

Updating the Current Population Survey Processing System and Bridging Differences in the Measurement of Poverty

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Abstract

The Annual Social and Economic Supplement (ASEC) to the Current Population Survey (CPS) is the official source of poverty estimates for the United States. In 2014, the Census Bureau introduced redesigned income questions, followed by changes beginning in 2015 to allow spouses and unmarried partners to specifically identify as opposite- or same-sex. While data *collection* methods reflected these changes immediately, data *processing* changes to take advantage of this new content have only recently been finalized.

In September of 2019, the Census Bureau will release income and poverty estimates in the annual report *Income and Poverty in the United States: 2018* where, for the first time, income and poverty measures will reflect these methodological changes.

This paper will compare poverty estimates for calendar year 2016 across the production and research files of the CPS ASEC, evaluating the incremental impact of changes in both the demographic and income content on poverty rates across demographic groups. Presenting this research at the April meeting of the Population Association of America allows data users to understand the motivation, impact, and interpretation of these data processing changes on estimates of income and poverty in the United States.

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¹ The Census Bureau reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied to this release. DRB-FY19-ROSS-B0090. This paper is released to inform interested parties of ongoing research and to encourage discussion of work in progress. The views expressed on methodological or operational issues are those of the authors and are not necessarily those of the U.S. Census Bureau. Any error or omissions are the sole responsibility of the authors. All data are subject to error arising from a variety of sources, including sampling error, non-sampling error, modeling error, and any other sources of error. For further information on data collection, statistical standards, and accuracy, see <<https://www.census.gov/programs-surveys/cps/technical-documentation.html>>.

1. Measuring Income and Poverty in the Current Population Survey

The Current Population Survey (CPS) is a monthly, nationally representative household survey sponsored by the Bureau of Labor Statistics (BLS) and collected by the U.S. Census Bureau (Census). The survey is designed to capture data on widely used labor force estimates, namely the monthly unemployment rate. It is one of the oldest, largest, and most well recognized surveys in the United States.

The CPS Annual Social and Economic Supplement (ASEC) is sponsored by both Census and BLS. The CPS ASEC is fielded February through April of each year, with questions that capture the receipt and value of 51 sources of income over the previous calendar year, as well as non-cash benefits such as the Supplemental Nutrition Assistance Program, subsidized school lunches, and housing assistance.² The CPS ASEC also collects data on household composition, family characteristics, and person level demographics at the time of interview.

In addition to serving as a premier source of national estimates on income and earnings, the CPS ASEC provides a historical time series for these estimates going back to 1959. As such, the CPS ASEC serves as the sole source of historical U.S. poverty estimates and—as established by the Office of Management and Budget (OMB) in Statistical Policy Directive 14—is the source of official national poverty estimates for use by the Federal Government.³

Census, as directed by the OMB directive, measures annual poverty in the CPS ASEC by comparing families' pre-tax cash income to a set of annual thresholds that vary by family size and composition.

Information on the source and amount of money income received in the previous calendar year is collected from each CPS ASEC respondent aged 15 or older. Appendix Table 1 lists the sources of income that apply towards meeting a family's poverty threshold, this includes earned income; Social Security, pension and retirement income; cash assistance; and investment income. All income is reported in the CPS ASEC as gross receipt, prior to any tax withholdings or credits.

The definition of a family for the purpose of determining poverty status has remained unchanged since the initial development of the official poverty measure. Families are defined as a group of two or more people residing together in a household who are related by birth, marriage, or adoption. This classification of families within households is a critical component in the measurement of poverty, as poverty status is determined at the family level—based on comparing total family income to an assigned threshold that varies only by family size and composition. In

² Data collected on income are then collapsed into 27 variables.

³ See <<http://www.census.gov/hhes/povmeas/methodology/ombdir14.html>> for additional details on Statistical Policy Directive 14.

2016, the poverty threshold for a four-person family with two children was \$24,339. Poverty thresholds are adjusted annually based on the Consumer Price Index for All Urban Consumers (CPI-U).

2. Changes in the Collection and Processing of CPS ASEC Data

In an effort to improve the collection and quality of income and program participation data, in 2011 Census contracted with Westat Inc. and Mathematica to review the CPS ASEC questionnaire. The resulting report, “Cognitive Testing of Potential Changes to the Annual Social and Economic Supplement of the Current Population Survey,” suggested survey design changes to improve data quality by limiting the misreporting of income amounts and reducing item nonresponse rates and respondent fatigue. Cognitive testing also led to recommendations for specific improvements on the reporting income by source; namely to improve the reporting of retirement income from accounts outside of Social Security or defined benefit pensions (such as Individual Retirement Account (IRA) and 401(k) accounts) and to better clarify questions on asset income such as interest and dividends (Semega & Welniak 2013).

Additionally, following efforts of the Interagency Working Group on Measuring Relationships in Federal Household Surveys⁴ organized by OMB, as well as the federal recognition of same-sex marriage in 2013, the Census Bureau has worked to evaluate, test, and implement new relationship categories to improve the measurement of same-sex couples in demographic surveys (Kreider et al. 2017; Kreider & Lofquist 2015).

2a. Income

To incorporate the recommendations proposed by Westat Inc. and Mathematica, Census redesigned the income portion of the CPS ASEC electronic data collection instrument. We summarize changes in developing new question wording, order, skip patterns, and data editing techniques in this section.⁵

A “dual-pass” approach was incorporated into the data collection instrument for all income except wages and self-employment earnings, meaning questions on reciprocity and income sources were separated from the questions on amounts. This change was intended to prevent respondent fatigue from affecting income responses. For example, when reporting amounts immediately after reciprocity, respondents may learn that follow-up questions can be avoided by answering “no” to the initial reciprocity question. Additionally, the order of the income sources asked in the dual-pass model were tailored to prioritize income sources that were most likely to be reported based on

⁴ See the interagency statistical policy working paper at <https://s3.amazonaws.com/sitesusa/wp-content/uploads/sites/242/2014/04/MRFHS_StatisticalPolicyWorkingPaper201408.pdf>.

⁵ See Semega and Welniak (2013) for more detailed description.

respondent characteristics (Semega & Welniak 2013). For respondents unwilling or unable to provide a value for a given income source, unfolding brackets are used to narrow in on range amounts.

Additionally, the family income screener was removed for questions on means-tested benefits and income. Prior to the redesign, only households that reported less than \$75,000 in combined family income were asked questions about means-tested transfer programs, such as Temporary Assistance to Needy Families (TANF) and the Supplemental Nutrition Assistance Program (SNAP). This change was the result of research showing that households that qualified for benefits were being incorrectly screened out of receiving the questions (Semega & Welniak 2013; Stevens, Fox, & Heggeness 2018).

Question text was also modified to help eliminate confusion between disability income from Social Security (SSDI) and means-based transfers through Supplemental Security Income (SSI). For respondents who report disability income, lump-sum back payments are now collected. When collecting retirement income, under-reporting is addressed through the redesigned income questions. This includes additional questions on interest from various types of savings instruments as well as withdrawals and distributions from defined-contribution retirement accounts, such as 401(k)s. If respondents were unsure of income received from an interest- or dividend-bearing account, they were asked to provide information on asset values from which interest income could be imputed.

As illustrated in Figure 1, the above changes were incorporated into the 2014 CPS ASEC, referring to reference year 2013, through a probability split panel design.⁶ Of the approximately 98,000 households surveyed in the 2014 CPS ASEC, 30,000 addresses were randomly assigned to receive the redesigned income questions. The remaining 68,000 sampled households received the traditional income questions consistent with prior years.⁷ In the 2015 CPS ASEC, reference year 2014, the entire sample received the redesigned income questions and this has been the case for all subsequent CPS ASEC data collections.

While the CPS ASEC data *collection* instrument reflects these changes to the survey instrument, the data *processing* system required a code re-write in order to take advantage of the new survey content. Data collected from the redesigned CPS ASEC instrument was formatted to match the traditional survey instrument in order to not delay the annual *Income and Poverty in the United States* report and related data tabulations and research files. The Census Bureau has yet to publish

⁶ An earlier nationwide test of the redesigned income questions was conducted by telephone for 23,000 sampled addresses in March of 2013.

⁷ All sampled households received redesigned health insurance questions. Since health insurance coverage does not impact the assignment of poverty status, the impact of these question changes are not discussed here. For additional details, see <<https://www.census.gov/content/dam/Census/library/working-papers/2014/adrm/rsm2014-02.pdf>>.

estimates in the *Income and Poverty in the United States* report series that incorporate new editing procedures to take advantage of the redesigned income questions.

