500 (2,061)	218,200 (2,148)	222,600 (1,958)	218,700 (2,283)	215,500 (2,013)	218,200 (2,241)	223,200 (1,956)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows various demographic and socioeconomic summary statistics at the household level using the base weights after adjusting for oversampling and selection into response using inverse probability weights. In Columns (1)-(4), we show estimates using the base weights on the March Basic CPS sample, including responding and nonrespondent housing units. These estimates should best represent the distribution of the linked characteristics in the population and are therefore the target distribution for the IPW adjustment. In Columns (5)-(8), we show estimates for respondents in the Full CPS ASEC sample after IPW adjustment. In Columns (9)-(12), we show the estimates using for respondents the March Basic CPS sample after IPW adjustment. Comparisons between each year's respondent sample (5)-(12) and that year's baseline sample (1)-(4) are shown in Appendix Table 4. Standard errors are shown in parenthesis. Education requires a link to the ACS, and the reported values are unconditional.

Table 11: Percentage of Households by Characteristic using Survey and Alternative Weights

Characteristic	Survey Weights				IPW				March IPW			
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2017 (5)	2018 (6)	2019 (7)	2020 (8)	2017 (9)	2018 (10)	2019 (11)	2020 (12)
Race												
Asian	5.3 (0.06)	5.6 (0.06)	5.8 (0.07)	5.7 (0.07)	5.3 (0.11)	5.5 (0.12)	5.5 (0.11)	5.7 (0.13)	4.8 (0.12)	5.2 (0.13)	5.1 (0.13)	5.3 (0.14)
American Indian or Alaskan Native	1.9 (0.05)	2.0 (0.06)	1.9 (0.05)	1.8 (0.05)	2.2 (0.08)	2.1 (0.09)	2.1 (0.08)	1.9 (0.08)	1.7 (0.09)	1.7 (0.09)	1.7 (0.08)	1.5 (0.07)
Black	13.9 (0.10)	14.0 (0.10)	14.1 (0.10)	14.1 (0.11)	14.3 (0.26)	14.4 (0.23)	14.3 (0.25)	14.5 (0.25)	13.0 (0.27)	12.9 (0.24)	13.2 (0.26)	13.3 (0.25)
Hawaiian or Pacific Islander	0.4 (0.02)	0.4 (0.03)	0.4 (0.03)	0.4 (0.03)	0.4 (0.02)	0.4 (0.02)	0.4 (0.02)	0.4 (0.02)	0.3 (0.03)	0.3 (0.03)	0.3 (0.03)	0.3 (0.03)
White	80.2 (0.11)	79.9 (0.12)	79.7 (0.11)	79.9 (0.12)	79.7 (0.29)	79.6 (0.29)	79.6 (0.28)	79.4 (0.27)	81.6 (0.30)	81.5 (0.30)	81.3 (0.30)	81.1 (0.28)
Hispanic	13.4 (0.08)	13.6 (0.09)	13.8 (0.10)	13.8 (0.11)	14.4 (0.20)	14.6 (0.22)	15.3 (0.21)	15.2 (0.24)	11.9 (0.21)	11.9 (0.22)	12.5 (0.23)	12.7 (0.24)
Citizenship												
Native	84.9 (0.14)	84.4 (0.17)	84.4 (0.15)	84.7 (0.17)	85.3 (0.19)	84.8 (0.23)	84.6 (0.23)	84.7 (0.23)	86.4 (0.21)	85.9 (0.25)	85.8 (0.23)	85.9 (0.26)
Foreign-Born Citizen	8.0 (0.11)	8.5 (0.12)	8.6 (0.12)	8.7 (0.14)	7.7 (0.12)	8.1 (0.14)	8.2 (0.14)	8.5 (0.17)	7.1 (0.14)	7.6 (0.17)	7.7 (0.15)	7.9 (0.19)
Non-citizen	7.1 (0.10)	7.1 (0.12)	7.0 (0.11)	6.5 (0.10)	7.1 (0.12)	7.1 (0.14)	7.2 (0.15)	6.9 (0.13)	6.4 (0.13)	6.6 (0.15)	6.5 (0.15)	6.3 (0.16)
Education												
< High School	9.7 (0.14)	9.5 (0.14)	9.2 (0.13)	8.4 (0.14)	10.3 (0.16)	10.3 (0.15)	9.9 (0.15)	9.3 (0.15)	9.8 (0.18)	9.6 (0.18)	9.3 (0.17)	8.6 (0.16)
High School	27.1 (0.22)	26.5 (0.23)	26.0 (0.23)	25.3 (0.23)	27.3 (0.21)	26.7 (0.22)	26.4 (0.21)	25.9 (0.21)	27.7 (0.24)	27.2 (0.26)	26.7 (0.25)	26.2 (0.25)
Some College	28.1 (0.21)	28.0 (0.22)	27.7 (0.22)	27.5 (0.20)	28.2 (0.20)	28.1 (0.22)	27.8 (0.21)	27.8 (0.22)	28.0 (0.23)	27.9 (0.25)	27.8 (0.24)	27.9 (0.24)
Bachelor's	21.4 (0.20)	22.0 (0.19)	22.8 (0.20)	23.8 (0.22)	20.9 (0.18)	21.4 (0.18)	22.1 (0.18)	22.6 (0.21)	21.1 (0.22)	21.6 (0.21)	22.4 (0.21)	22.9 (0.25)
Advanced Degree	13.8 (0.18)	14.0 (0.18)	14.3 (0.15)	15.1 (0.18)	13.3 (0.17)	13.5 (0.17)	13.9 (0.15)	14.4 (0.17)	13.5 (0.20)	13.8 (0.19)	13.9 (0.18)	14.5 (0.22)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows various demographic and socioeconomic summary statistics at the household level using the survey weights and IPW. In Columns (1)-(4), we show estimates using the official survey weights. In Columns (5)-(8), we show estimates using the IPW with the full CPS ASEC sample in each year. In Columns (9)-(12), we show the estimates using the IPW with only the March Basic CPS sample (avoiding the challenge of adjusting the base weights for oversampling of Hispanics and households with children). Standard errors are shown in parenthesis.

Table 12: Comparisons of Percentage of Households by Characteristic using Survey and Alternative Weights

Characteristic	IPW - Survey				March IPW - Survey			
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2017 (5)	2018 (6)	2019 (7)	2020 (8)
Race								
Asian	-0.03 (0.12)	-0.12 (0.12)	-0.25** (0.11)	-0.03 (0.13)	-0.51*** (0.13)	-0.42*** (0.13)	-0.68*** (0.14)	-0.44*** (0.14)
American Indian or Alaskan Native	0.21*** (0.06)	0.14** (0.06)	0.12** (0.06)	0.07 (0.06)	-0.25*** (0.07)	-0.22*** (0.07)	-0.25*** (0.06)	-0.30*** (0.06)
Black	0.39 (0.26)	0.40 (0.25)	0.25 (0.25)	0.43* (0.26)	-0.92*** (0.27)	-1.10*** (0.25)	-0.90*** (0.26)	-0.78*** (0.26)
Hawaiian or Pacific Islander	0.00 (0.02)	-0.02 (0.02)	-0.01 (0.01)	-0.02 (0.02)	-0.05** (0.02)	-0.08*** (0.02)	-0.06*** (0.02)	-0.07*** (0.03)
White	-0.45 (0.28)	-0.31 (0.29)	-0.10 (0.27)	-0.51* (0.29)	1.39*** (0.29)	1.61*** (0.30)	1.54*** (0.29)	1.20*** (0.30)
Hispanic	0.95*** (0.19)	0.97*** (0.21)	1.44*** (0.23)	1.46*** (0.23)	-1.50*** (0.20)	-1.66*** (0.21)	-1.27*** (0.24)	-1.08*** (0.23)
Citizenship								
Native	0.34** (0.16)	0.38** (0.17)	0.12 (0.18)	-0.06 (0.19)	1.51*** (0.18)	1.50*** (0.19)	1.36*** (0.19)	1.12*** (0.22)
Foreign-Born Citizen	-0.32*** (0.09)	-0.38*** (0.10)	-0.36*** (0.11)	-0.27** (0.11)	-0.85*** (0.11)	-0.97*** (0.13)	-0.92*** (0.12)	-0.86*** (0.14)
Non-citizen	-0.02 (0.09)	0.00 (0.09)	0.24** (0.10)	0.33*** (0.09)	-0.66*** (0.12)	-0.53*** (0.10)	-0.44*** (0.12)	-0.26* (0.13)
Education								
< High School	0.63*** (0.07)	0.72*** (0.08)	0.69*** (0.09)	0.88*** (0.08)	0.06 (0.11)	0.06 (0.12)	0.10 (0.12)	0.20* (0.11)
High School	0.25** (0.10)	0.26*** (0.10)	0.40*** (0.09)	0.68*** (0.10)	0.62*** (0.14)	0.71*** (0.14)	0.67*** (0.13)	0.94*** (0.14)
Some College	0.13 (0.09)	0.04 (0.09)	0.03 (0.09)	0.26*** (0.10)	-0.07 (0.12)	-0.15 (0.13)	0.04 (0.12)	0.37*** (0.13)
Bachelor's	-0.55*** (0.09)	-0.57*** (0.09)	-0.71*** (0.09)	-1.19*** (0.10)	-0.35*** (0.13)	-0.39*** (0.12)	-0.48*** (0.14)	-0.93*** (0.15)
Advanced Degree	-0.46*** (0.08)	-0.44*** (0.08)	-0.41*** (0.07)	-0.63*** (0.09)	-0.26** (0.10)	-0.22** (0.11)	-0.33*** (0.11)	-0.57*** (0.13)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows comparisons of the various demographic and socioeconomic summary statistics at the household level shown in Table 8.1. In Columns (1)-(4), we compare the Full-sample IPW estimates to the survey. In Columns (5)-(8), we compare the March IPW estimates to the survey. Standard errors are shown in parenthesis. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively.

Table 13: Household Income Estimates using Survey and Alternative Weights (in 2019 dollars)

Percentile	Survey Weights				Full CPS ASEC Sample (IPW)				Basic March CPS (March IPW)			
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2017 (5)	2018 (6)	2019 (7)	2020 (8)	2017 (9)	2018 (10)	2019 (11)	2020 (12)
5	8,808 (124)	8,875 (144)	8,816 (154)	9,907 (187)	8,719 (118)	8,902 (135)	8,877 (144)	9,453 (180)	8,714 (134)	9,013 (162)	8,800 (169)	9,545 (218)
10	14,610 (158)	14,920 (171)	15,000 (189)	16,100 (163)	14,400 (157)	14,730 (178)	14,960 (183)	15,490 (175)	14,430 (195)	14,780 (210)	14,930 (219)	15,540 (194)
15	20,120 (192)	20,490 (200)	20,680 (174)	22,260 (211)	19,830 (197)	20,220 (211)	20,620 (174)	21,480 (203)	19,870 (225)	20,070 (238)	20,640 (216)	21,490 (223)
20	25,720 (224)	25,980 (228)	26,370 (194)	28,320 (291)	25,440 (225)	25,670 (243)	26,280 (198)	27,230 (199)	25,410 (250)	25,440 (267)	26,310 (237)	27,340 (225)
25	31,250 (273)	31,670 (192)	32,070 (187)	34,510 (300)	30,970 (262)	31,430 (214)	31,970 (195)	33,220 (314)	30,890 (308)	31,300 (287)	31,950 (221)	33,160 (335)
30	37,040 (335)	37,140 (224)	37,830 (222)	40,950 (217)	36,690 (323)	36,910 (245)	37,680 (228)	39,990 (313)	36,600 (372)	36,760 (266)	37,650 (265)	40,030 (332)
35	43,140 (256)	42,950 (253)	44,010 (364)	47,040 (268)	42,910 (250)	42,760 (276)	43,800 (390)	45,900 (287)	42,810 (307)	42,580 (293)	43,710 (435)	45,900 (328)
40	49,250 (276)	49,370 (299)	51,000 (272)	53,560 (413)	49,070 (270)	49,190 (313)	50,880 (363)	52,030 (278)	48,880 (326)	48,990 (330)	50,820 (426)	52,010 (313)
45	55,390 (275)	56,020 (448)	57,260 (306)	60,840 (302)	55,320 (270)	55,810 (483)	57,120 (338)	59,440 (460)	55,080 (311)	55,370 (514)	57,050 (388)	59,380 (519)
50	63,080 (484)	63,760 (335)	64,320 (428)	68,700 (550)	63,060 (487)	63,630 (352)	64,180 (474)	66,790 (424)	62,600 (569)	63,310 (373)	64,090 (550)	66,590 (491)
55	70,670 (378)	72,110 (580)	72,470 (334)	77,120 (440)	70,770 (381)	71,930 (627)	72,460 (389)	75,500 (430)	70,260 (419)	71,160 (674)	72,290 (439)	75,370 (511)
60	79,640 (514)	80,620 (429)	81,100 (487)	86,810 (498)	79,790 (490)	80,530 (467)	81,140 (561)	84,870 (597)	78,910 (608)	79,990 (475)	80,830 (636)	84,650 (749)
65	88,710 (614)	90,330 (512)	91,210 (584)	97,780 (653)	88,870 (594)	90,310 (540)	91,200 (681)	95,540 (609)	88,050 (609)	89,490 (570)	90,540 (782)	95,140 (763)
70	100,400 (606)	102,200 (660)	102,600 (376)	109,800 (730)	100,600 (572)	102,200 (716)	102,500 (436)	107,100 (628)	99,640 (681)	101,100 (685)	102,100 (554)	106,900 (686)
75	113,200 (563)	115,800 (576)	115,200 (730)	123,800 (814)	113,400 (564)	115,800 (615)	115,000 (790)	121,600 (558)	112,800 (648)	114,600 (873)	114,400 (781)	121,200 (614)
80	129,600 (541)	132,300 (747)	132,400 (749)	142,500 (1,024)	129,800 (530)	132,400 (824)	132,300 (866)	140,000 (988)	129,200 (608)	131,100 (889)	131,900 (1,099)	138,900 (1,199)
85	152,100 (984)	156,500 (924)	154,400 (597)	166,600 (1,056)	152,200 (985)	156,700 (790)	154,200 (655)	163,400 (1,237)	151,200 (731)	154,800 (1,499)	153,700 (816)	162,500 (1,273)
90	185,000 (1,253)	189,800 (1,287)	187,800 (1,406)	201,500 (938)	185,100 (1,305)	190,000 (1,381)	187,100 (1,552)	198,300 (1,717)	183,300 (1,106)	188,000 (1,470)	186,000 (1,639)	197,800 (1,821)
95	248,500 (2,376)	254,400 (2,347)	253,500 (2,222)	270,000 (2,729)	249,000 (2,540)	256,100 (2,432)	252,200 (2,347)	265,000 (2,464)	246,600 (2,219)	252,600 (2,490)	251,400 (2,325)	265,000 (2,843)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows the estimates of income using various weights. In Columns (1)-(4), we show estimates of income at each percentile, consistent with the estimates in each year's Income and Poverty Report (except for the 2017 estimates, which use the 2017 Research File). In Columns (5)-(8), we show estimates using the IPW with the full CPS ASEC sample in each year. In Columns (9)-(12), we show the estimates using the IPW with only the March Basic CPS sample (avoiding the challenge of adjusting the base weights for oversampling of Hispanics and households with children). Standard errors are shown in parenthesis.