Evaluations of data collected using the redesigned income questions (edited with the existing processing system) show overall median household income in 2013 was 3.2 percent higher in the sample receiving the redesigned questions, although these impacts varied across demographic groups. There was no statistically significant impact on poverty rates for 2013 across the split panel design (DeNavas-Walt & Proctor 2015). The 2014 CPS ASEC questionnaire redesign has been treated by the Census Bureau as a “break-in series.” The Census Bureau published dual estimates of income and poverty for 2013 across the split panel samples, allowing data users to compare both backwards and forwards from reference year 2013, as illustrated in Figure 1.

2b. Families

In 2010, OMB established the Interagency Working Group on Measuring Relationships in Federal Household Surveys to address challenges in measuring household relationships, including same-sex couples. Given that changes in the reporting of household relationships would have far-reaching implications across the federal statistical system, the OMB working group included approximately 30 representatives across the federal government. Cognitive testing as well as quantitative tests in the Survey of Income and Program Participation (SIPP), American Community Survey (ACS), American Housing Survey (AHS), and Decennial Census Tests found that expanding relationship answer categories to reference specific opposite- or same-sex relationships did not lead to a discernable impact on non-response rates or the distribution of unmarried partners relative to married couples. The alignment of reported sex with relationship status is confirmed through automated data collection checks, given the outsize impact of reporting error on this small population group (Kreider et al. 2017). Census has since updated relationship categories to include explicit opposite-sex and same-sex married and unmarried partner classifications in the SIPP, and expects to incorporate these changes in the 2019 ACS and 2020 Decennial Census.

Beginning in May 2015, the Census Bureau began phasing in changes to the reporting of household relationships in the basic CPS in order to better identify same-sex married couples and unmarried partners. As shown in Appendix Table 2, relationship categories were expanded to better clarify reporting of opposite- and same-sex couples in order to reduce potential misreporting across sex and relationship status, which would disproportionately distort measurement of the relatively small population of same-sex married couples.

As discussed in detail by Edwards and Lindstrom (2017), same-sex survey respondents have always had the ability to report themselves as married in the CPS ASEC. However, prior to 2010, these responses were edited during data processing to convert the sex of one of the respondents so

that they were classified as opposite-sex married couples.⁸ In 2010, in order to better measure the presence of same-sex couples, data processing rules were changed and same-sex married couples were recoded to same-sex unmarried partners (Lofquist & Ellis 2011). This brought the CPS in line with the editing practices of other major demographic surveys. By changing respondents' relationship status to unmarried partners, poverty rates for these couples were assigned based on their separate family status.

Because much of the processing of survey responses references the concept of a “husband” or a “wife,” extensive revisions to products for multiple content areas were necessary to refer to the new relationship categories and gender-neutral parent identifiers. Like the changes to the income questions on the CPS ASEC, the Census Bureau did not immediately implement new data editing procedures based on changes to the questionnaire, instead continuing to reassign same-sex married couples as unmarried partners and recoding responses into the earlier relationship categories (Ortman 2017). Given that relationship status is often used when imputing missing data on income or program receipt and amounts, changes to the reporting and processing of respondents' family relationships may directly impact personal income, in addition to impacting family income among same-sex respondents who were previously reassigned as unmarried partners.

3. Methods and Data

As illustrated in the implementation timeline shown in Figure 1, in January 2019, the Census Bureau released a public use research file of the 2017 CPS ASEC reflecting the updated processing system.⁹ The 2017 CPS ASEC research file has undergone more limited review than typical Census products, and as such was released as a research file in order to more quickly solicit feedback from data users. The 2017 CPS ASEC research file allows external researchers to better understand new variables created by the updated processing system and to evaluate how 2016 income and poverty estimates compare to those previously published from what is now referred to as the 2017 CPS ASEC production file. The Census Bureau plans a subsequent release, in spring of 2019, of the 2018 CPS ASEC bridge file that will include estimates for calendar year 2017 and will reflect feedback and improvements identified from the 2017 CPS ASEC research file. In September of 2019, the Census Bureau will release data from the 2019 CPS ASEC, which for the first time will incorporate the updated processing system in the initial release of income and poverty estimates for reference year 2018. Year-to-year comparisons in that report will use estimates for 2017 derived from the 2018 bridge file.

To prepare data users for the changes that will be reflected in the September 2019 report *Income and Poverty in the United States: 2018*, this paper presents estimates of poverty from the 2017

⁸ Under these editing rules, the couple's poverty status was unaffected as they were still classified as a single family given their relationship by marriage, although their identification as a same-sex married couple was lost.

⁹ Available at <<https://census.gov/data/datasets/time-series/demo/income-poverty/data-extracts.html>>.

CPS ASEC research file for reference year 2016. Our analysis compares estimates across the production and research file, measuring the incremental and combined effect of the new income and family processing system updates on estimates of national poverty. Comparisons of poverty rates using the production file and research file are tested for significant differences, noted at the 90 percent confidence level unless otherwise stated.

As a supplement to the monthly or “basic” CPS, the ASEC sample begins with eligible households included in the March CPS sample, approximately 74,500 eligible households in 2017. Additional households are drawn for the ASEC sample from the prior February and following April CPS samples. These additional sampled households are designed to provide more reliable data for Hispanic households, non-Hispanic minority households, and non-Hispanic White households with children 18 years or younger.¹⁰ Including the basic March CPS sample, approximately 95,000 housing units were in sample for the 2017 ASEC. About 80,900 housing units were determined to be eligible for interview and approximately 70,000 household interviews were obtained. When determining poverty status, the universe is restricted to exclude individuals living in institutional group quarters,¹¹ and unrelated individuals under age 15. There are approximately 185,600 individuals in the 2017 CPS ASEC production file poverty universe, weighted to represent around 319.9 million individuals.¹²

However, with the research file, the number of individuals included in the 2017 ASEC poverty universe varies slightly. Around 0.01 percent of individuals processed using the production file were no longer eligible to be included in the research file sample, while a comparable 0.01 percent of individuals processed in the research file were not included in the production file estimates. This is the result of changes in the edited demographic data which resulted in some households moving in or out of the ASEC or poverty universe.

Given small differences in the sample composition, as well as changes to some respondent’s demographic characteristics, sample weights were recalculated for all respondents processed in the research file. The method for calculating sample weights is consistent with past procedures, with weights controlled to independent population estimates of the U.S. civilian noninstitutionalized population in regards to age, sex, and race/Hispanic origin.¹³

¹⁰ For more information about the households eligible for the CPS ASEC, please refer to Technical Paper 66, Current Population Survey: Design and Methodology, U.S. Census Bureau, U.S. Department of Commerce, 2006, <www.census.gov/prod/2006pubs/tp-66.pdf>

¹¹ Institutional group quarters may include correctional facilities, nursing homes, hospitals, etc.

¹² For additional technical documentation on the 2017 CPS ASEC sample, see <<https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar17.pdf>>.

¹³ Since survey weights are designed to control for demographic characteristics, the use of weights in this research is dependent on the demographic data being used. For estimates based on production file demographic edits, production weights are used. Revised weights are used for estimates based on the research file demographic edits incorporating same-sex married couples.

To measure the incremental impact of changes to the editing of personal income, we hold family assignments, demographic characteristics, and poverty thresholds constant in the production file and reassign poverty status based on revised family income values. Alternatively, holding personal income constant, but aggregating to the revised family level and comparing to poverty thresholds based on new family assignments provides the isolated impact of the updated demographic edits. In these cases, the sample is limited to individuals included in both the production and research files.¹⁴

4. Findings

4a. Overall Impact of the Research File Processing Changes

Table 3 presents the full comparison between the 2017 CPS ASEC production and research files. We see no significant change in either the number or percent of people in poverty when fully implementing both the demographic and income revisions in the research file compared to the production file; although the rounded estimates of the poverty rate appear to vary by a tenth of a percentage point. We do however find significant changes in some poverty rates when using the research file by select demographic characteristics, including family status, Hispanic origin, age, geographic region and residency, and educational attainment, as illustrated in Figure 2.

By family status, individuals in opposite-sex married-couple families and those living in families with a male-householder, no spouse present, saw increases in both the number and percent of individuals in poverty in the research file, with those in male-headed families having larger increases in poverty rates than those in opposite-sex married families. There was a significant decline in the number of individuals in poverty from female-householder, no spouse present families, a decline of 291,000 individuals primarily driven by changes in the classification of families in the demographic edit, but poverty rates among this group remained statistically unchanged.

None of the racial groups included in Table 3 experienced significant changes in either the number or percentage of people in poverty across processing systems, although there were significant increases in poverty rates for Hispanics, a function of the changes to the income edits rather than demographic or family composition changes.

By age group, we find no significant changes in poverty rates for those under age 18, as well as for those aged 18 to 64, although the isolated impact of the updated demographic edit led to significant declines in poverty among the working-age population. Among those aged 65 or older, the research file increases the number of elderly in poverty by 331,000 individuals, a 0.7

¹⁴ Some differences in the count of cases in the matched sample arise because individuals may not consistently be in the poverty universe under different family assignments.

percentage point increase driven by changes in the reporting and processing of income sources and amounts.

Across regions and metropolitan areas, we find increases in both the number and percent of people living in poverty among those in the South and living outside of Metropolitan Statistical Areas (MSAs). Poverty rates for those living in the South increased by 0.4 percentage points, to a rate of 14.4 percent, reflecting conflicting results across the demographic edit (which lowered poverty rates) and the income edits (which increased poverty rates). Poverty rates for those living outside MSAs rose by 0.5 percentage points, to 16.3 percent, driven exclusively by changes in the editing of personal income.¹⁵

Individuals aged 25 and older with less than a high school diploma saw their poverty rates increase by an additional 1.1 percentage points, to a rate of 25.9 percent, a change attributed to updates in the processing of income rather than changes in family assignments in the demographic editing procedure.

Alternatively, individuals with advanced education including a bachelor's degree or higher—who already had among the lowest poverty rates in the production file—were the only demographic group to see statistically significant declines in poverty rates when implementing the new processing system. Among those with at least a bachelor's degree, the number of individuals in poverty as calculated using the new processing system declined by 153,000 individuals, a 0.2 percentage point decline in poverty rates. Declines in poverty rates are due to the updated demographic editing system, as the assignment of same-sex married couples into single-family units disproportionately impacted individuals in this educational attainment class.

In results not formally presented in the paper, we investigate poverty rates across the two files at select income-to-poverty ratios. Overall, there is no statistically significant change in the percent of people with incomes below 50 percent of their poverty threshold, while some demographic subgroups experience statistically significant changes. Likewise, there was not a statistically significant change in the overall percent of individuals with incomes below 150 percent of their poverty threshold though there were some statistically significant changes for subgroups.

The next step is to decompose these changes in poverty by two affected components of the CPS ASEC redesign: demographics and income.

¹⁵ Increases in poverty rates in the research file for those living in the South (0.4 percentage points) were not statistically different from increases for those living outside MSAs (0.5 percentage points), however the resulting poverty rate in the research file for those living outside MSAs (16.3 percent) is higher than poverty rates in the South (14.4 percent).

4b. Incremental Impacts of CPS Redesign: Demographics

Figure 2 shows how poverty rates change between the production and research files in aggregate, as well as the incremental impacts of the demographic and income edits. We first look at the demographic edits, their effect on how same-sex married-couple families are classified between the two files, and how poverty changes for this and other demographic groups holding personal income constant across the two files.

In calendar year 2016, approximately 937,000 individuals reported being in a same-sex marriage. As shown in Table 4 individuals in same-sex marriages were more likely to be female, with women composing 58.7 percent of individuals in same-sex marriages. Unlike individuals in opposite-sex marriages who have an older age distribution than the total adult population, those in same-sex marriages skew younger. Only 10.5 percent of individuals in same-sex marriages were aged 65 or older, compared to 22.1 percent of opposite-sex married couples, and 20.0 percent of the total adult population. While individuals in opposite-sex marriages are more likely than the general population (aged 25 and over) to have received an education culminating in a bachelor's degree or higher, this difference is dramatically more pronounced for individuals in a same-sex marriage. In 2016, 53.0 percent of individuals in same-sex marriages reported receiving at least a bachelor's degree, compared to a rate of 34.2 percent among the general population and 38.7 percent among those in opposite-sex marriages. These differences in educational attainment help to explain variation in personal income based on marital status. In 2016, 15.6 percent of adults aged 18 and older had annual income greater than \$75,000, while this high-income population increases to 25.0 percent among those in same-sex marriages, not statistically different from the proportion of high income individuals among the opposite-sex married population.¹⁶

By treating respondents who report being in a same-sex marriage as unmarried partners in the production file, poverty rates among this population vary dramatically from those who report being in an opposite-sex marriage. In 2016, poverty rates for individuals who reported being in a same-sex marriage (but who, under production file editing procedures, were treated as separate family units) had a poverty rate of 12.5 percent, a full 7.3 percentage points higher than individuals in opposite-sex marriages.

4c. Poverty Changes Stemming from Demographic Edits

The poverty rate for individuals in same-sex marriages (holding personal income constant) declines from 12.5 percent to 3.6 percent when implementing the updated demographic processing system to maintain same-sex married couples as related family members. This is not statistically different from the poverty rate for those in opposite-sex marriages.

¹⁶ Income estimates are based on the 2017 CPS ASEC research file, incorporating updates for both demographic and income processing.

A total of 1.2 million people lived in same-sex married-couple families, comprising 0.5 percent of all individuals living in families.¹⁷ Among individuals living in same-sex married-couple families, poverty rates fell from 14.8 percent when estimated using the production 2017 CPS ASEC, to a rate of 5.4 percent when implementing updated demographic edit procedures while holding personal income constant.¹⁸

As shown in Table 5, the overall impact of these changes is limited by the small population affected. Poverty rates decline 0.05 percentage points, with approximately 150,000 individuals no longer in poverty when including same-sex spouses in the family unit and holding income at its production file level. While this change is statistically significant at the hundredth decimal place, point estimates of the poverty rate are consistent when rounded to the tenth decimal place.¹⁹

The impact of the updated family edits across population groups is largely as expected given the characteristics of the same-sex married population from Table 4. As shown in Table 5 and Figure 2, declines in poverty are observed for females, individuals aged 18 to 64, and those with a bachelor's degree or higher. Additional declines in poverty are observed for those living in MSAs, where 91.6 percent of same-sex married couples reside, as well as among the native born, which describes 85.7 percent of individuals in same-sex marriages.

Changes in poverty rates across family types observed in Table 5 reflect the complicated movement of individuals' family classification across files. As shown in Table 4, of the 937,000 individuals in same-sex marriages, only 19.2 percent had been listed as having any related family members in the production file. As such, the total number of individuals living without relatives in the household (unrelated individuals) declines from 58.8 to 58.0 million individuals when using the research file, with the majority of this decline (730,000 individuals) reflecting movement into same-sex married-couple families. Figure 3 illustrates the movement of individuals across family classifications when implementing the updated demographic edit. In addition to the 730,000 individuals who were previously classified as unrelated individuals, 321,000 individuals newly classified as living in same-sex married families were formerly classified as living in female-householder, no spouse present families, while 90,000 had been classified as living in male-householder, no spouse present families.

While there are resulting declines in the number of individuals in poverty for both unrelated individuals and those in female-headed, no spouse present families, the impact on poverty rates is

¹⁷ Note, individuals who report being in a same-sex marriage may be classified as living in other family types if another family member is listed as the householder.

¹⁸ Note, Table 5 compares poverty rates for individuals based on their family and demographic characteristics across the respective CPS ASEC production and research files. Because individuals in same-sex married families in the research file were in different family classifications in the production file, direct comparisons for this population are not shown in Table 5. Figure 3 illustrates how individuals change family types across files.

¹⁹ Given the small population of individuals who are reassigned to family units based on the reporting of a same-sex marriage, statistical tests across estimates are biased towards Type I error, that is, falsely concluding that estimates are statistically different when they are not.

only significant for unrelated individuals, an increase of 0.1 percentage point. This incongruent result reflects the fact that individuals formerly classified as having no relatives in the household, but who join primary families under the updated demographic edit, had lower poverty rates than those who continued to be classified as unrelated individuals.²⁰ The poverty rate for individuals in primary families declines by 0.1 percentage point in the research file, reflecting the impact of an additional 935,000 individuals who had previously been considered unrelated individuals or unrelated subfamily members.²¹

Interestingly, while there is no significant increase in the total number of individuals living in unrelated subfamilies in the research file, there is a significant increase in the number of individuals in these family types living in poverty, with poverty rates for these individuals increasing by an additional 2.7 percentage points under the new demographic edit. We find that individuals who were classified as being in an unrelated subfamily in the production file but not in the research file had much lower poverty rates (38.1 percent) than those who are newly classified into unrelated subfamilies in the research file (73.0 percent), however, changes in the composition of the unrelated subfamily population is not largely driven by same-sex marriage, as shown in Figure 3.²² Of the 57,000 individuals who are no longer considered to be in unrelated subfamilies, 37.0 percent are reassigned into opposite-sex married families in the research file, not statistically different from the proportion newly classified as in a same-sex married family.

4d. Incremental Impacts of CPS Redesign: Income

We next examine (Table 6) differences in poverty rates between the two files when implementing the research file income edits with family status and demographic characteristics held constant based on the production file. At the macro level, there is not a significant change in poverty between the two files when incorporating the updated income edits alone.