Table 14: Percent Difference of Household Income using Survey and Alternative Weights

Percentile	Full CPS ASEC Sample (IPW) - Survey				Basic March CPS (March IPW) - Survey			
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2017 (5)	2018 (6)	2019 (7)	2020 (8)
5	-1.01 (0.66)	0.30 (0.73)	0.69 (0.70)	-4.58*** (0.87)	-1.06 (0.85)	1.55 (1.07)	-0.18 (1.12)	-3.65*** (1.41)
10	-1.46*** (0.56)	-1.33** (0.56)	-0.29 (0.61)	-3.75*** (0.60)	-1.25* (0.75)	-0.99 (0.84)	-0.48 (0.88)	-3.44*** (0.78)
15	-1.43** (0.56)	-1.29** (0.52)	-0.27 (0.46)	-3.52*** (0.54)	-1.25* (0.71)	-2.02*** (0.71)	-0.19 (0.63)	-3.48*** (0.69)
20	-1.10** (0.51)	-1.19** (0.48)	-0.34 (0.41)	-3.84*** (0.59)	-1.21* (0.64)	-2.06*** (0.64)	-0.24 (0.55)	-3.47*** (0.71)
25	-0.89* (0.50)	-0.75** (0.35)	-0.29 (0.35)	-3.74*** (0.57)	-1.14* (0.63)	-1.18** (0.58)	-0.35 (0.45)	-3.90*** (0.69)
30	-0.95* (0.51)	-0.63* (0.36)	-0.39 (0.35)	-2.33*** (0.47)	-1.20* (0.64)	-1.02** (0.43)	-0.46 (0.48)	-2.24*** (0.55)
35	-0.53 (0.35)	-0.44 (0.36)	-0.45 (0.48)	-2.42*** (0.38)	-0.76* (0.45)	-0.86** (0.41)	-0.68 (0.64)	-2.43*** (0.46)
40	-0.37 (0.33)	-0.35 (0.36)	-0.24 (0.38)	-2.84*** (0.46)	-0.76* (0.42)	-0.76* (0.40)	-0.37 (0.53)	-2.88*** (0.50)
45	-0.11 (0.28)	-0.37 (0.51)	-0.24 (0.32)	-2.30*** (0.49)	-0.56 (0.36)	-1.17** (0.57)	-0.37 (0.42)	-2.41*** (0.60)
50	-0.04 (0.44)	-0.21 (0.31)	-0.23 (0.38)	-2.79*** (0.49)	-0.76 (0.58)	-0.70** (0.35)	-0.37 (0.51)	-3.08*** (0.52)
55	0.15 (0.30)	-0.25 (0.48)	-0.02 (0.29)	-2.10*** (0.36)	-0.57 (0.38)	-1.31** (0.55)	-0.26 (0.36)	-2.27*** (0.44)
60	0.18 (0.36)	-0.11 (0.30)	0.05 (0.36)	-2.23*** (0.44)	-0.91* (0.49)	-0.78** (0.34)	-0.34 (0.46)	-2.48*** (0.61)
65	0.19 (0.40)	-0.01 (0.33)	-0.01 (0.40)	-2.29*** (0.40)	-0.74 (0.47)	-0.93** (0.38)	-0.74 (0.53)	-2.70*** (0.52)
70	0.18 (0.37)	-0.05 (0.39)	-0.05 (0.23)	-2.41*** (0.42)	-0.80* (0.47)	-1.11*** (0.41)	-0.47 (0.34)	-2.61*** (0.47)
75	0.19 (0.30)	-0.01 (0.28)	-0.18 (0.36)	-1.78*** (0.41)	-0.35 (0.37)	-1.00** (0.45)	-0.66 (0.41)	-2.08*** (0.43)
80	0.15 (0.24)	0.09 (0.33)	-0.09 (0.32)	-1.80*** (0.48)	-0.28 (0.30)	-0.90** (0.38)	-0.35 (0.47)	-2.52*** (0.57)
85	0.02 (0.37)	0.11 (0.32)	-0.09 (0.20)	-1.94*** (0.45)	-0.60 (0.42)	-1.07* (0.64)	-0.47 (0.29)	-2.47*** (0.53)
90	0.10 (0.39)	0.10 (0.37)	-0.36 (0.37)	-1.60*** (0.56)	-0.91** (0.45)	-0.95** (0.47)	-0.93** (0.45)	-1.87*** (0.64)
95	0.19 (0.52)	0.67 (0.48)	-0.51 (0.43)	-1.86*** (0.53)	-0.76 (0.62)	-0.69 (0.64)	-0.83* (0.49)	-1.88*** (0.71)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows the annual percent difference in median household income estimates using inverse probability weights compared to the survey weights. In Columns (1)-(4), we show estimates using the IPW with the full CPS ASEC sample in each year. In Columns (5)-(8), we show the estimates using the IPW with only the March Basic CPS sample (avoiding the challenge of adjusting the base weights for oversampling of Hispanics and households with children). Standard errors are shown in parenthesis. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively.

Table 15: Percent Year-to-Year Income Growth using Survey and Alternative Weights (in 2019 dollars)

Percentile	Survey Weights			Full CPS ASEC Sample (IPW)			Basic March CPS (March IPW)		
	2018 (1)	2019 (2)	2020 (3)	2018 (4)	2019 (5)	2020 (6)	2018 (7)	2019 (8)	2020 (9)
5	0.76 (1.93)	-0.67 (2.14)	12.37*** (2.75)	2.10 (1.70)	-0.28 (1.95)	6.49*** (2.36)	3.43 (2.16)	-2.36 (2.19)	8.47*** (2.85)
10	2.13 (1.41)	0.50 (1.56)	7.32*** (1.56)	2.26* (1.27)	1.57 (1.50)	3.59** (1.42)	2.40* (1.66)	1.01 (1.66)	4.13** (1.67)
15	1.82 (1.26)	0.94 (1.12)	7.66*** (1.18)	1.97* (1.13)	1.98* (1.12)	4.15*** (1.13)	1.03* (1.34)	2.83* (1.27)	4.11*** (1.32)
20	0.98 (1.22)	1.51 (0.99)	7.39*** (1.13)	0.88 (1.12)	2.39** (1.00)	3.62*** (0.86)	0.11 (1.23)	3.39** (1.13)	3.92*** (1.02)
25	1.36 (1.00)	1.24* (0.74)	7.62*** (1.00)	1.51* (0.90)	1.72** (0.77)	3.89*** (1.01)	1.33* (1.13)	2.09** (0.94)	3.79*** (1.05)
30	0.27 (1.00)	1.85** (0.73)	8.24*** (0.76)	0.60 (0.88)	2.09*** (0.74)	6.13*** (0.91)	0.45 (1.02)	2.42*** (0.80)	6.31*** (0.97)
35	-0.43 (0.76)	2.45*** (0.86)	6.90*** (0.96)	-0.34 (0.66)	2.44*** (0.87)	4.78*** (0.96)	-0.53 (0.75)	2.64*** (0.96)	5.01*** (1.05)
40	0.23 (0.72)	3.32*** (0.65)	5.00*** (0.83)	0.25 (0.65)	3.44*** (0.71)	2.26*** (0.72)	0.23 (0.72)	3.72*** (0.81)	2.35*** (0.83)
45	1.15 (0.81)	2.21*** (0.80)	6.25*** (0.66)	0.88 (0.77)	2.35*** (0.81)	4.06*** (0.79)	0.53 (0.84)	3.04*** (0.85)	4.07*** (0.90)
50	1.07 (0.81)	0.88 (0.65)	6.81*** (0.94)	0.91 (0.74)	0.86 (0.68)	4.07*** (0.78)	1.13 (0.84)	1.23 (0.77)	3.90*** (0.91)
55	2.04** (0.86)	0.51 (0.73)	6.41*** (0.67)	1.64** (0.82)	0.74 (0.77)	4.20*** (0.64)	1.28** (0.90)	1.58 (0.84)	4.26*** (0.74)
60	1.23* (0.73)	0.60 (0.61)	7.04*** (0.78)	0.93 (0.64)	0.75 (0.64)	4.60*** (0.81)	1.36 (0.78)	1.05 (0.70)	4.73*** (0.97)
65	1.83** (0.77)	0.98 (0.65)	7.20*** (0.86)	1.63** (0.68)	0.98 (0.68)	4.76*** (0.83)	1.63** (0.73)	1.17 (0.78)	5.08*** (0.97)
70	1.78** (0.74)	0.35 (0.58)	7.03*** (0.73)	1.55** (0.67)	0.35 (0.59)	4.50*** (0.61)	1.46** (0.71)	1.00 (0.59)	4.73*** (0.69)
75	2.29*** (0.58)	-0.51 (0.62)	7.50*** (0.91)	2.08*** (0.55)	-0.68 (0.62)	5.78*** (0.75)	1.61*** (0.76)	-0.16 (0.73)	5.96*** (0.74)
80	2.11*** (0.59)	0.06 (0.66)	7.66*** (0.91)	2.05*** (0.59)	-0.13 (0.68)	5.82*** (0.88)	1.48*** (0.65)	0.61 (0.83)	5.32*** (1.04)
85	2.87*** (0.74)	-1.36** (0.60)	7.92*** (0.72)	2.95*** (0.64)	-1.55*** (0.51)	5.92*** (0.79)	2.38*** (0.91)	-0.76*** (0.88)	5.75*** (0.83)
90	2.60*** (0.82)	-1.04 (0.82)	7.32*** (0.86)	2.61*** (0.77)	-1.50* (0.84)	5.98*** (1.11)	2.55*** (0.82)	-1.01* (0.90)	6.30*** (1.18)
95	2.35** (1.16)	-0.32 (1.10)	6.52*** (1.34)	2.84** (1.11)	-1.49 (1.01)	5.07*** (1.25)	2.42** (1.10)	-0.47 (1.01)	5.39*** (1.37)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows the estimates of income using various weights. In Columns (1)-(3), we show the year-to-year percent change in income at each percentile, consistent with the estimates in each year's Income and Poverty Report (except for the 2017 estimates, which use the 2017 Research File). In Columns (4)-(6), we show the change in income estimated using the IPW with the full CPS ASEC sample in each year. In Columns (7)-(9), we show the change in income estimated using the IPW with only the March Basic CPS sample (avoiding the challenge of adjusting the base weights for oversampling of Hispanics and households with children). Standard errors are shown in parenthesis. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively.

Table 16: Poverty Estimates using Survey and Alternative Weights

	Survey Weights				Full CPS ASEC Sample (IPW)				Basic March CPS (March IPW)			
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2017 (5)	2018 (6)	2019 (7)	2020 (8)	2017 (9)	2018 (10)	2019 (11)	2020 (12)
Share in Poverty												
Estimate	12.8 (0.1)	12.3 (0.2)	11.8 (0.1)	10.5 (0.1)	13.1 (0.2)	12.4 (0.2)	11.9 (0.2)	11.1 (0.2)	12.7 (0.2)	12.2 (0.2)	11.6 (0.2)	10.7 (0.2)
Change		-0.50** (0.20)	-0.49** (0.20)	-1.31*** (0.21)		-0.63** (0.25)	-0.50** (0.20)	-0.86*** (0.20)		-0.54** (0.24)	-0.56** (0.25)	-0.96*** (0.25)
Difference in Difference												
IPW/March IPW - Survey					-0.132 (0.190)	-0.015 (0.100)	0.451*** (0.102)		-0.037 (0.173)	-0.071 (0.173)	0.358** (0.181)	
IPW - March IPW									0.094 (0.227)	-0.055 (0.156)	-0.093 (0.157)	

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows the estimates of poverty using various weights. In Columns (1)-(4), we show estimates using survey weights, consistent with the estimates in each year's Income and Poverty Report (except for the 2017 estimates, which use the 2017 Research File). In Columns (5)-(8), we show estimates using the IPW with the full CPS ASEC sample in each year. In Columns (9)-(12), we show the estimates using the IPW with only the March Basic CPS sample (avoiding the challenge of adjusting the base weights for oversampling of Hispanics and households with children). Standard errors are shown in parenthesis. Estimates of year-to-year change are shown in the second row of results. Differences between the year-to-year changes with alternate weights are shown in the third and fourth rows of results. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively for the change and difference-in-difference estimates only.

Table 17: Supplemental Poverty Measure Estimates using Survey and Alternative Weights

	Survey Weights				Full CPS ASEC Sample (IPW)				Basic March CPS (March IPW)			
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2017 (5)	2018 (6)	2019 (7)	2020 (8)	2017 (9)	2018 (10)	2019 (11)	2020 (12)
Share in Poverty												
Estimate	13.5 (0.2)	13.0 (0.2)	12.8 (0.2)	11.7 (0.2)	13.2 (0.1)	12.7 (0.2)	12.4 (0.2)	11.9 (0.2)	13.1 (0.2)	12.5 (0.2)	12.4 (0.2)	11.7 (0.2)
Change		-0.51** (0.22)	-0.25 (0.23)	-1.04*** (0.22)		-0.57** (0.22)	-0.22 (0.21)	-0.53*** (0.20)		-0.58** (0.27)	-0.17 (0.28)	-0.69*** (0.25)
Difference in Difference												
IPW/March IPW - Survey					-0.051 (0.105)	0.035 (0.095)	0.506*** (0.118)		-0.070 (0.169)	0.084 (0.173)	0.352** (0.155)	
IPW - March IPW									-0.019 (0.166)	0.049 (0.157)	-0.155 (0.155)	

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows the estimates of the SPM using various weights. In Columns (1)-(4), we show estimates using survey weights, consistent with the estimates in each year's SPM Report (Fox, 2020), except for the 2017 estimates, which use the 2017 Research File. In Columns (5)-(8), we show estimates using the IPW with the full CPS ASEC sample in each year. In Columns (9)-(12), we show the estimates using the IPW with only the March Basic CPS sample (avoiding the challenge of adjusting the base weights for oversampling of Hispanics and households with children). Standard errors are shown in parenthesis. Estimates of year-to-year change are shown in the second row of results. Differences between the year-to-year changes with alternate weights are shown in the third and fourth rows of results. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively for the change and difference-in-difference estimates only.

Table 18: Health Insurance Coverage Estimates in Shares using Survey and Alternative Weights

Coverage Type (Last Year)	Survey Weights			Full CPS ASEC Sample (IPW)			Basic March CPS (March IPW)		
	2018	2019	2020	2018	2019	2020	2018	2019	2020
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Any Health Plan	0.921 (0.001)	0.915 (0.001)	0.920 (0.001)	0.924 (0.001)	0.918 (0.001)	0.921 (0.001)	0.925 (0.001)	0.921 (0.001)	0.921 (0.002)
Any Private Plan	0.677 (0.002)	0.673 (0.002)	0.681 (0.002)	0.675 (0.002)	0.672 (0.003)	0.673 (0.002)	0.681 (0.003)	0.679 (0.003)	0.676 (0.003)
Employment-based	0.554 (0.002)	0.551 (0.002)	0.564 (0.002)	0.555 (0.002)	0.553 (0.003)	0.558 (0.003)	0.555 (0.003)	0.555 (0.003)	0.557 (0.003)
Direct Purchase	0.110 (0.001)	0.108 (0.001)	0.102 (0.001)	0.107 (0.001)	0.104 (0.001)	0.099 (0.001)	0.114 (0.002)	0.110 (0.001)	0.105 (0.002)
TRICARE	0.025 (0.001)	0.026 (0.001)	0.026 (0.001)	0.027 (0.001)	0.027 (0.001)	0.027 (0.001)	0.026 (0.001)	0.027 (0.001)	0.027 (0.001)
Any Public Plan	0.348 (0.002)	0.344 (0.002)	0.341 (0.002)	0.350 (0.002)	0.345 (0.002)	0.348 (0.002)	0.353 (0.003)	0.349 (0.003)	0.351 (0.003)
Medicare	0.174 (0.001)	0.178 (0.001)	0.181 (0.001)	0.171 (0.002)	0.172 (0.001)	0.178 (0.002)	0.185 (0.002)	0.186 (0.002)	0.190 (0.002)
Medicaid	0.186 (0.002)	0.179 (0.002)	0.172 (0.002)	0.191 (0.002)	0.186 (0.002)	0.183 (0.002)	0.180 (0.002)	0.176 (0.002)	0.174 (0.002)
VA or CHAMPVA	0.010 (0.0004)	0.010 (0.0003)	0.010 (0.0004)	0.010 (0.0003)	0.010 (0.0003)	0.010 (0.0003)	0.011 (0.0004)	0.010 (0.0004)	0.011 (0.0004)

Source: U.S. Census Bureau 2018-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows the estimates of health insurance coverage using various weights. In Columns (1)-(3), we show estimates using survey weights, consistent with the estimates in each year's Health Insurance Coverage Report. In Columns (4)-(6), we show estimates using the IPW with the full CPS ASEC sample in each year. In Columns (7)-(9), we show the estimates using the IPW with only the March Basic CPS sample (avoiding the challenge of adjusting the base weights for oversampling of Hispanics and households with children). The estimates by type of coverage are not mutually exclusive; people can be covered by more than one type of health insurance during the year. Private health insurance includes coverage provided through an employer or union, coverage purchased directly, or TRICARE. Public health insurance coverage includes Medicaid, Medicare, CHAMPVA (Civilian Health and Medical Program of the Department of Veterans Affairs), and care provided by the Department of Veterans Affairs and the military. Individuals are considered to be uninsured if they do not have health insurance coverage for the entire calendar year. Standard errors are shown in parenthesis.

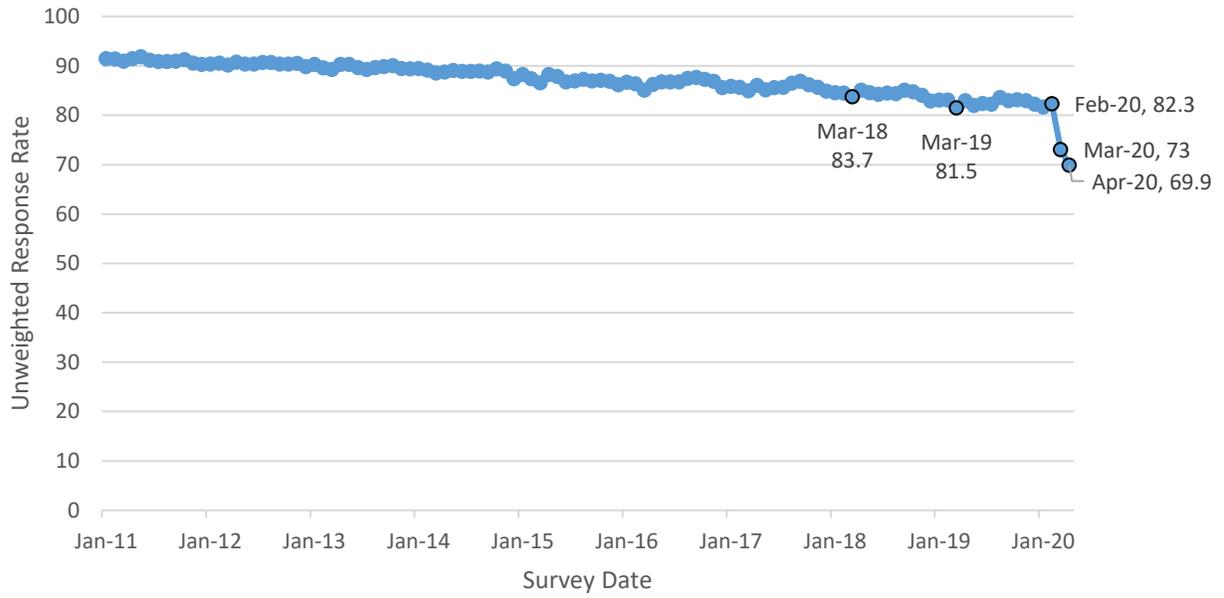
Table 19: Year-to-Year Change in Share with Insurance Coverage Using Survey and Alternative Weights

Coverage Type (Last Year)	Survey Weights		Full CPS ASEC Sample (IPW)		Basic March CPS (March IPW)	
	2019 (1)	2020 (2)	2019 (3)	2020 (4)	2019 (5)	2020 (6)
Any Health Plan	-0.005465*** (0.001309)	0.004393*** (0.001671)	-0.005558*** (0.001407)	0.002965* (0.001588)	-0.003601** (0.001545)	0.00004107 (0.001932)
Any Private Plan	-0.003791 (0.002547)	0.007626*** (0.002770)	-0.003378 (0.002715)	0.0005162 (0.002960)	-0.001633 (0.003001)	-0.002988 (0.003272)
Employment-based	-0.003256 (0.002662)	0.01285*** (0.002954)	-0.002523 (0.002755)	0.005281* (0.002844)	-0.00003471 (0.003107)	0.002164 (0.003195)
Direct Purchase	-0.002417 (0.001700)	-0.005456*** (0.001732)	-0.002502 (0.001700)	-0.004931*** (0.001711)	-0.003553* (0.001965)	-0.005673*** (0.001980)
TRICARE	0.0009284 (0.0008835)	-0.00008197 (0.0008025)	0.0002303 (0.0008863)	-0.0003567 (0.0007706)	0.0004707 (0.001022)	0.0001207 (0.0009888)
Any Public Plan	-0.003802* (0.002166)	-0.002915 (0.002398)	-0.005317** (0.002365)	0.003348 (0.002703)	-0.003887 (0.002643)	0.002434 (0.003191)
Medicare	0.004156*** (0.001016)	0.002779*** (0.001004)	0.001002 (0.001571)	0.005889*** (0.001484)	0.001079 (0.001855)	0.004230** (0.001700)
Medicaid	-0.006837*** (0.002152)	-0.006548*** (0.002244)	-0.005100** (0.002329)	-0.003026 (0.002415)	-0.003781 (0.002652)	-0.002394 (0.002912)
VA or CHAMPVA	-0.00007427 (0.0004403)	-0.00001425 (0.0004452)	-0.00002795 (0.0004096)	0.0002623 (0.0004154)	-0.0001674 (0.0004923)	0.0004732 (0.0004951)

Source: U.S. Census Bureau 2018-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows the year-to-year changes in estimates of health insurance coverage using various weights. In Columns (1) and (2), we show the year-to-year percent change in income at each percentile, consistent with the estimates in each year's Health Insurance Coverage Report. In Columns (3) and (4), we show the change estimated using the IPW with the full CPS ASEC sample in each year. In Columns (5) and (6), we show the change estimated using the IPW with only the March Basic CPS sample (avoiding the challenge of adjusting the base weights for oversampling of Hispanics and households with children). The estimates by type of coverage are not mutually exclusive; people can be covered by more than one type of health insurance during the year. Private health insurance includes coverage provided through an employer or union, coverage purchased directly, or TRICARE. Public health insurance coverage includes Medicaid, Medicare, CHAMPVA (Civilian Health and Medical Program of the Department of Veterans Affairs), and care provided by the Department of Veterans Affairs and the military. Individuals are considered to be uninsured if they do not have health insurance coverage for the entire calendar year. Standard errors are shown in parenthesis. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively.

Figure 1: Basic CPS Monthly Unweighted Response Rates



Source: Bureau of Labor Statistics,
<https://www.bls.gov/osmr/response-rates/household-survey-response-rates.htm>

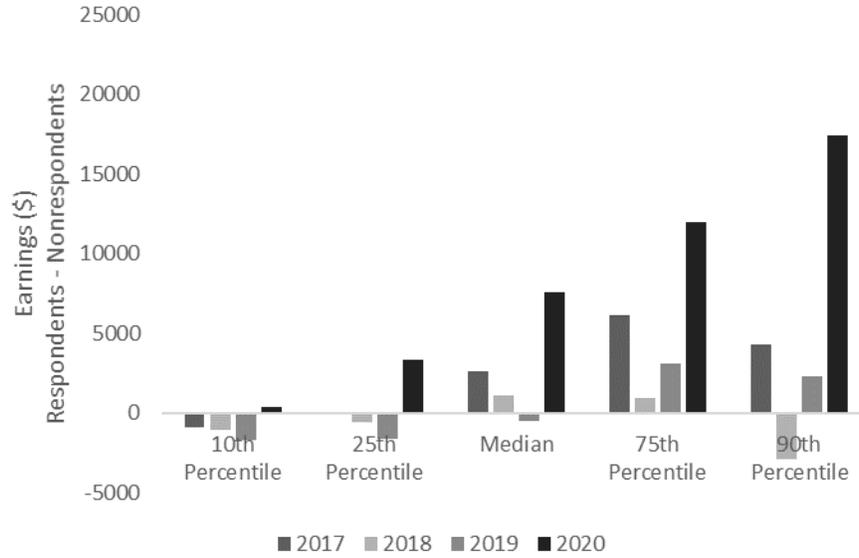
Figure 2: Diagram of Data Linkage for Respondents and Nonrespondents

CPS Addresses (about 80,000 non-vacant housing units in each year)	Respondents (83 percent)	In 1099 IRMF (81 percent)	Link to W2 (78 percent) 1099R (41 percent) 1040 (90 percent) 2010 Census (93 percent) 2001-2018 ACS (27 percent)
			No link to additional data
		Not in 1099 IRMF No more links possible	
	Nonrespondents (17 percent)	In 1099 IRMF (77 percent)	Link to W2 (84), 1099R (35), 1040 (91), 2010 Census (90), 2001-2018 ACS (22)
		No link to additional data	
		Not in 1099 IRMF No more links possible	

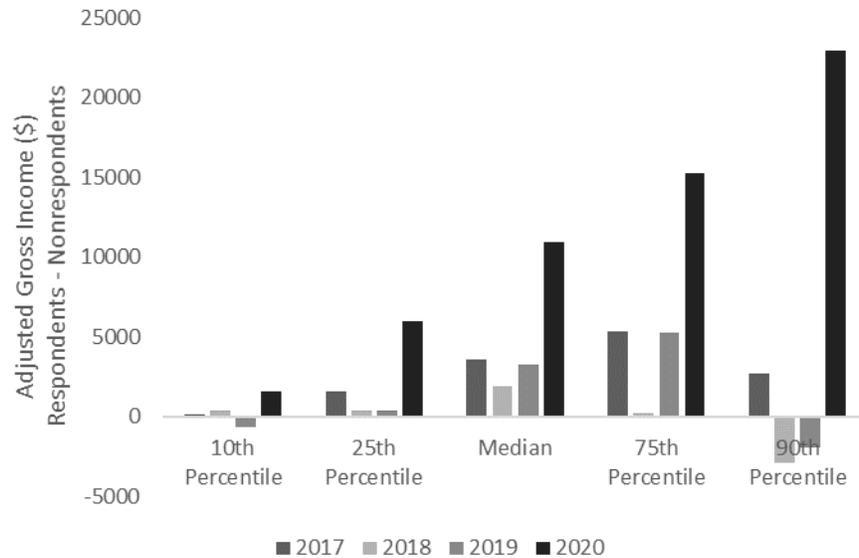
Note: This figure shows a diagram of the linkage process used in this paper and described in Table 3. The percent values shown in parenthesis are from the 2019 CPS ASEC. The values shown for the 1099 IRMF, W-2, 1099-R, 1040, 2010 Census and 2001-2018 ACS are linkage rates conditional on being in the group in the box to the left (i.e. for respondent housing units, 81 percent can be linked by address to the 1099 IRMF).