A clearer picture emerges when examining individual level changes. While the overall poverty rate does not have a statistically significant change, 4.3 percent of the sample changed poverty status when applying the new income edits. These changes in individual level poverty status mean

²⁰ One curious finding from the research file is that the number of individuals living in opposite-sex married couple families also increases, by 313,000 individuals. There are two explanations for this, 1) a person in a same-sex marriage may be added to an opposite-sex married couple family if their spouse is living with a related opposite-sex married householder, and 2) other differences in imputing demographic characteristics, such as individuals relationships, ages, and sex, lead to variation across files that are not directly related to being in a same-sex marriage.

²¹ Approximately 179,000 individuals classified as living in primary families under the production file editing procedure were classified as living in unrelated subfamilies or as unrelated individuals in the research file, resulting in a net increase of 756,000 individuals living in primary families.

²² Of the 57,000 individuals in the research file no longer classified as living in an unrelated subfamily, 12.8 percent were reclassified into same-sex married families. This proportion is not statistically different from those reassigned into opposite-sex married families, and is lower than the combined proportion of individuals reclassified into either male- or female-headed families or as unrelated individuals.

that poverty rates in Table 6 and Figure 2 show statistically significant changes for some demographic subgroups compared to the 2017 CPS ASEC production file.

One population experiencing a significant change in poverty as a result of the income edits is the aged 65 and older population. This is because retirement income, dividends, and other sources of reported interest income were particularly targeted in the redesigned CPS ASEC questions and processing system. In calendar year 2016 there are approximately 49.3 million individuals aged 65 and older. When examining the isolated impact of the income edits, poverty rates among this group increased from 9.3 percent to 10.0 percent, an increase of 350,000 individuals. Poverty status changed for 5.7 percent of the population aged 65 and older, with 58.2 percent of that population classified as in poverty in the research file and not the production file.

These changes in poverty status can be attributed to changes in reported household income for this demographic group. One of the focal points of the CPS ASEC redesign was retirement income, dividends, and other sources of reported interest income. Rothbaum (2019) finds that median household income increased for householders aged 65 and older by 1.8 percent, but decreased by 2.3 percent at the 10th percentile. This is largely due to overall declines in retirement income,²³ which declined for all householders at the 10th, 25th, 50th, and 75th percentiles. Additionally, Social Security and Supplemental Security Income, which are not aggregated in retirement income, decreased at the 10th and 25th percentiles for all households (Rothbaum, 2019). Altogether, these changes in key sources of income among the 65 and older population likely drive the results we see here.

5. Discussion

Altogether, our findings show that overall poverty rates in the CPS ASEC are not significantly different between the production and research 2017 CPS ASEC file. We present results which show that the demographic and income processing changes alternatively affect poverty rates across demographic groups.

We also show the incremental impact of the two processing system changes individually by allowing either demographics or income to vary amongst the files, while holding the other constant. In the case of individuals in same-sex married-couple families, poverty decreased by 8.9 percentage points as a result of the new demographic editing procedures. Under the new income edits, poverty rates for the aged 65 and older population increased by 0.7 percentage points. This is driven by decreased reported income at the lower end of the income distribution, especially in two key sources of income: retirement income and Social Security income.

²³ The sum of six individual retirement income sources.

These results narrow down how changes in family assignment and income measurement, independent of the other processing edits, affect poverty. We find that there are demographic subgroup differences when focusing on the incremental impacts, but cannot confidently explain why these are the case outside of the groups highlighted in the analysis.

Our findings on the impact of same-sex married families in the CPS ASEC research file are consistent with estimates released from Edwards and Lindstrom (2017) using the 2015 and 2016 CPS ASEC same-sex extract files.²⁴ We also find that when treating same-sex married couples as a single family, poverty rates for these individuals decline sharply, resulting in poverty rates that do not vary statistically across the same- and opposite-sex married populations. Like prior research, we continue to find that people in same-sex married families make up a small proportion of the total population, with overall poverty rates statistically lower at the hundredth decimal place when implementing the new demographic edits and holding personal income constant.

It is useful to compare our findings to those from the 2014 CPS ASEC split panel income analysis (DeNavas-Walt & Proctor 2015) to examine whether the effects of the updated processing system are consistent with the effects of the redesigned questions.²⁵ The prior report showed that the redesigned income questions did not significantly change overall poverty rates, but did significantly change poverty status for some demographic and geographic groups. The questionnaire redesign increased poverty across the split panel sample for Whites, Asians, those under age 18, and Midwesterners, and decreased poverty for Blacks and those with a bachelor's degree or higher. Our results are consistent in that there was not a statistically significant change in overall poverty as a result of the redesigned income processing system between the production file and the research file. Our results differ in that some of the demographic groups with statistically significant changes in poverty based on data processing changes reported here did not see significant changes based on the redesigned questionnaire. We cannot confidently say whether these differences are driven mostly by the processing changes or by the wider macroeconomic improvement between reference years 2014 and 2016.

6. Next Steps

The public use version of the 2017 CPS ASEC research file presented in this paper was released in January of 2019.²⁶ As illustrated in Figure 1, in the spring of 2019 the Census Bureau expects to release a public use bridge file from the 2018 CPS ASEC. The release of the 2018 CPS ASEC bridge file will reflect feedback and revisions to the 2017 research file identified by internal and

²⁴ Prior year CPS ASEC extract files are available at <<https://www.census.gov/data/datasets/time-series/demo/income-poverty/data-extracts.html>>.

²⁵ See Table D-2 on page 62 of *Income and Poverty in the United States: 2014* at <<https://www.census.gov/content/dam/Census/library/publications/2015/demo/p60-252.pdf>>.

²⁶ For access to public use data files, see <<https://www.census.gov/data/datasets/time-series/demo/income-poverty/data-extracts.html>>.

external researchers. It will allow for the measurement of changes in poverty rates from 2016 to 2017, as well as from 2017 to 2018 once estimates for calendar year 2018 are released in September of 2019—the first release of the CPS ASEC reflecting both the redesigned questionnaire content and processing changes.

Given that the modified income questions were implemented in the 2014 CPS ASEC redesigned sample, the Census Bureau could re-release data files reflecting the updated income processing system going back to calendar year 2013. However, changes in the reporting of relationship status were phased in beginning with the basic CPS in 2015, with full coverage of the redesigned relationship questions effective in the 2017 CPS ASEC. At this time, there is no schedule to reprocess or re-release data prior to the 2017 CPS ASEC using the updated processing system.

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Appendix

Table 1. Sources of Income in the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC)

The CPS ASEC asks each survey respondent aged 15 or older to report the receipt and value of the following income sources that apply towards meeting their individual or family poverty threshold.

- Earnings
- Unemployment compensation
- Workers' compensation
- Social security
- Supplemental security income
- Public assistance
- Veterans' payments
- Survivor benefits
- Disability benefits
- Pension or retirement income
- Interest
- Dividends
- Rents, royalties, and estates and trusts
- Educational assistance
- Alimony
- Child support
- Financial assistance from outside of the household
- Other income

Source: Semega, Jessica L., Kayla R. Fontenot, and Melissa A. Kollar. U.S. Census Bureau. Current Population Reports, P60-259. *Income and Poverty in the United States: 2016*. U.S. Government Printing Office. Washington, DC, 2017.

Figure 1. Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC) Implementation Timeline