Figure 3: Income Difference between Respondents and Nonrespondents

A. Total W-2 Earnings at Address



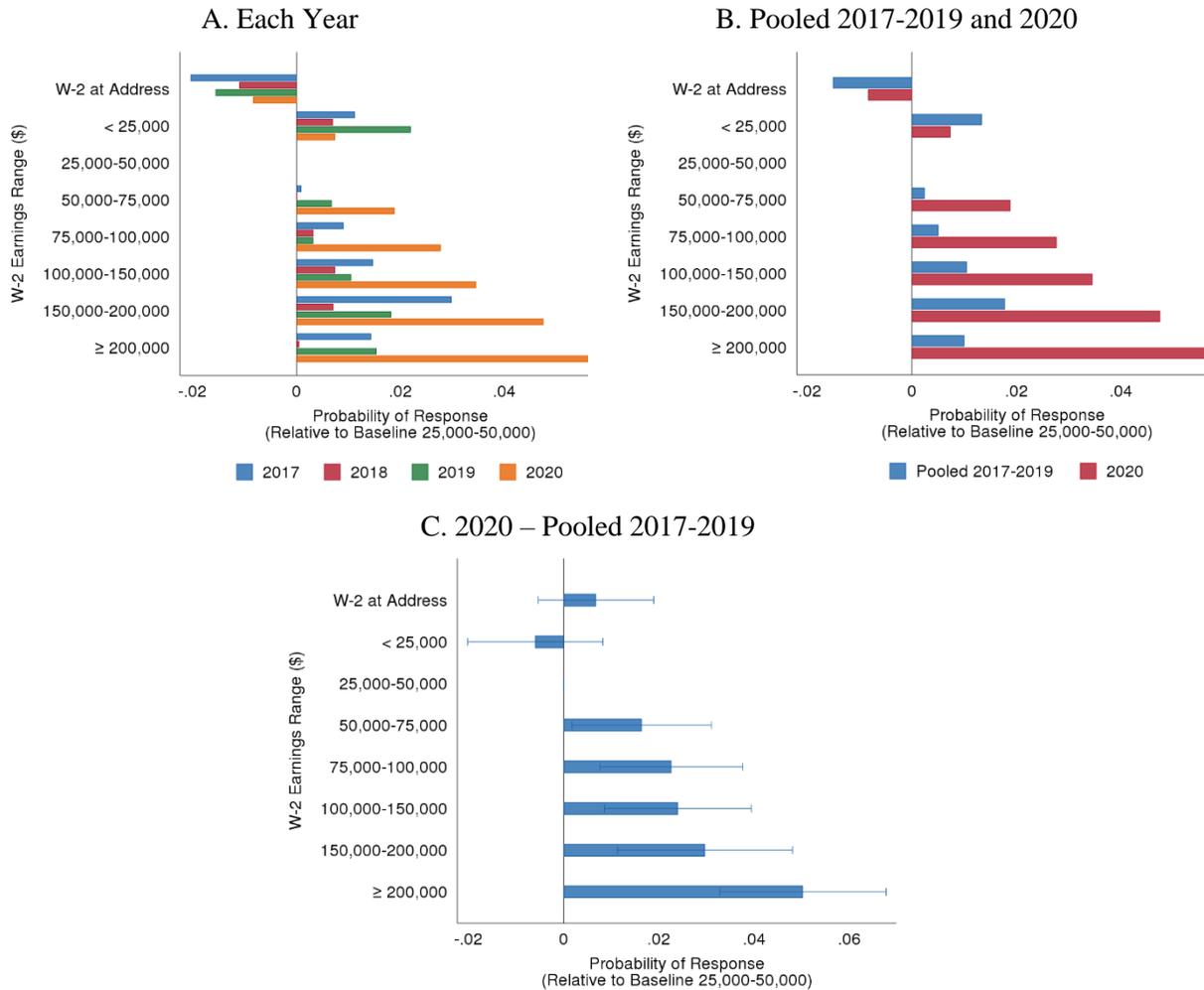
B. Total Adjusted Gross Income in Prior Year



Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This figure shows the difference in income by address between respondents and nonrespondents. Panel A shows total W-2 earnings at that address in the reference year of the survey. Panel B shows total 1040 AGI in the prior year for linked individuals at the survey address. A value of greater than zero indicates higher income for respondents than nonrespondents for that statistic and year.

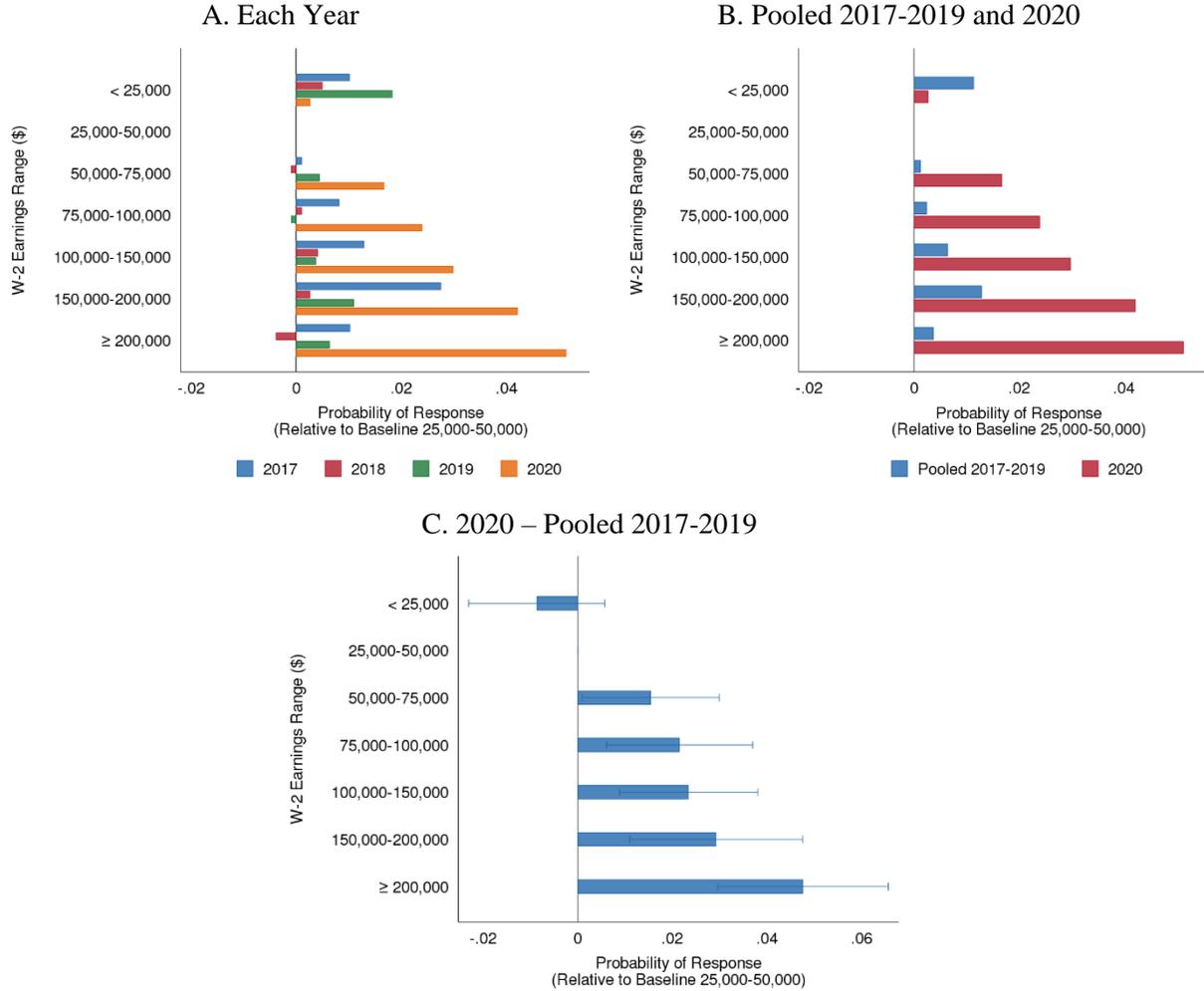
Figure 4: Probability of Response by Total W-2 Earnings at Address – Full CPS ASEC Sample
No Controls



Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This figure shows the coefficient estimates from a regression of housing unit response on W-2 earnings at that address. Positive values indicate individuals in that income range are more likely to respond than the baseline group (\$25,000-\$50,000).

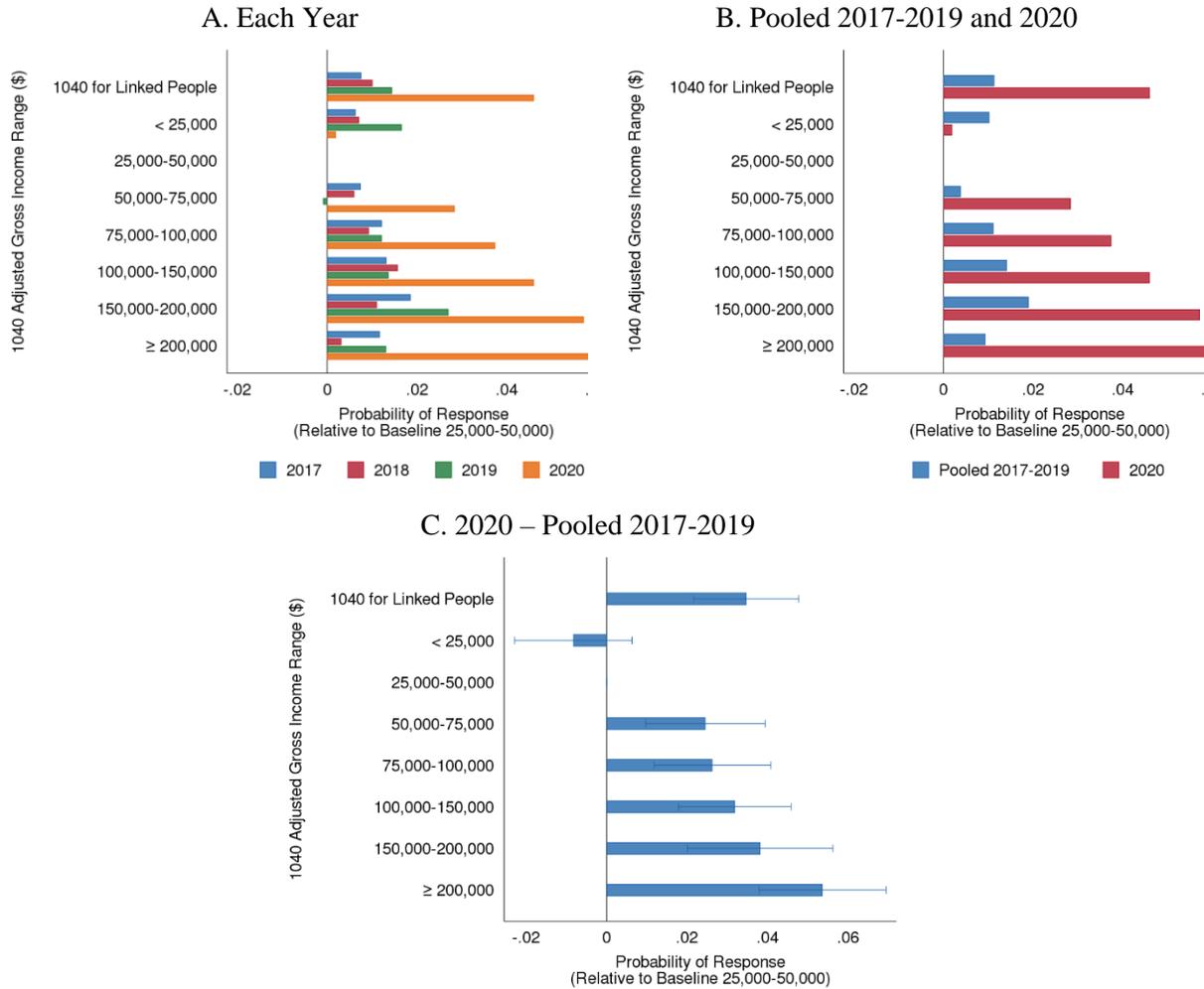
Figure 5: Probability of Response by Total W-2 Earnings at Address – Full CPS ASEC Sample Full Controls



Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This figure shows the coefficient estimates from a regression of housing unit response on W-2 earnings at that address, with the addition of demographic and socioeconomic controls. Positive values indicate individuals in that income range are more likely to respond than the baseline group (\$25,000-\$50,000).