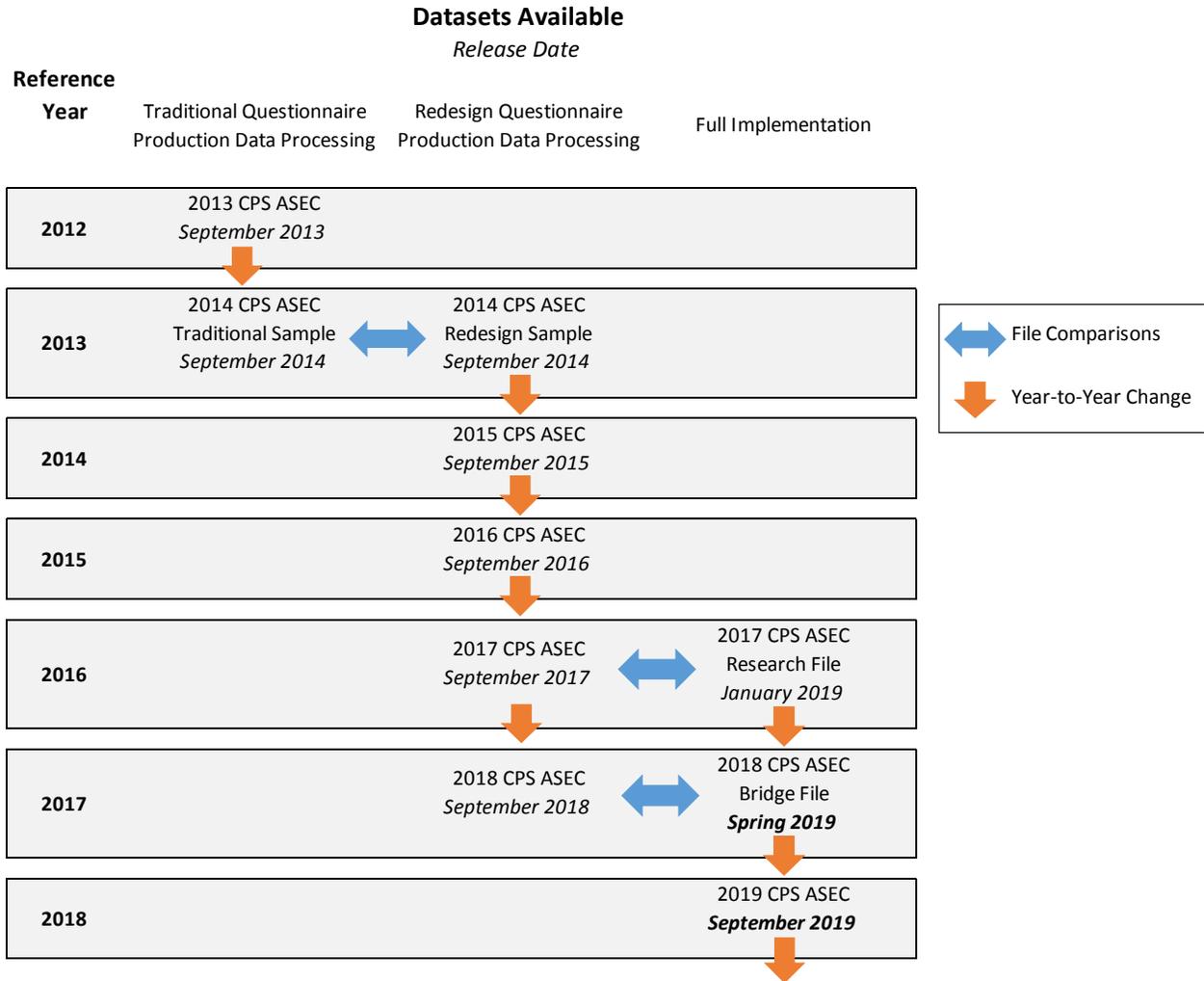


Table 2. Relationship Reporting in the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC)

The CPS ASEC asks each survey respondent to report their relationship to the household reference person. In the 2017 CPS ASEC research file these response categories were expanded to include opposite- and same-sex couples.

| <u>Production Categories</u> | <u>Research File Categories</u> |
|------------------------------|--|
| Spouse | Opposite-sex Spouse (Husband/Wife) Same-sex Spouse (Husband/Wife) |
| Unmarried Partner | Opposite-sex Unmarried Partner Same-sex Unmarried Partner |
| Child | Child |
| Grandchild | Grandchild |
| Parent | Parent |
| Brother/Sister | Brother/Sister |
| Other relative | Other relative |
| Foster Child | Foster Child |
| Housemate/Roommate | Housemate/Roommate |
| Roomer/Boarder | Roomer/Boarder |
| Other nonrelatives | Other nonrelatives |

Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2017.

Table 3: Production File vs. Research File

| Characteristic | 2016 (2017 Production File) | | | 2016 (2017 Research File) ¹ | | | Change in poverty (2016 updated less 2016 legacy) [*] | |
|---|--------------------------------|---------------|---------|---|---------------|---------|--|---------|
| | Total | Below poverty | | Total | Below poverty | | Number | Percent |
| | | Number | Percent | | Number | Percent | | |
| PEOPLE | | | | | | | | |
| Total | 319,900 | 40,620 | 12.7 | 319,900 | 40,840 | 12.8 | 228 | 0.1 |
| Family Status | | | | | | | | |
| In families..... | 259,900 | 27,760 | 10.7 | 260,700 | 28,140 | 10.8 | 375 | 0.1 |
| Opposite-sex married..... | 192,800 | 11,250 | 5.8 | 193,200 | 11,690 | 6.1 | *437 | *0.2 |
| Same-sex married..... | (X) | (X) | (X) | 1,187 | 51 | 4.3 | (X) | (X) |
| Female householder, no spouse present..... | 48,240 | 13,910 | 28.8 | 47,670 | 13,620 | 28.6 | *-291 | -0.3 |
| Male householder, no spouse present..... | 18,780 | 2,596 | 13.8 | 18,620 | 2,775 | 14.9 | *178 | *1.1 |
| In unrelated subfamilies..... | 1,208 | 519 | 43.0 | 1,236 | 500 | 40.5 | -18 | -2.5 |
| Unrelated individuals..... | 58,840 | 12,340 | 21.0 | 58,010 | 12,210 | 21.0 | -129 | 0.1 |
| Race and Hispanic Origin | | | | | | | | |
| White..... | 246,000 | 27,110 | 11.0 | 246,000 | 27,370 | 11.1 | 255 | 0.1 |
| White, not Hispanic..... | 195,200 | 17,260 | 8.8 | 195,200 | 17,330 | 8.9 | 64 | Z |
| Black..... | 41,960 | 9,234 | 22.0 | 41,960 | 9,162 | 21.8 | -72 | -0.2 |
| Asian..... | 18,880 | 1,908 | 10.1 | 18,870 | 1,827 | 9.7 | -81 | -0.4 |
| Hispanic (any race)..... | 57,560 | 11,140 | 19.4 | 57,550 | 11,410 | 19.8 | *268 | *0.5 |
| Sex | | | | | | | | |
| Male..... | 156,700 | 17,690 | 11.3 | 156,700 | 17,920 | 11.4 | 232 | 0.1 |
| Female..... | 163,200 | 22,930 | 14.0 | 163,200 | 22,930 | 14.0 | -5 | Z |
| Age | | | | | | | | |
| Under age 18..... | 73,590 | 13,250 | 18.0 | 73,600 | 13,240 | 18.0 | -13 | Z |
| Aged 18 to 64..... | 197,100 | 22,800 | 11.6 | 197,000 | 22,710 | 11.5 | -91 | Z |
| Aged 65 and older..... | 49,270 | 4,568 | 9.3 | 49,260 | 4,898 | 9.9 | *331 | *0.7 |
| Nativity | | | | | | | | |
| Native born..... | 276,100 | 34,000 | 12.3 | 276,000 | 34,130 | 12.4 | 130 | Z |
| Foreign born..... | 43,820 | 6,617 | 15.1 | 43,870 | 6,714 | 15.3 | 97 | 0.2 |
| Naturalized citizen..... | 20,410 | 2,045 | 10.0 | 20,430 | 2,008 | 9.8 | -37 | -0.2 |
| Not a citizen..... | 23,410 | 4,572 | 19.5 | 23,440 | 4,705 | 20.1 | 134 | 0.5 |
| Region | | | | | | | | |
| Northeast..... | 55,470 | 5,969 | 10.8 | 55,470 | 5,918 | 10.7 | -51 | -0.1 |
| Midwest..... | 66,900 | 7,809 | 11.7 | 66,880 | 7,717 | 11.5 | -92 | -0.1 |
| South..... | 121,200 | 17,030 | 14.1 | 121,200 | 17,470 | 14.4 | *445 | *0.4 |
| West..... | 76,380 | 9,810 | 12.8 | 76,390 | 9,735 | 12.7 | -75 | -0.1 |
| Residence | | | | | | | | |
| Inside metropolitan statistical areas..... | 276,300 | 33,720 | 12.2 | 276,300 | 33,730 | 12.2 | 10 | Z |
| Inside principal cities..... | 103,300 | 16,500 | 16.0 | 103,200 | 16,460 | 15.9 | -36 | Z |
| Outside principal cities..... | 173,000 | 17,220 | 10.0 | 173,100 | 17,270 | 10.0 | 46 | Z |
| Outside metropolitan statistical areas..... | 43,610 | 6,898 | 15.8 | 43,600 | 7,116 | 16.3 | *218 | *0.5 |
| Disability Status | | | | | | | | |
| With a disability..... | 15,410 | 4,123 | 26.8 | 15,430 | 4,064 | 26.3 | -59 | -0.4 |
| With no disability..... | 180,800 | 18,630 | 10.3 | 180,800 | 18,590 | 10.3 | -38 | Z |
| Educational Attainment | | | | | | | | |
| No high school diploma..... | 22,540 | 5,599 | 24.8 | 22,540 | 5,839 | 25.9 | *240 | *1.1 |
| High school, no college..... | 62,510 | 8,309 | 13.3 | 62,500 | 8,465 | 13.5 | 156 | 0.3 |
| Some college, no degree..... | 57,770 | 5,430 | 9.4 | 57,790 | 5,364 | 9.3 | -66 | -0.1 |
| Bachelor's degree or higher..... | 74,100 | 3,299 | 4.5 | 74,080 | 3,146 | 4.2 | *-153 | *-0.2 |

Numbers in thousands.

*An asterisk preceding an estimate indicates change is statistically different from zero at the 90 percent confidence level.

(X) Estimate not available.

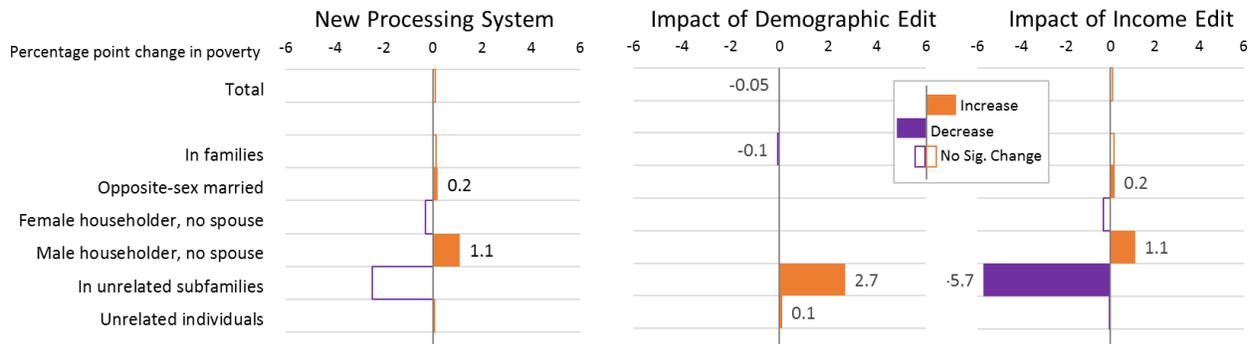
Z Represents or rounds to zero. Percentage estimates may not reflect reported numbers due to Census rounding standards for disclosure.

¹ Estimates from the 2017 CPS ASEC research file reflect different underlying universes and weights.

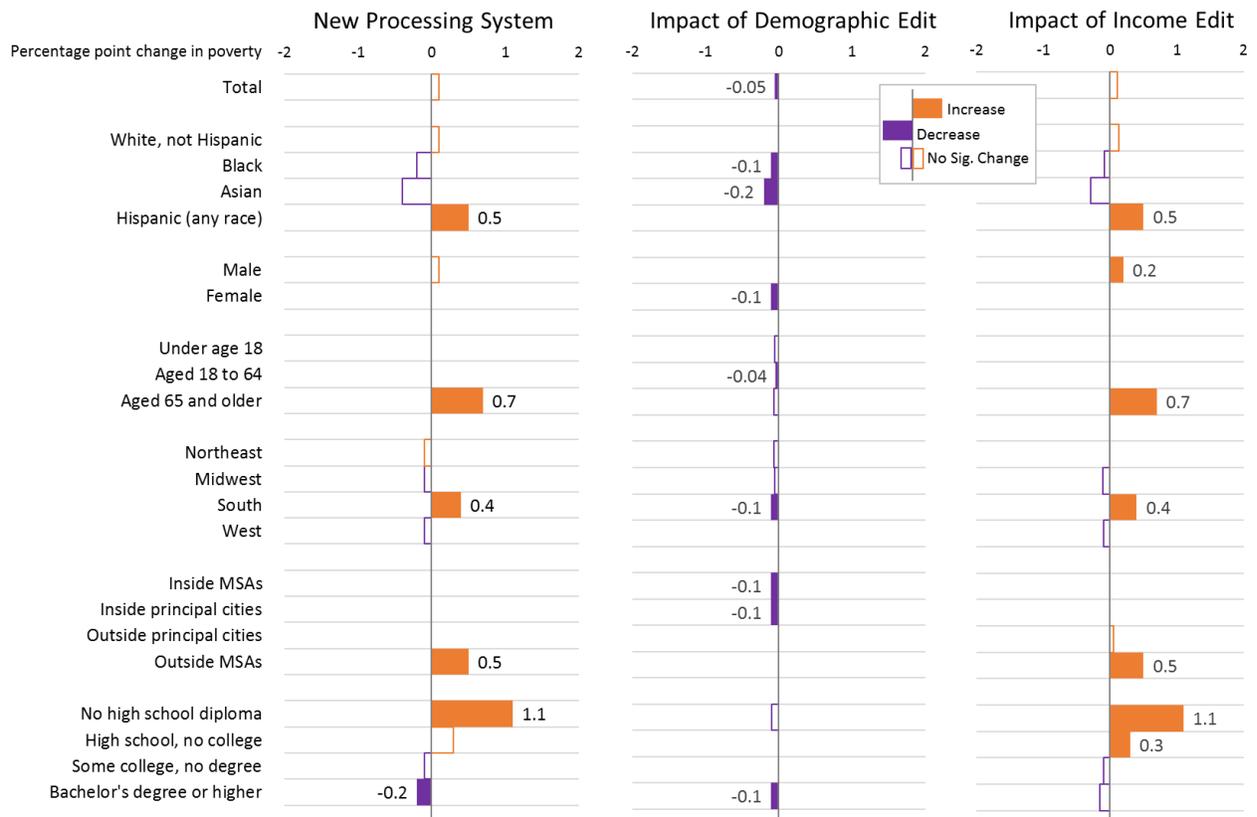
Source: U.S. Census Bureau, Current Population Survey, 2017 Annual Social and Economic Supplement.

Figure 2. Incremental and Overall Changes in Poverty Rates across Processing Systems

A. By Family Status

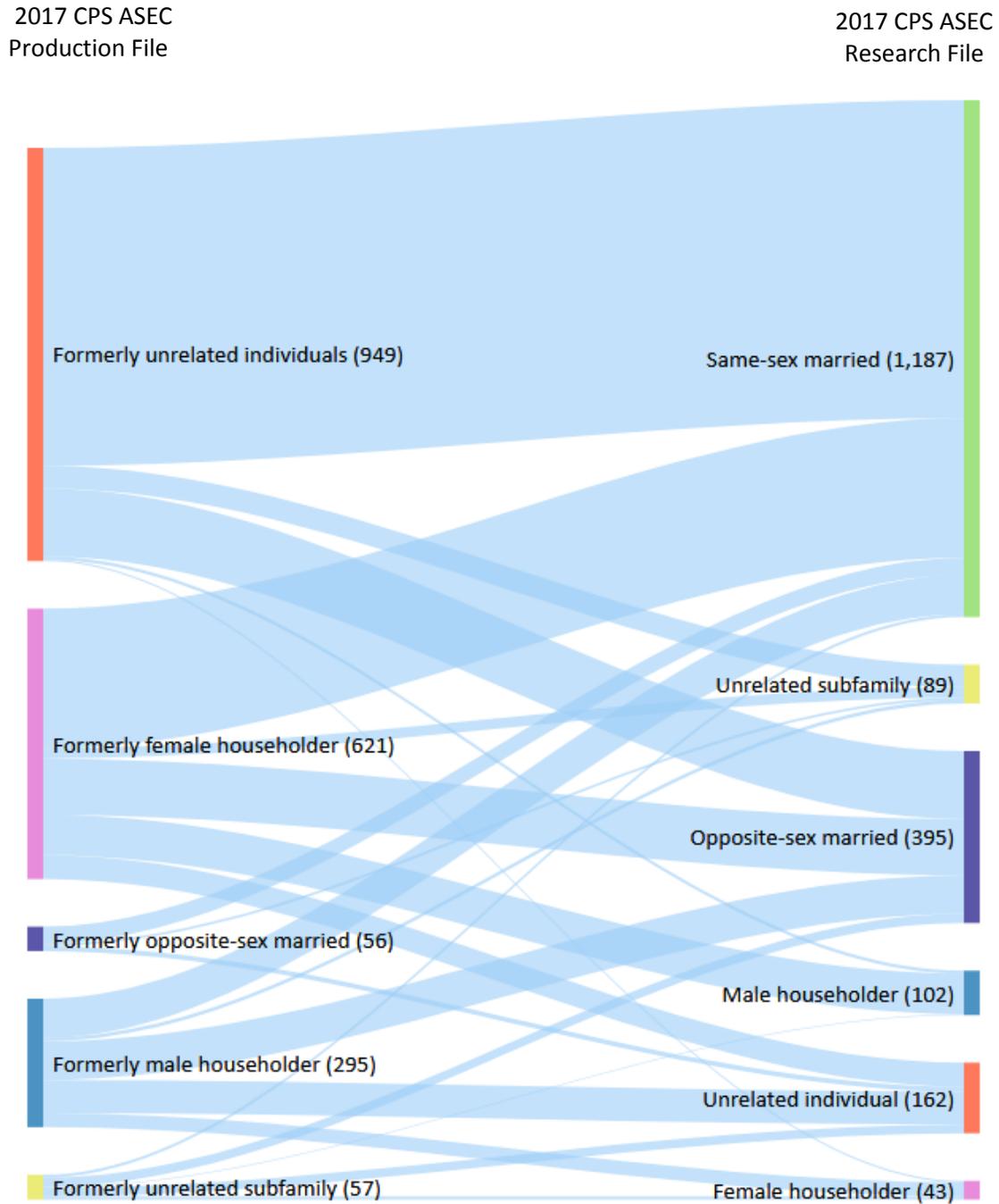


B. By Demographic Characteristic



Note: Same-sex married-couple families were not included as family types in the production 2017 CPS ASEC, differences across processing systems for this group are not shown. Estimates from the 2017 CPS ASEC research file reflect different underlying universes and weights.
 Source: U.S. Census Bureau, Current Population Survey, 2017 Annual Social and Economic Supplement.