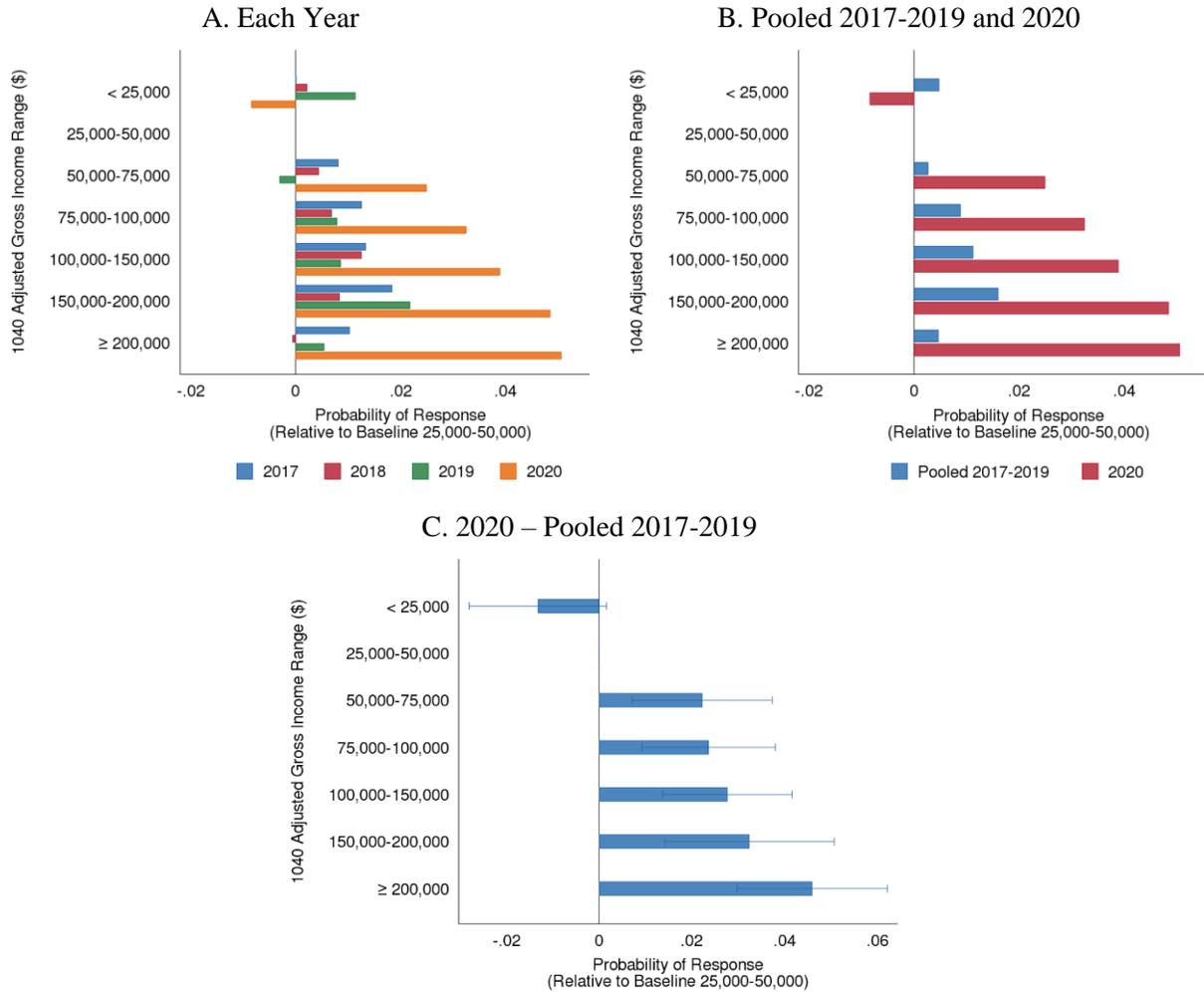
Figure 6: Probability of Response by Total Adjusted Gross Income in Prior Year – Full CPS ASEC Sample
No Controls



Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table figure the coefficient estimates from a regression of housing unit response on total prior-year AGI for linked individuals at that address. Positive values indicate individuals in that income range are more likely to respond than the baseline group (\$25,000-\$50,000).

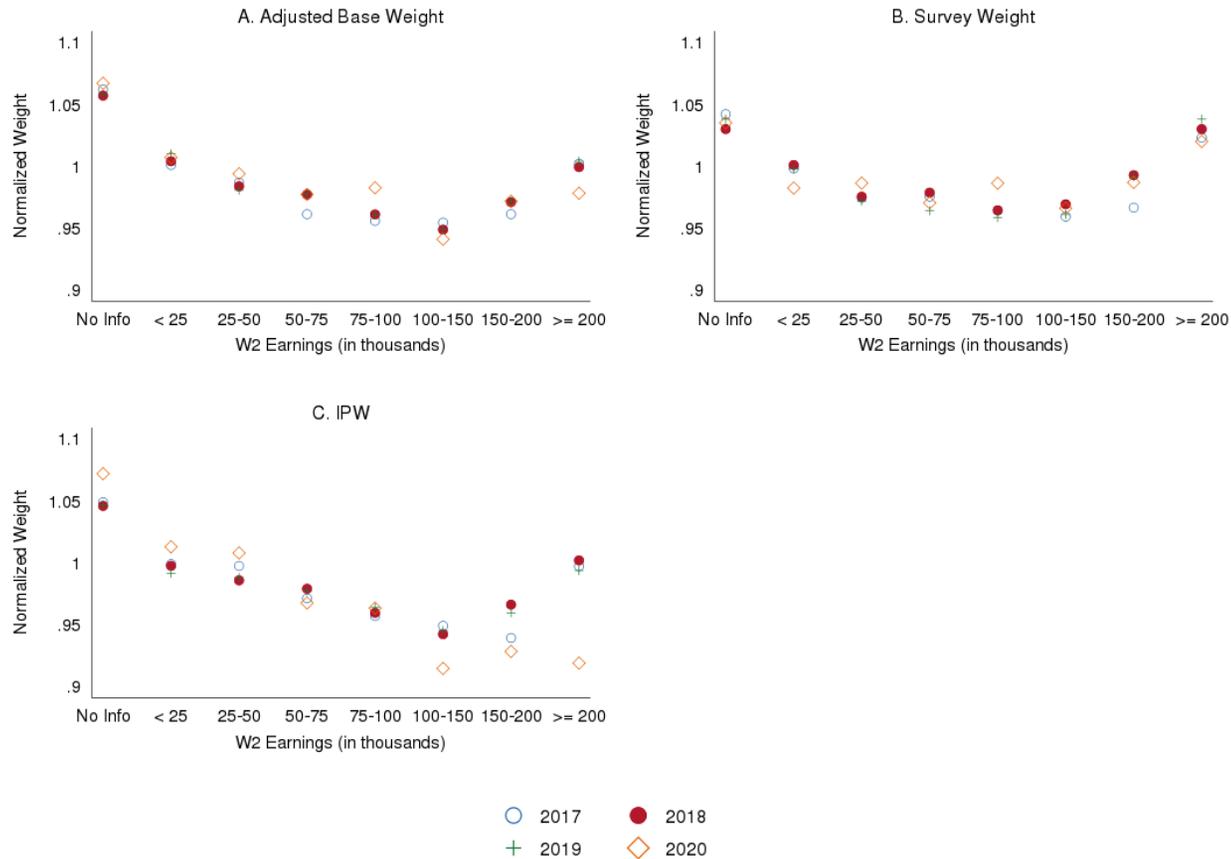
Figure 7: Probability of Response by Total Adjusted Gross Income in Prior Year – Full CPS ASEC Sample
Full Controls



Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows the coefficient estimates from a regression of housing unit response on total prior-year AGI for linked individuals at that address, with the addition of demographic and socioeconomic controls. Positive values indicate individuals in that income range are more likely to respond than the baseline group (\$25,000-\$50,000).

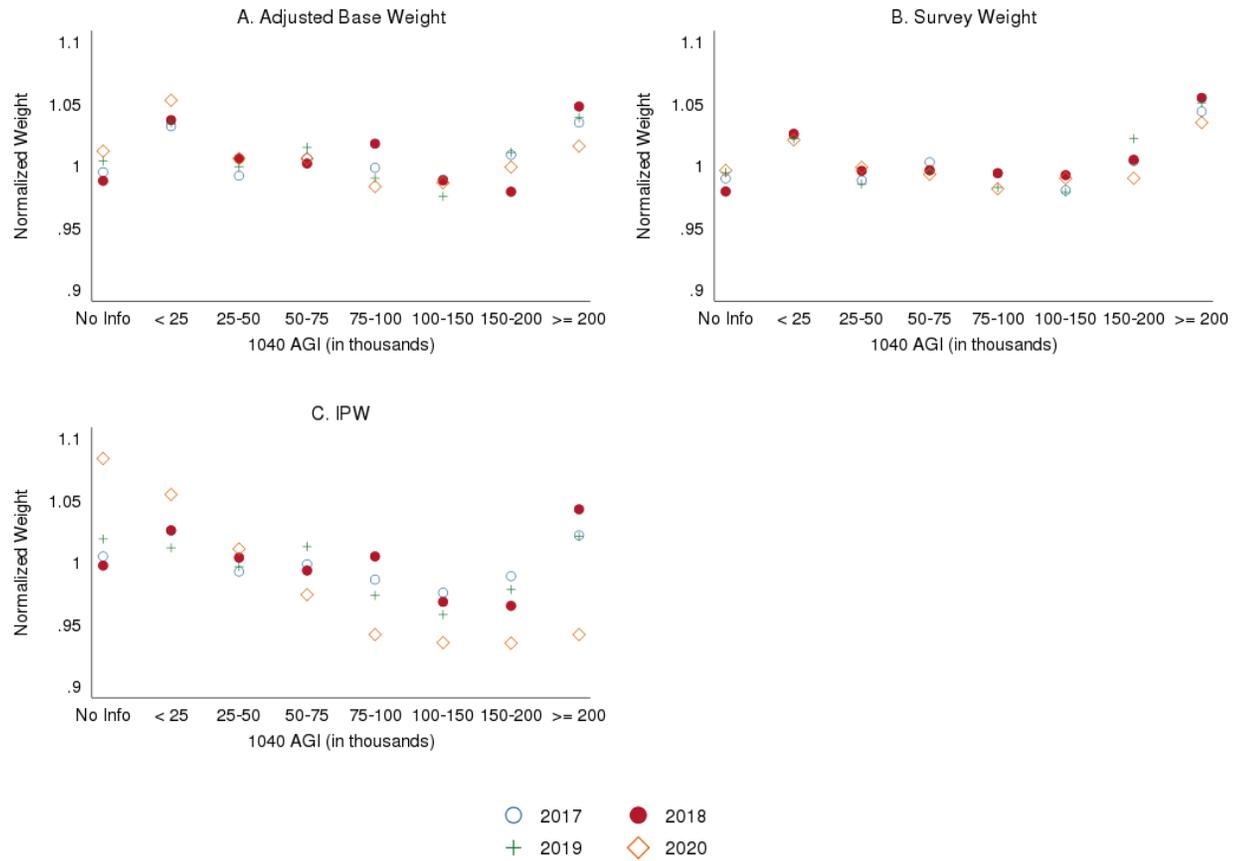
Figure 8: Weights by Total W-2 Earnings at Address for Respondent Households – Full CPS ASEC Sample



Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

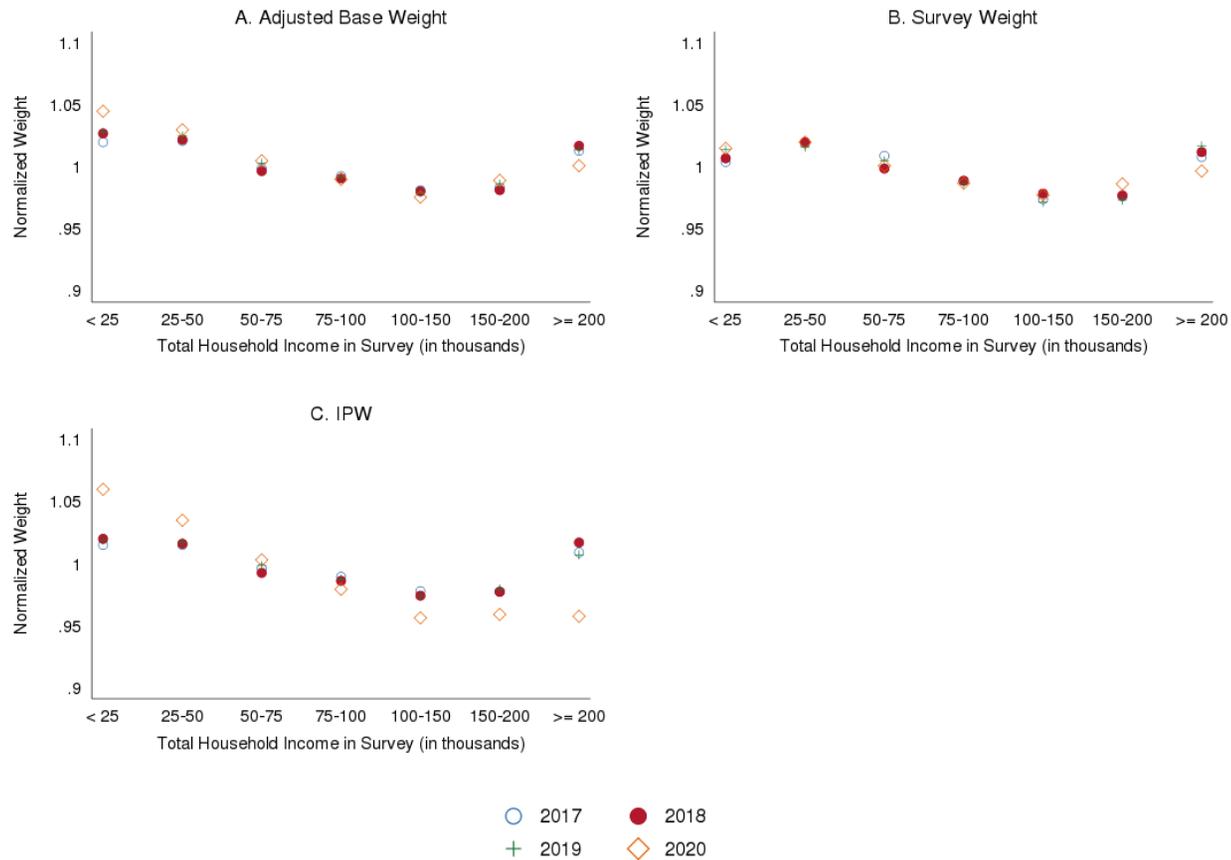
Note: This figure shows the average weight (normalized) of survey respondent households by W-2 earnings linked to individuals at the survey address. Panel A shows the base weight, which is determined by the probability of selection for each household, adjusted for oversample of Hispanic households and households with children. Panel B shows the household survey weight. Panel C shows the Inverse Probability Weight which adjusts the base weight for response using the linked administrative and survey data.

Figure 9: Weights by Total Adjusted Gross Income in Prior Year for Respondent Households – Full CPS ASEC Sample



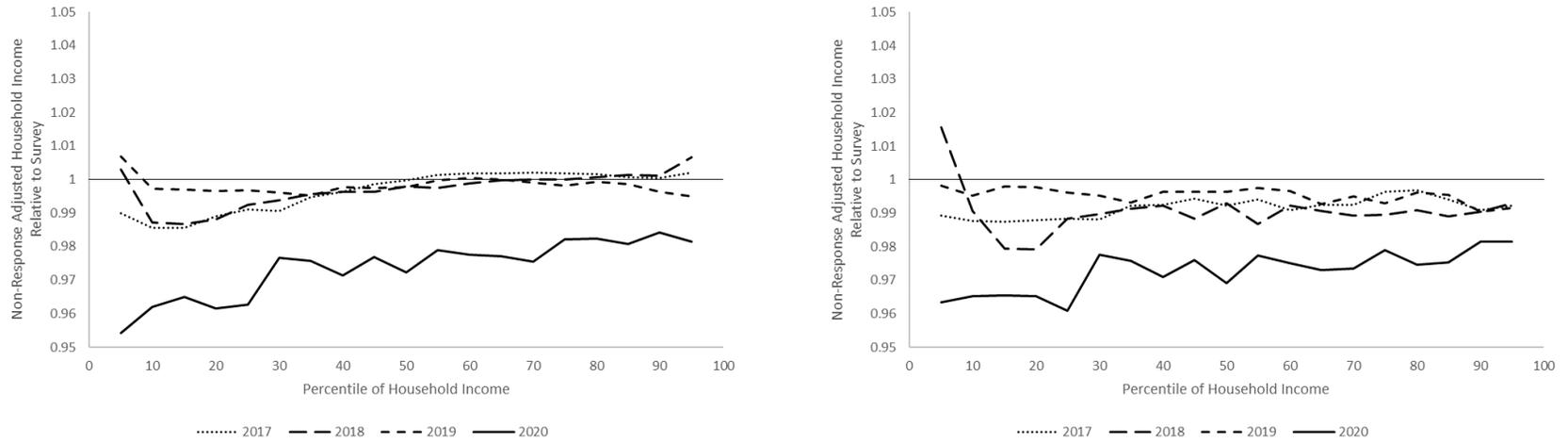
Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.
 Note: This figure shows the average weight (normalized) of survey respondent households by prior year 1040 AGI for linked individuals at the survey address. Panel A shows the base weight, which is determined by the probability of selection for each household, adjusted for oversample of Hispanic households and households with children. Panel B shows the household survey weight. Panel C shows the Inverse Probability Weight which adjusts the base weight for response using the linked administrative and survey data.

Figure 10: Weights by Survey-Reported Household Income – Full CPS ASEC Sample



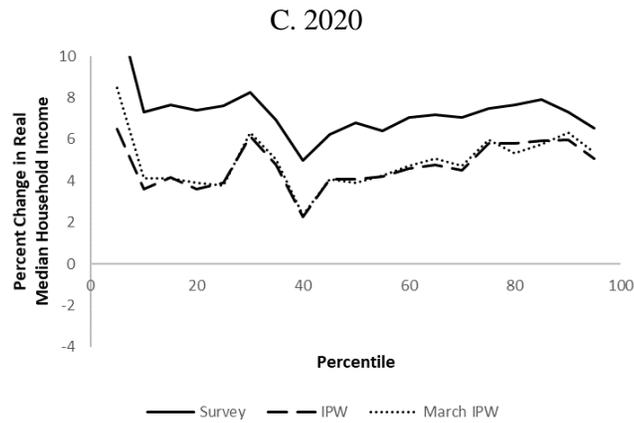
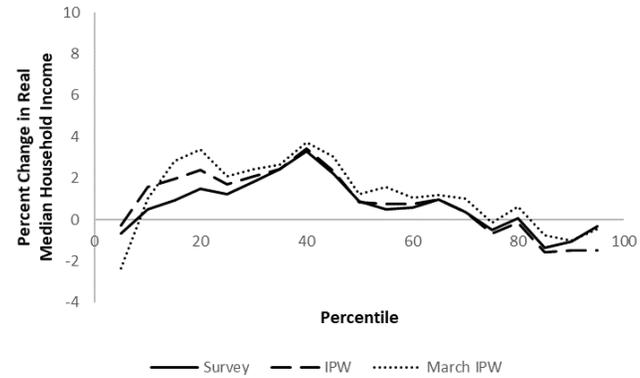
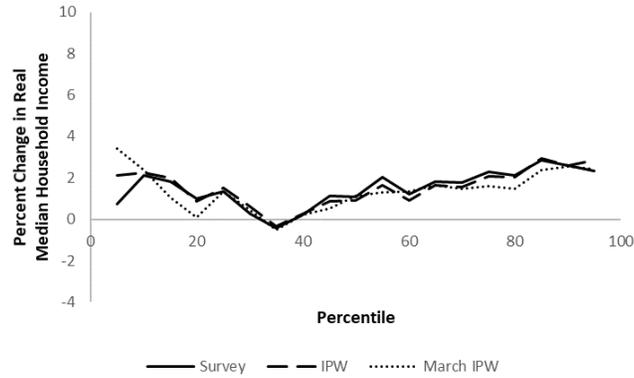
Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.
 Note: This figure shows the average weight (normalized) of survey respondent households by survey-reported household income. Panel A shows the base weight, which is determined by the probability of selection for each household, adjusted for oversample of Hispanic households and households with children. Panel B shows the household survey weight. Panel C shows the Inverse Probability Weight which adjusts the base weight for response using the linked administrative and survey data.

Figure 11: Income Estimate Relative to Survey Estimate using Alternative Weights
 A. Full CPS ASEC Sample (IPW) B. March Basic CPS (March IPW)



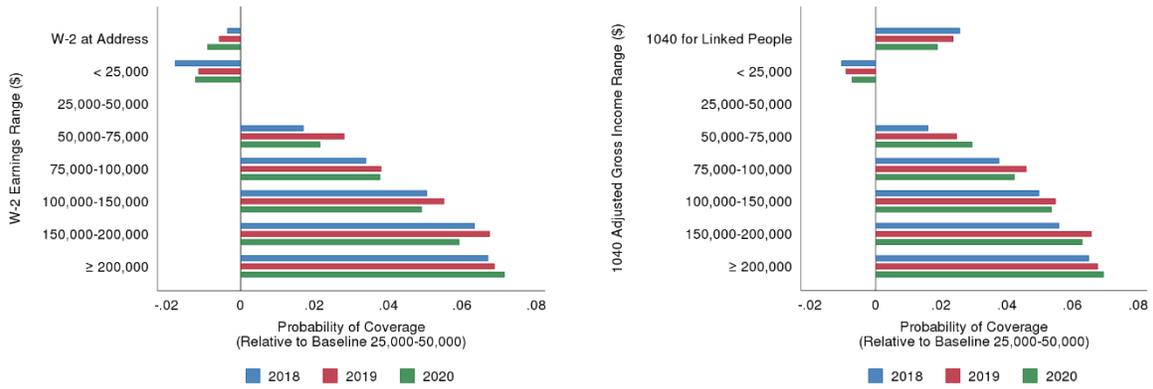
Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.
 Note: This figure shows the estimates of income using the inverse probability weights relative to the survey-weighted estimate as published in each year's Income and Poverty Report. In Panel A, the IPW estimate uses the full CPS ASEC sample in each year. In Panel B, the IPW estimate uses only the March Basic CPS sample (avoiding the challenge of adjusting the base weights for oversampling of Hispanics and households with children).

Figure 12: Year-to-Year Income Change using Alternative Weights
 A. 2018 B. 2019



Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.
 Note: This figure shows the estimates of year-to-year growth in income using survey and alternate weights. The IPW estimate uses the full CPS ASEC sample in each year, and the March IPW estimate uses the March Basic CPS sample (avoiding the challenge of adjusting the base weights for oversampling of Hispanics and households with children).

Figure 13: Survey-Reported Health Insurance Coverage by Income for Respondent Households
 A. W-2 Earnings at Address
 B. 1040 AGI at Address in Prior Year



Source: U.S. Census Bureau 2018-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This figure shows the relationship between linked W-2 earnings and 1040 AGI in the prior year and survey reported health insurance coverage at the address for respondents. The results shown come from a regression of the weighted share of individuals in the household with any reported health insurance coverage on the bins of income in the linked administrative data with no controls. In the regression, the weights used are the Full CPS ASEC IPW.

Appendix Table 1: Probability of Response by Total W-2 Earnings at Address – Full CPS ASEC Sample, MIS 1 and 5
A. No Controls

	Regression					Comparison			
	2017 (1)	2018 (2)	2019 (3)	Pooled (2017-2019) (4)	2020 (5)	2018 - 2017 (6)	2019 - 2018 (7)	2020 - 2019 (8)	2020 - Pooled (9)
Has W2	-0.01194* (0.007005)	0.003548 (0.007030)	-0.005966 (0.008147)	-0.004100 (0.004770)	0.02449** (0.009913)	0.01549* (0.009308)	-0.009514 (0.009581)	0.03046** (0.01209)	0.02859*** (0.01061)
0-25,000	0.006333 (0.008459)	-0.005160 (0.009544)	0.01685* (0.009622)	0.006051 (0.005673)	-0.007211 (0.01252)	-0.01149 (0.01120)	0.02201* (0.01322)	-0.02406 (0.01553)	-0.01326 (0.01426)
50,000-75,000	0.004984 (0.009200)	0.003998 (0.008291)	0.01503 (0.01010)	0.007920 (0.005769)	0.01584 (0.01376)	-0.0009859 (0.01216)	0.01104 (0.01239)	0.0008045 (0.01655)	0.007919 (0.01428)
75,000-100,000	0.01109 (0.009052)	-0.0003505 (0.009043)	-0.005200 (0.01135)	0.001756 (0.005977)	0.02973** (0.01391)	-0.01144 (0.01223)	-0.004849 (0.01405)	0.03493** (0.01698)	0.02797* (0.01502)
100,000-150,000	0.01352 (0.009303)	0.01359 (0.009033)	0.007591 (0.009499)	0.01119** (0.005681)	0.02879** (0.01387)	0.00007305 (0.01279)	-0.006000 (0.01195)	0.02120 (0.01702)	0.01760 (0.01507)
150,000-200,000	0.02545** (0.01169)	0.003914 (0.01172)	0.02731** (0.01319)	0.01893** (0.007431)	0.06471*** (0.01519)	-0.02153 (0.01716)	0.02340 (0.01616)	0.03739* (0.02080)	0.04578*** (0.01712)
>= 200,000	0.009259 (0.01231)	-0.001201 (0.01180)	0.01121 (0.01199)	0.006116 (0.007612)	0.07834*** (0.01425)	-0.01046 (0.01589)	0.01241 (0.01531)	0.06713*** (0.01766)	0.07223*** (0.01629)
Constant	0.8902*** (0.004071)	0.8742*** (0.003800)	0.8538*** (0.004544)	0.8719*** (0.002618)	0.6915*** (0.006221)	-0.01602*** (0.005030)	-0.02042*** (0.005763)	-0.1623*** (0.007345)	-0.1804*** (0.006621)
R-Squared	0.00	0.00	0.00	0.00	0.00				
Observations	25,500	25,000	25,500	75,500	23,500				

B. With Full Controls

	Regression					Comparison			
	2017 (1)	2018 (2)	2019 (3)	Pooled (2017-2019) (4)	2020 (5)	2018 - 2017 (6)	2019 - 2018 (7)	2020 - 2019 (8)	2020 - Pooled (9)
0-25,000	0.007096 (0.008377)	-0.004093 (0.009463)	0.01517 (0.009523)	0.006382 (0.005642)	-0.008308 (0.01266)	-0.01119 (0.01075)	0.01926 (0.01327)	-0.02348 (0.01554)	-0.01469 (0.01432)
50,000-75,000	0.005274 (0.009356)	0.001372 (0.008491)	0.01029 (0.01023)	0.005590 (0.005899)	0.01247 (0.01363)	-0.003902 (0.01246)	0.008920 (0.01251)	0.002178 (0.01667)	0.006880 (0.01418)
75,000-100,000	0.01016 (0.009501)	-0.006079 (0.009333)	-0.01262 (0.01163)	-0.003392 (0.006237)	0.02343 (0.01445)	-0.01624 (0.01250)	-0.006542 (0.01421)	0.03605** (0.01736)	0.02682* (0.01544)
100,000-150,000	0.01074 (0.009589)	0.005624 (0.009550)	-0.004055 (0.01029)	0.003428 (0.005848)	0.02160 (0.01417)	-0.005118 (0.01361)	-0.009679 (0.01315)	0.02566 (0.01773)	0.01818 (0.01543)
150,000-200,000	0.02147* (0.01207)	-0.004105 (0.01206)	0.01402 (0.01420)	0.009920 (0.007744)	0.05273*** (0.01544)	-0.02558 (0.01811)	0.01813 (0.01703)	0.03871* (0.02083)	0.04281** (0.01707)
>= 200,000	0.003828 (0.01314)	-0.009515 (0.01251)	-0.002196 (0.01294)	-0.003664 (0.008232)	0.06536*** (0.01538)	-0.01334 (0.01705)	0.007319 (0.01586)	0.06755*** (0.01950)	0.06902*** (0.01725)
R-Squared	0.01	0.01	0.01	0.01	0.02				
Observations	81,000	79,500	82,000	242,000	79,500				

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows the coefficient estimates from a regression of housing unit response on W-2 earnings at that address for respondents in Month-in-Sample 1 and 5. Month-in-Sample 1 and 5 response rates were particularly affected by the pandemic as those interviews are more likely to be conducted in person in non-pandemic years. Positive values indicate individuals in that income range are more likely to respond than the baseline group (\$25,000-\$50,000). Panel A shows the results without controls for linkage rates and available demographic and socioeconomic information (such as race, Hispanic origin, citizenship, etc.). Panel B shows the results with those controls included.