Figure 3. Changes in Individual’s Family Classification Across the 2017 Current Population Survey (CPS) Production and Research Annual Social and Economic Supplement (ASEC) Files



Numbers in thousands.
 Estimates from the 2017 CPS ASEC research file reflect different underlying universes and weights.
 Source: U.S. Census Bureau, Current Population Survey, 2017 Annual Social and Economic Supplement.

Table 4: Characteristics of Individuals in Same-Sex Marriages

| Characteristic | 2016 (2017 Research File) | | | |
|---|------------------------------|------------------------------------|---------|------------------------------------|
| | Number | | Percent | |
| | Number | Margin of error ² (+/-) | Percent | Margin of error ² (+/-) |
| PEOPLE | | | | |
| Total | 937 | 111 | 100.0 | Z |
| Family Status | | | | |
| In families..... | 180 | 35 | 19.2 | 3.5 |
| Opposite-sex married..... | 31 | 19 | 3.3 | 2.0 |
| Female householder, no spouse present..... | 113 | 27 | 12.1 | 2.6 |
| Male householder, no spouse present..... | 36 | 14 | 3.9 | 1.5 |
| In unrelated subfamilies..... | 10 | 7 | 1.0 | 0.7 |
| Unrelated individuals..... | 748 | 102 | 79.8 | 3.8 |
| Race and Hispanic Origin | | | | |
| White..... | 775 | 98 | 82.7 | 3.5 |
| White, not Hispanic..... | 657 | 91 | 70.1 | 4.2 |
| Black..... | 76 | 24 | 8.1 | 2.4 |
| Asian..... | 41 | 18 | 4.4 | 1.8 |
| Hispanic (any race)..... | 129 | 31 | 13.7 | 3.1 |
| Sex | | | | |
| Male..... | 387 | 69 | 41.3 | 5.7 |
| Female..... | 550 | 85 | 58.7 | 5.7 |
| Age | | | | |
| Under age 18..... | 2 | 3 | 0.2 | 0.4 |
| Aged 18 to 64..... | 837 | 107 | 89.3 | 3.2 |
| Aged 65 and older..... | 98 | 30 | 10.5 | 3.1 |
| Nativity | | | | |
| Native born..... | 803 | 101 | 85.7 | 3.1 |
| Foreign born..... | 134 | 32 | 14.3 | 3.1 |
| Naturalized citizen..... | 83 | 28 | 8.8 | 2.8 |
| Not a citizen..... | 51 | 19 | 5.5 | 2.0 |
| Region | | | | |
| Northeast..... | 150 | 47 | 16.0 | 4.6 |
| Midwest..... | 160 | 46 | 17.0 | 4.2 |
| South..... | 322 | 61 | 34.4 | 5.5 |
| West..... | 305 | 58 | 32.5 | 5.1 |
| Residence | | | | |
| Inside metropolitan statistical areas..... | 859 | 108 | 91.6 | 3.5 |
| Inside principal cities..... | 411 | 81 | 43.8 | 6.2 |
| Outside principal cities..... | 448 | 75 | 47.8 | 6.5 |
| Outside metropolitan statistical areas..... | 79 | 33 | 8.4 | 3.5 |
| Disability Status | | | | |
| With a disability..... | 43 | 16 | 4.5 | 1.5 |
| With no disability..... | 785 | 100 | 83.8 | 3.3 |
| Educational Attainment | | | | |
| No high school diploma..... | 45 | 17 | 4.8 | 1.7 |
| High school, no college..... | 158 | 40 | 17.2 | 3.8 |
| Some college, no degree..... | 228 | 45 | 24.9 | 4.1 |
| Bachelor's degree or higher..... | 486 | 79 | 53.0 | 4.9 |

Numbers in thousands.

Note: Estimates of family status are derived from the production 2017 CPS ASEC file. Other characteristics are based on the 2017 CPS ASEC research file.

Source: U.S. Census Bureau, Current Population Survey, 2017 Annual Social and Economic Supplement.

Table 5. Incremental Impact of Research File Demographic Edits

| Characteristic | 2016 (2017 Production File) | | | 2016 (2017 Research File Family; Production Income) ¹ | | | Change in poverty (2016 updated less 2016 legacy) [*] | |
|---|--------------------------------|--------|---------|--|--------|---------|--|---------|
| | Below poverty | | | Below poverty | | | Number | Percent |
| | Total | Number | Percent | Total | Number | Percent | | |
| PEOPLE | | | | | | | | |
| Total | 319,900 | 40,620 | 12.7 | 319,900 | 40,470 | 12.7 | *-150 | *-0.05 |
| Family Status | | | | | | | | |
| In families..... | 259,900 | 27,760 | 10.7 | 260,600 | 27,680 | 10.6 | -81 | *-0.1 |
| Opposite-sex married..... | 192,800 | 11,250 | 5.8 | 193,200 | 11,290 | 5.8 | 38 | Z |
| Same-sex married..... | (X) | (X) | (X) | 1,187 | 65 | 5.4 | (X) | (X) |
| Female householder, no spouse present..... | 48,240 | 13,910 | 28.8 | 47,670 | 13,750 | 28.8 | *-169 | Z |
| Male householder, no spouse present..... | 18,780 | 2,596 | 13.8 | 18,620 | 2,582 | 13.9 | -14 | Z |
| In unrelated subfamilies..... | 1,208 | 519 | 43.0 | 1,236 | 565 | 45.7 | *46 | *2.7 |
| Unrelated individuals..... | 58,840 | 12,340 | 21.0 | 58,010 | 12,220 | 21.1 | *-115 | *0.1 |
| Race and Hispanic Origin | | | | | | | | |
| White..... | 246,000 | 27,110 | 11.0 | 245,900 | 27,040 | 11.0 | -74 | Z |
| White, not Hispanic..... | 195,200 | 17,260 | 8.8 | 195,200 | 17,200 | 8.8 | -67 | Z |
| Black..... | 41,960 | 9,234 | 22.0 | 41,960 | 9,192 | 21.9 | *-42 | *-0.1 |
| Asian..... | 18,880 | 1,908 | 10.1 | 18,870 | 1,862 | 9.9 | *-46 | *-0.2 |
| Hispanic (any race)..... | 57,560 | 11,140 | 19.4 | 57,550 | 11,140 | 19.3 | -2 | Z |
| Sex | | | | | | | | |
| Male..... | 156,700 | 17,690 | 11.3 | 156,600 | 17,640 | 11.3 | -50 | Z |
| Female..... | 163,200 | 22,930 | 14.0 | 163,200 | 22,830 | 14.0 | *-100 | *-0.1 |
| Age | | | | | | | | |
| Under age 18..... | 73,590 | 13,250 | 18.0 | 73,590 | 13,220 | 18.0 | -38 | -0.1 |
| Aged 18 to 64..... | 197,100 | 22,800 | 11.6 | 197,000 | 22,710 | 11.5 | *-81 | *-0.04 |
| Aged 65 and older..... | 49,270 | 4,568 | 9.3 | 49,250 | 4,536 | 9.2 | -31 | -0.1 |
| Nativity | | | | | | | | |
| Native born..... | 276,100 | 34,000 | 12.3 | 276,000 | 33,850 | 12.3 | *-149 | *-0.05 |
| Foreign born..... | 43,820 | 6,617 | 15.1 | 43,870 | 6,615 | 15.1 | -2 | Z |
| Naturalized citizen..... | 20,410 | 2,045 | 10.0 | 20,430 | 2,039 | 10.0 | -6 | Z |
| Not a citizen..... | 23,410 | 4,572 | 19.5 | 23,440 | 4,576 | 19.5 | 4 | Z |
| Region | | | | | | | | |
| Northeast..... | 55,470 | 5,969 | 10.8 | 55,450 | 5,929 | 10.7 | -40 | -0.1 |
| Midwest..... | 66,900 | 7,809 | 11.7 | 66,880 | 7,772 | 11.6 | -37 | -0.1 |
| South..... | 121,200 | 17,030 | 14.1 | 121,200 | 16,960 | 14.0 | *-65 | *-0.1 |
| West..... | 76,380 | 9,810 | 12.8 | 76,380 | 9,802 | 12.8 | -8 | Z |
| Residence | | | | | | | | |
| Inside metropolitan statistical areas..... | 276,300 | 33,720 | 12.2 | 276,300 | 33,570 | 12.2 | *-145 | *-0.1 |
| Inside principal cities..... | 103,300 | 16,500 | 16.0 | 103,200 | 16,410 | 15.9 | *-87 | *-0.1 |
| Outside principal cities..... | 173,000 | 17,220 | 10.0 | 173,000 | 17,170 | 9.9 | -58 | Z |
| Outside metropolitan statistical areas..... | 43,610 | 6,898 | 15.8 | 43,590 | 6,892 | 15.8 | -6 | Z |
| Disability Status | | | | | | | | |
| With a disability..... | 15,410 | 4,123 | 26.8 | 4,113 | 15,430 | 193.3 | 1.1 | -0.1 |
| With no disability..... | 180,800 | 18,630 | 10.3 | 180,700 | 18,560 | 10.3 | *-71 | *-0.04 |
| Educational Attainment | | | | | | | | |
| No high school diploma..... | 22,540 | 5,599 | 24.8 | 22,540 | 5,576 | 24.7 | -22 | -0.1 |
| High school, no college..... | 62,510 | 8,309 | 13.3 | 62,490 | 8,287 | 13.3 | -21 | Z |
| Some college, no degree..... | 57,770 | 5,430 | 9.4 | 57,790 | 5,430 | 9.4 | Z | Z |
| Bachelor's degree or higher..... | 74,100 | 3,299 | 4.5 | 74,080 | 3,240 | 4.4 | *-59 | *-0.1 |