Appendix Table 2: Probability of Response by Total W-2 Earnings at Address – Full CPS ASEC Sample, Not MIS 1 and 5
A. No Controls

	Regression					Comparison			
	2017 (1)	2018 (2)	2019 (3)	Pooled (2017-2019) (4)	2020 (5)	2018 - 2017 (6)	2019 - 2018 (7)	2020 - 2019 (8)	2020 - Pooled (9)
Has W2	-0.02461*** (0.005018)	-0.01813*** (0.005658)	-0.02016*** (0.005291)	-0.02045*** (0.003120)	-0.02185*** (0.006324)	0.006486 (0.007338)	-0.002039 (0.007879)	-0.001683 (0.007732)	-0.001402 (0.006886)
0-25,000	0.01369** (0.006664)	0.01278* (0.006916)	0.02448*** (0.007263)	0.01703*** (0.003946)	0.01196* (0.007207)	-0.0009048 (0.009962)	0.01170 (0.009814)	-0.01253 (0.009699)	-0.005070 (0.007992)
50,000-75,000	-0.0008663 (0.006986)	-0.001146 (0.006689)	0.003269 (0.006568)	0.0003151 (0.003734)	0.01925*** (0.007415)	-0.0002794 (0.009224)	0.004415 (0.009925)	0.01598 (0.009846)	0.01893** (0.008231)
75,000-100,000	0.008056 (0.007226)	0.004707 (0.007236)	0.007110 (0.008682)	0.006579 (0.004388)	0.02678*** (0.007713)	-0.003349 (0.01046)	0.002403 (0.01174)	0.01967 (0.01210)	0.02020** (0.008660)
100,000-150,000	0.01548*** (0.005999)	0.005293 (0.006569)	0.01221* (0.006866)	0.01074*** (0.003825)	0.03560*** (0.007507)	-0.01019 (0.009027)	0.006920 (0.009109)	0.02339** (0.009710)	0.02487*** (0.008245)
150,000-200,000	0.03195*** (0.008186)	0.009233 (0.009077)	0.01550* (0.008823)	0.01804*** (0.005150)	0.03942*** (0.009822)	-0.02272** (0.01156)	0.006263 (0.01266)	0.02393* (0.01252)	0.02138** (0.01064)
>= 200,000	0.01734** (0.008306)	0.001976 (0.008369)	0.01748** (0.008619)	0.01236** (0.005191)	0.05185*** (0.009612)	-0.01536 (0.009916)	0.01550 (0.01217)	0.03437*** (0.01264)	0.03949*** (0.01055)
Constant	0.8699*** (0.003139)	0.8606*** (0.002702)	0.8396*** (0.002875)	0.8559*** (0.001853)	0.7857*** (0.003553)	-0.009341** (0.003846)	-0.02100*** (0.003489)	-0.05384*** (0.003955)	-0.07022*** (0.003692)
R-Squared	0.00	0.00	0.00	0.00	0.00				
Observations	55,500	54,500	56,500	167,000	56,000				

B. With Full Controls

	Regression					Comparison			
	2017 (1)	2018 (2)	2019 (3)	Pooled (2017-2019) (4)	2020 (5)	2018 - 2017 (6)	2019 - 2018 (7)	2020 - 2019 (8)	2020 - Pooled (9)
0-25,000	0.01116* (0.006731)	0.009062 (0.006748)	0.01983*** (0.007234)	0.01358*** (0.003905)	0.006080 (0.007257)	-0.002102 (0.009788)	0.01076 (0.009820)	-0.01375 (0.009757)	-0.007504 (0.008161)
50,000-75,000	-0.0007595 (0.006915)	-0.001665 (0.006695)	0.001973 (0.006561)	-0.0003306 (0.003660)	0.01743** (0.007241)	-0.0009050 (0.009197)	0.003638 (0.01003)	0.01546 (0.009844)	0.01776** (0.008054)
75,000-100,000	0.007453 (0.007258)	0.003894 (0.007366)	0.004457 (0.008891)	0.005036 (0.004378)	0.02393*** (0.007961)	-0.003558 (0.01058)	0.0005625 (0.01207)	0.01948 (0.01244)	0.01890** (0.008862)
100,000-150,000	0.01425** (0.006336)	0.003834 (0.006695)	0.007451 (0.007169)	0.008146** (0.003795)	0.03148*** (0.007240)	-0.01041 (0.009377)	0.003616 (0.009922)	0.02403** (0.009850)	0.02333*** (0.007981)
150,000-200,000	0.03091*** (0.008523)	0.006432 (0.009140)	0.01121 (0.009620)	0.01523*** (0.005177)	0.03642*** (0.009807)	-0.02447** (0.01193)	0.004779 (0.01350)	0.02521* (0.01307)	0.02119** (0.01054)
>= 200,000	0.01423* (0.008617)	-0.0008287 (0.008808)	0.01065 (0.009317)	0.007531 (0.005268)	0.04524*** (0.01014)	-0.01505 (0.01026)	0.01148 (0.01356)	0.03459*** (0.01322)	0.03771*** (0.01083)
R-Squared	0.01	0.01	0.01	0.01	0.02				
Observations	81,000	79,500	82,000	242,000	79,500				

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows the coefficient estimates from a regression of housing unit response on W-2 earnings at that address for respondents not in Month-in-Sample 1 and 5. Month-in-Sample 1 and 5 response rates were particularly affected by the pandemic as those interviews are more likely to be conducted in person in non-pandemic years.

Positive values indicate individuals in that income range are more likely to respond than the baseline group (\$25,000-\$50,000). Panel A shows the results without controls for linkage rates and available demographic and socioeconomic information (such as race, Hispanic origin, citizenship, etc.). Panel B shows the results with those controls included.

Appendix Table 3: Before Inverse Probability Weighting – Linked Data Summary Statistic Comparisons to March Basic CPS Sample

Characteristic	Full CPS ASEC Respondents - March Base Weights				March Basic CPS Respondents - March Base Weights			
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2017 (5)	2018 (6)	2019 (7)	2020 (8)
Percentage of Housing Units								
Age (At Least One Individual in Range)								
18-24	1.298*** (0.122)	1.51*** (0.125)	1.239*** (0.114)	0.962*** (0.138)	-0.014 (0.060)	-0.005 (0.067)	-0.092 (0.070)	-0.446*** (0.100)
25-34	1.326*** (0.138)	1.133*** (0.133)	0.981*** (0.135)	0.696*** (0.153)	-0.23*** (0.078)	-0.195*** (0.075)	-0.316*** (0.091)	-0.546*** (0.109)
35-44	2.845*** (0.147)	2.828*** (0.136)	2.566*** (0.144)	2.53*** (0.139)	-0.207*** (0.078)	-0.176* (0.079)	-0.209* (0.084)	-0.254* (0.106)
45-54	1.263*** (0.139)	1.537*** (0.136)	1.326*** (0.134)	1.812*** (0.153)	-0.232*** (0.085)	-0.204* (0.091)	-0.208* (0.091)	-0.009 (0.117)
55-64	-1.221*** (0.128)	-0.83*** (0.127)	-0.975*** (0.118)	0.023 (0.129)	0.17* (0.077)	0.292*** (0.085)	0.436*** (0.084)	1.187*** (0.118)
65 Plus	-2.328*** (0.127)	-1.988*** (0.146)	-1.453*** (0.124)	0.084 (0.157)	1.542*** (0.077)	1.685*** (0.081)	1.936*** (0.090)	3.321*** (0.125)
Native Born	-1.307*** (0.153)	-0.739*** (0.154)	-0.725*** (0.147)	0.775*** (0.168)	0.531*** (0.078)	0.801*** (0.090)	0.888*** (0.094)	2.422*** (0.123)
Education (Most Educated Linked Individual)								
High School Diploma	-0.174 (0.114)	0.043 (0.110)	0.205* (0.115)	0.73*** (0.136)	0.571*** (0.071)	0.66*** (0.071)	0.84*** (0.073)	1.386*** (0.109)
Bachelor's Degree	0.058 (0.078)	0.044 (0.068)	0.251*** (0.075)	0.636*** (0.083)	0.299*** (0.047)	0.29*** (0.045)	0.452*** (0.045)	0.903*** (0.068)
Graduate Degree	0.048 (0.054)	0.058 (0.048)	0.134*** (0.047)	0.329*** (0.054)	0.187*** (0.031)	0.134*** (0.029)	0.22*** (0.031)	0.406*** (0.042)
Hispanic	3.996*** (0.143)	4.056*** (0.139)	3.594*** (0.124)	3.346*** (0.134)	0.073 (0.059)	0.039 (0.066)	0.003 (0.061)	-0.365*** (0.094)
Race								
Black	1.703*** (0.133)	1.795*** (0.141)	1.4*** (0.116)	1.367*** (0.148)	-0.294*** (0.060)	-0.334*** (0.065)	-0.531*** (0.064)	-0.681*** (0.099)
White	-2.854*** (0.173)	-2.696*** (0.181)	-2.135*** (0.173)	-0.408* (0.202)	1.073*** (0.098)	1.377*** (0.099)	1.792*** (0.102)	3.475*** (0.137)
Income Statistics								
W-2 Earnings Percentile								
10th	532*** (157)	600*** (151)	443*** (165)	934*** (174)	-114 (95)	-257* (105)	-290*** (101)	22 (152)
25th	662*** (219)	679*** (202)	676*** (232)	1,926*** (260)	-47 (132)	-186 (160)	-148 (152)	778*** (178)
50th	1,965*** (324)	1,725*** (308)	1,442*** (338)	3,821*** (395)	426* (202)	93 (195)	111 (220)	1,788*** (280)
75th	2,604*** (509)	1,895*** (582)	2,002*** (570)	5,611*** (677)	995*** (332)	-41 (334)	889*** (342)	3,064*** (484)
90th	1,764* (1033)	1,444 (1045)	1,960* (1163)	7,096*** (1233)	467 (568)	-902 (585)	1,062 (658)	4,140*** (808)
1040 AGI Percentile								
10th	612*** (133)	585*** (139)	345*** (131)	1,230*** (178)	-45 (80)	18 (93)	-113 (92)	362* (146)
25th	691*** (232)	426* (193)	387* (206)	2,245*** (282)	159 (136)	70 (145)	161 (121)	1,644*** (222)
50th	783* (351)	787* (318)	1,495*** (345)	3,874*** (368)	501* (210)	257 (192)	801*** (213)	2,884*** (316)
75th	697 (577)	1,315* (537)	1,207* (624)	4,136*** (640)	900* (374)	-247 (324)	1,375*** (402)	3,801*** (453)
90th	-901 (1443)	-1,451 (1128)	-1,188 (1376)	5,807*** (1312)	619 (748)	-1,032 (680)	239 (751)	5,392*** (1015)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows various comparisons of demographic and socioeconomic summary statistics at the household level using the base weights with no adjustment for oversampling or selection into response. Each estimate is compared to those generated using the base weights on the March Basic CPS sample, including responding and nonrespondent housing units. The March Basic CPS base-weighted should best represent the distribution of the linked characteristics in the population and are therefore the target distribution for the IPW adjustment. In Columns (1)-(4), we compare estimates for respondents in the Full CPS ASEC sample to the base-weighted March Basic CPS sample. These differences reflect oversampling or selection into response. In Columns (5)-(8), we compare the estimates for respondents in the March Basic CPS sample to the baseline March Basic CPS sample. These differences reflect selection into response. Standard errors are shown in parenthesis.