Numbers in thousands.

*An asterisk preceding an estimate indicates change is statistically different from zero at the 90 percent confidence level.

(X) Estimate not available.

Z Represents or rounds to zero. Percentage estimates may not reflect reported numbers due to Census rounding standards for disclosure

¹ Estimates from the 2017 CPS ASEC research file reflect different underlying universes and weights.

Source: U.S. Census Bureau, Current Population Survey, 2017 Annual Social and Economic Supplement.

Table 6: Incremental Impact of Research File Income Processing System

| Characteristic | 2016 (2017 Production File) | | | 2016 (2017 Production Family; Research Income) ¹ | | | Change in poverty (2016 updated less 2016 legacy) | |
|---|--------------------------------|--------|---------|---|--------|---------|---|---------|
| | Below poverty | | | Below poverty | | | Number | Percent |
| | Total | Number | Percent | Total | Number | Percent | | |
| PEOPLE | | | | | | | | |
| Total | 319,900 | 40,620 | 12.7 | 319,900 | 40,950 | 12.8 | 350 | 0.1 |
| Family Status | | | | | | | | |
| In families..... | 259,900 | 27,760 | 10.7 | 259,900 | 28,190 | 10.8 | 450 | 0.2 |
| Opposite-sex married..... | 192,800 | 11,250 | 5.8 | 192,800 | 11,640 | 6.0 | *400 | *0.2 |
| Same-sex married..... | (X) | (X) | (X) | (X) | (X) | (X) | (X) | (X) |
| Female householder, no spouse present..... | 48,240 | 13,910 | 28.8 | 48,240 | 13,760 | 28.5 | -150 | -0.3 |
| Male householder, no spouse present..... | 18,780 | 2,596 | 13.8 | 18,780 | 2,796 | 14.9 | *200 | *1.1 |
| In unrelated subfamilies..... | 1,208 | 519 | 43.0 | 1,208 | 450 | 37.3 | *-70 | *-5.7 |
| Unrelated individuals..... | 58,840 | 12,340 | 21.0 | 58,830 | 12,310 | 20.9 | -20 | 0.0 |
| Race and Hispanic Origin | | | | | | | | |
| White..... | 246,000 | 27,110 | 11.0 | 246,000 | 27,430 | 11.2 | 300 | 0.1 |
| White, not Hispanic..... | 195,200 | 17,260 | 8.8 | 195,200 | 17,380 | 8.9 | 120 | 0.1 |
| Black..... | 41,960 | 9,234 | 22.0 | 41,960 | 9,198 | 21.9 | -40 | -0.1 |
| Asian..... | 18,880 | 1,908 | 10.1 | 18,880 | 1,852 | 9.8 | -60 | -0.3 |
| Hispanic (any race)..... | 57,560 | 11,140 | 19.4 | 57,560 | 11,410 | 19.8 | *300 | *0.5 |
| Sex | | | | | | | | |
| Male..... | 156,700 | 17,690 | 11.3 | 156,700 | 17,950 | 11.5 | *270 | *0.2 |
| Female..... | 163,200 | 22,930 | 14.0 | 163,200 | 23,000 | 14.1 | 50 | Z |
| Age | | | | | | | | |
| Under age 18..... | 73,590 | 13,250 | 18.0 | 73,590 | 13,270 | 18.0 | 20 | Z |
| Aged 18 to 64..... | 197,100 | 22,800 | 11.6 | 197,000 | 22,770 | 11.6 | -30 | Z |
| Aged 65 and older..... | 49,270 | 4,568 | 9.3 | 49,270 | 4,918 | 10.0 | *350 | *0.7 |
| Nativity | | | | | | | | |
| Native born..... | 276,100 | 34,000 | 12.3 | 276,100 | 34,230 | 12.4 | 250 | 0.1 |
| Foreign born..... | 43,820 | 6,617 | 15.1 | 43,820 | 6,725 | 15.3 | 100 | 0.2 |
| Naturalized citizen..... | 20,410 | 2,045 | 10.0 | 20,410 | 2,019 | 9.9 | -30 | -0.1 |
| Not a citizen..... | 23,410 | 4,572 | 19.5 | 23,410 | 4,706 | 20.1 | 150 | 0.6 |
| Region | | | | | | | | |
| Northeast..... | 55,470 | 5,969 | 10.8 | 55,470 | 5,944 | 10.7 | -20 | Z |
| Midwest..... | 66,900 | 7,809 | 11.7 | 66,890 | 7,740 | 11.6 | -70 | -0.1 |
| South..... | 121,200 | 17,030 | 14.1 | 121,200 | 17,540 | 14.5 | *500 | *0.4 |
| West..... | 76,380 | 9,810 | 12.8 | 76,370 | 9,734 | 12.7 | -80 | -0.1 |
| Residence | | | | | | | | |
| Inside metropolitan statistical areas..... | 276,300 | 33,720 | 12.2 | 276,300 | 33,820 | 12.2 | 100 | Z |
| Inside principal cities..... | 103,300 | 16,500 | 16.0 | 103,300 | 16,510 | 16.0 | 20 | Z |
| Outside principal cities..... | 173,000 | 17,220 | 10.0 | 173,000 | 17,310 | 10.0 | 90 | 0.1 |
| Outside metropolitan statistical areas..... | 43,610 | 6,898 | 15.8 | 43,610 | 7,132 | 16.4 | *250 | *0.5 |
| Disability Status | | | | | | | | |
| With a disability..... | 15,410 | 4,123 | 26.8 | 15,400 | 4,085 | 26.5 | -40 | -0.2 |
| With no disability..... | 180,800 | 18,630 | 10.3 | 180,800 | 18,630 | 10.3 | Z | Z |
| Educational Attainment | | | | | | | | |
| No high school diploma..... | 22,540 | 5,599 | 24.8 | 22,540 | 5,854 | 26.0 | *250 | *1.1 |
| High school, no college..... | 62,510 | 8,309 | 13.3 | 62,510 | 8,481 | 13.6 | *150 | *0.3 |
| Some college, no degree..... | 57,770 | 5,430 | 9.4 | 57,760 | 5,375 | 9.3 | -60 | -0.1 |
| Bachelor's degree or higher..... | 74,100 | 3,299 | 4.5 | 74,100 | 3,189 | 4.3 | -100 | -0.1 |

Numbers in thousands.

*An asterisk preceding an estimate indicates change is statistically different from zero at the 90 percent confidence level.

(X) Estimate not available.

Z Represents or rounds to zero. Percentage estimates may not reflect reported numbers due to Census rounding standards for disclosure

¹ Estimates from the 2017 CPS ASEC research file reflect different underlying universes and weights.

Source: U.S. Census Bureau, Current Population Survey, 2017 Annual Social and Economic Supplement.