Appendix Table 4: After Inverse Probability Weighting – Linked Data Summary Statistic Comparisons to March Basic CPS Sample

Characteristic	Full IPW - March Base Weights				March IPW - March Base Weights			
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2017 (5)	2018 (6)	2019 (7)	2020 (8)
Percentage of Housing Units								
Age (At Least One Individual in Range)								
18-24	0.005 (0.005)	-0.007 (0.006)	0.005 (0.006)	0.009 (0.013)	0.004 (0.043)	-0.005 (0.004)	0.005 (0.004)	0.005 (0.008)
25-34	-0.009 (0.006)	0.003 (0.008)	-0.011 (0.007)	-0.03* (0.014)	-0.005 (0.012)	0.001 (0.005)	-0.006 (0.005)	-0.018* (0.008)
35-44	-0.002 (0.006)	0.002 (0.007)	0.002 (0.008)	-0.002 (0.015)	0.001 (0.040)	0.003 (0.004)	0.003 (0.004)	-0.011 (0.008)
45-54	0.001 (0.006)	Z (0.008)	-0.004 (0.008)	0.025* (0.014)	0.002 (0.039)	0.001 (0.005)	Z (0.005)	0.015* (0.008)
55-64	0.01* (0.006)	0.01 (0.007)	0.004 (0.007)	-0.006 (0.013)	0.007 (0.011)	0.005 (0.004)	0.003 (0.004)	Z (0.008)
65 Plus	0.003 (0.005)	-0.003 (0.006)	Z (0.006)	0.014 (0.011)	Z (0.014)	-0.004 (0.004)	-0.001 (0.004)	0.008 (0.007)
Native Born	0.003 (0.006)	-0.002 (0.008)	-0.009 (0.008)	-0.026 (0.016)	-0.001 (0.013)	-0.006 (0.004)	-0.004 (0.005)	-0.025* (0.010)
Education (Most Educated Linked Individual)								
High School Diploma	0.014 (0.027)	-0.073*** (0.024)	-0.015 (0.029)	0.015 (0.045)	0.016 (0.039)	-0.039 (0.044)	-0.045 (0.044)	-0.006 (0.054)
Bachelor's Degree	0.004 (0.003)	0.001 (0.003)	-0.004 (0.003)	-0.005 (0.006)	0.004 (0.004)	0.001 (0.002)	0.001 (0.002)	-0.002 (0.004)
Graduate Degree	0.047* (0.021)	0.012 (0.023)	0.026 (0.024)	-0.002 (0.027)	0.045 (0.034)	0.07* (0.036)	0.052 (0.035)	0.049 (0.037)
Hispanic	0.002 (0.004)	-0.008 (0.005)	0.007 (0.006)	0.037*** (0.012)	0.001 (0.005)	-0.001 (0.002)	0.005 (0.003)	0.021*** (0.007)
Race								
Black	-0.012* (0.005)	-0.009 (0.006)	-0.024*** (0.008)	-0.038*** (0.013)	-0.007 (0.045)	-0.007* (0.004)	-0.016*** (0.005)	-0.019* (0.007)
White	0.022*** (0.008)	0.013 (0.008)	0.016 (0.010)	-0.007 (0.019)	0.011 (0.032)	0.007 (0.005)	0.013* (0.007)	-0.012 (0.012)
Income Statistics								
W-2 Earnings Percentile								
10th	23 (57)	-60 (58)	-37 (56)	53 (85)	-32 (99)	65 (91)	-57 (86)	Z (92)
25th	-18 (68)	6 (63)	73 (73)	92 (94)	-125 (122)	-54 (85)	-78 (96)	56 (108)
50th	10 (72)	175* (70)	-79 (79)	179* (98)	93 (122)	200* (109)	-156 (100)	72 (111)
75th	47 (129)	215 (145)	109 (148)	317* (186)	191 (216)	-87 (232)	-106 (237)	240 (243)
90th	-140 (177)	-3 (221)	-112 (209)	131 (180)	-96 (287)	179 (360)	-292 (320)	-126 (229)
1040 AGI Percentile								
10th	32 (48)	67 (54)	75 (55)	-42 (75)	85 (75)	98 (80)	31 (65)	-53 (92)
25th	36 (66)	-18 (74)	158* (69)	125 (104)	130 (93)	-224* (103)	27 (94)	51 (114)
50th	29 (18)	23 (20)	64* (33)	177* (74)	18 (14)	16 (17)	51* (24)	154* (71)
75th	136 (143)	-81 (141)	230 (160)	278* (165)	77 (215)	190 (206)	-74 (215)	54 (190)
90th	165 (311)	165 (282)	-675* (337)	-250 (404)	-151 (550)	209 (381)	-605 (462)	-792 (546)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows various comparisons of demographic and socioeconomic summary statistics at the household level after adjusting for oversampling and selection into response using inverse probability weights. Each estimate is compared to those generated using the base weights on the March Basic CPS sample, including responding and nonrespondent housing units. The March Basic CPS base-weighted estimates should best represent the distribution of the linked characteristics in the population and are therefore the target distribution for the IPW adjustment. In Columns (1)-(4), we compare estimates for respondents in the IPW-adjusted Full CPS ASEC sample to the base-weighted March Basic CPS sample. In Columns (5)-(8), we compare the estimates for respondents in the IPW-adjusted March Basic CPS sample to the baseline March Basic CPS sample. Standard errors are shown in parenthesis. Z indicates an estimate is zero or rounds to zero.

Appendix Table 5: Percentage of People by Characteristic using Survey and Alternative Weights

Characteristic	Survey Weights				IPW				March IPW			
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2017 (5)	2018 (6)	2019 (7)	2020 (8)	2017 (9)	2018 (10)	2019 (11)	2020 (12)
Race												
Asian	6.5 (0.04)	6.7 (0.05)	6.8 (0.05)	6.9 (0.05)	6.2 (0.13)	6.3 (0.14)	6.4 (0.13)	6.7 (0.15)	6.0 (0.15)	6.2 (0.16)	6.2 (0.16)	6.6 (0.18)
American Indian or Alaskan Native	2.1 (0.05)	2.1 (0.06)	2.1 (0.06)	2.0 (0.05)	2.1 (0.08)	2.1 (0.09)	2.1 (0.08)	2.0 (0.08)	1.7 (0.09)	1.8 (0.10)	1.8 (0.09)	1.7 (0.09)
Black	14.3 (0.04)	14.4 (0.05)	14.5 (0.05)	14.6 (0.05)	13.0 (0.31)	13.0 (0.23)	13.0 (0.23)	13.1 (0.24)	12.7 (0.28)	12.6 (0.24)	12.9 (0.28)	13.1 (0.27)
Hawaiian or Pacific Islander	0.5 (0.03)	0.5 (0.04)	0.6 (0.04)	0.5 (0.04)	0.5 (0.03)	0.5 (0.03)	0.5 (0.03)	0.5 (0.03)	0.5 (0.04)	0.4 (0.04)	0.5 (0.04)	0.4 (0.04)
White	79.2 (0.06)	79.1 (0.07)	79.0 (0.06)	78.9 (0.06)	80.7 (0.32)	80.8 (0.29)	80.8 (0.27)	80.4 (0.28)	81.1 (0.31)	81.3 (0.31)	81.0 (0.32)	80.6 (0.30)
Hispanic	18.0 (0.00)	18.3 (0.01)	18.5 (0.01)	18.7 (0.01)	17.7 (0.25)	17.9 (0.26)	18.6 (0.28)	18.6 (0.28)	16.0 (0.29)	16.0 (0.29)	16.5 (0.31)	16.8 (0.30)
Citizenship												
Native	86.3 (0.12)	85.9 (0.13)	85.9 (0.13)	86.2 (0.13)	87.1 (0.17)	86.8 (0.19)	86.5 (0.19)	86.5 (0.18)	87.5 (0.19)	87.2 (0.21)	87.0 (0.20)	87.0 (0.21)
Foreign-Born Citizen	6.4 (0.08)	6.8 (0.09)	6.9 (0.09)	7.0 (0.09)	5.9 (0.09)	6.3 (0.10)	6.4 (0.11)	6.6 (0.11)	5.9 (0.10)	6.1 (0.12)	6.3 (0.12)	6.5 (0.13)
Non-citizen	7.3 (0.09)	7.3 (0.10)	7.3 (0.11)	6.8 (0.10)	6.9 (0.12)	6.9 (0.12)	7.1 (0.14)	6.8 (0.12)	6.6 (0.14)	6.7 (0.14)	6.7 (0.15)	6.5 (0.15)
Education												
< High School	10.4 (0.12)	10.2 (0.12)	9.9 (0.12)	9.1 (0.13)	10.8 (0.14)	10.7 (0.14)	10.4 (0.15)	9.8 (0.14)	10.3 (0.17)	10.0 (0.16)	9.8 (0.17)	9.2 (0.17)
High School	28.8 (0.21)	28.5 (0.20)	28.1 (0.21)	27.6 (0.20)	28.8 (0.19)	28.5 (0.19)	28.3 (0.19)	28.0 (0.20)	29.3 (0.22)	28.9 (0.23)	28.6 (0.23)	28.2 (0.23)
Some College	26.6 (0.17)	26.3 (0.16)	25.9 (0.19)	25.8 (0.17)	26.8 (0.17)	26.4 (0.17)	26.0 (0.19)	26.0 (0.17)	26.6 (0.20)	26.3 (0.20)	26.1 (0.20)	26.2 (0.19)
Bachelor's	21.3 (0.16)	21.9 (0.18)	22.6 (0.18)	23.4 (0.18)	21.0 (0.15)	21.5 (0.18)	22.0 (0.17)	22.5 (0.18)	21.1 (0.18)	21.7 (0.20)	22.2 (0.20)	22.6 (0.21)
Advanced Degree	12.8 (0.15)	13.1 (0.15)	13.5 (0.14)	14.1 (0.14)	12.7 (0.14)	12.9 (0.15)	13.3 (0.15)	13.7 (0.15)	12.8 (0.18)	13.1 (0.17)	13.4 (0.16)	13.8 (0.19)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows various demographic and socioeconomic summary statistics at the household level using the survey weights and IPW. In Columns (1)-(4), we show estimates using the official survey weights. In Columns (5)-(8), we show estimates using the IPW with the full CPS ASEC sample in each year. In Columns (9)-(12), we show the estimates using the IPW with only the March Basic CPS sample (avoiding the challenge of adjusting the base weights for oversampling of Hispanics and households with children). Standard errors are shown in parenthesis.

Appendix Table 6: Comparisons of Percentage of People by Characteristic using Survey and Alternative Weights

Characteristic	IPW - Survey				March IPW - Survey			
	2017 (1)	2018 (2)	2019 (3)	2020 (4)	2017 (5)	2018 (6)	2019 (7)	2020 (8)
Race								
Asian	-0.31** (0.14)	-0.38*** (0.14)	-0.42*** (0.13)	-0.21 (0.15)	-0.51*** (0.16)	-0.46*** (0.16)	-0.62*** (0.16)	-0.32* (0.18)
American Indian or Alaskan Native	-0.04 (0.06)	-0.06 (0.06)	-0.03 (0.06)	-0.05 (0.06)	-0.40*** (0.07)	-0.31*** (0.07)	-0.29*** (0.07)	-0.31*** (0.06)
Black	-1.32*** (0.31)	-1.38*** (0.23)	-1.49*** (0.23)	-1.44*** (0.24)	-1.58*** (0.28)	-1.79*** (0.24)	-1.57*** (0.27)	-1.53*** (0.27)
Hawaiian or Pacific Islander	-0.05*** (0.02)	-0.08*** (0.02)	-0.08*** (0.02)	-0.06** (0.02)	-0.07*** (0.03)	-0.09*** (0.03)	-0.09*** (0.03)	-0.08** (0.04)
White	1.51*** (0.31)	1.68*** (0.27)	1.80*** (0.26)	1.45*** (0.27)	1.91*** (0.30)	2.18*** (0.30)	2.02*** (0.31)	1.71*** (0.30)
Hispanic	-0.29 (0.25)	-0.43* (0.26)	0.07 (0.28)	-0.06 (0.28)	-2.05*** (0.29)	-2.33*** (0.29)	-2.03*** (0.31)	-1.92*** (0.30)
Citizenship								
Native	0.82*** (0.14)	0.81*** (0.14)	0.63*** (0.15)	0.35** (0.16)	1.21*** (0.16)	1.22*** (0.17)	1.15*** (0.17)	0.80*** (0.19)
Foreign-Born Citizen	-0.44*** (0.07)	-0.47*** (0.08)	-0.47*** (0.08)	-0.36*** (0.09)	-0.53*** (0.09)	-0.64*** (0.10)	-0.61*** (0.10)	-0.52*** (0.11)
Non-citizen	-0.38*** (0.09)	-0.34*** (0.08)	-0.16* (0.09)	0.01 (0.10)	-0.68*** (0.12)	-0.58*** (0.11)	-0.54*** (0.12)	-0.28** (0.13)
Education								
< High School	0.40*** (0.08)	0.53*** (0.09)	0.49*** (0.09)	0.73*** (0.09)	-0.14 (0.12)	-0.15 (0.12)	-0.14 (0.12)	0.13 (0.12)
High School	0.01 (0.10)	-0.01 (0.10)	0.19** (0.09)	0.36*** (0.10)	0.44*** (0.14)	0.43*** (0.14)	0.45*** (0.13)	0.59*** (0.14)
Some College	0.12 (0.08)	0.07 (0.08)	0.07 (0.08)	0.23*** (0.08)	-0.02 (0.11)	-0.03 (0.12)	0.15 (0.11)	0.38*** (0.12)
Bachelor's	-0.36*** (0.08)	-0.42*** (0.08)	-0.52*** (0.09)	-0.91*** (0.10)	-0.22* (0.12)	-0.25** (0.11)	-0.34*** (0.13)	-0.77*** (0.14)
Advanced Degree	-0.17** (0.07)	-0.17** (0.07)	-0.22*** (0.07)	-0.41*** (0.08)	-0.06 (0.10)	0.00 (0.10)	-0.13 (0.10)	-0.33*** (0.12)

Source: U.S. Census Bureau 2017-2020 Current Population Annual Social and Economic Supplement linked to administrative and survey data.

Note: This table shows comparisons of the various demographic and socioeconomic summary statistics at the household level shown in Table 8.1. In Columns (1)-(4), we compare the full-sample IPW estimates to the survey. In Columns (5)-(8), we compare the March IPW estimates to the survey. Standard errors are shown in parenthesis. ***, **, and * indicate statistical significance at the 1-, 5-, and 10-percent levels respectively.