# The Effects of the Changes to the Current Population Survey Annual Social and Economic Supplement on Estimates of Income

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*All comparative statements in this report have undergone statistical testing, and, unless otherwise noted, all comparisons are statistically significant at the 90 percent confidence level. Any views expressed are those of the authors and not necessarily those of the U.S. Census Bureau.*

*Abstract*

This paper presents the resulting income estimates based on changes to the Current Population Survey Annual Social and Economic Supplement (CPS ASEC) questionnaire on income estimates. The ASEC is one of the most widely used socioeconomic surveys publishing national level estimates of income. The ASEC is the official source of the US national poverty estimates. The ASEC asks each person detailed questions categorizing income into over 50 sources. As one of the nation's longest running surveys, it has been over 30 years since the last major questionnaire redesign.[1] In an effort to take better advantage of an automated environment and to update questions on retirement income and health insurance, the Census Bureau conducted a limited telephone interview field test in March 2013 of a redesigned instrument using a retired ASEC sample of 23,000 households. The results of that test were encouraging, indicating likely increases in income recipiency and amounts.[2] In 2014, the Census Bureau conducted a second field test using a split panel and taking advantage of a full production environment. This paper compares income estimates using the old and new questions from the split-panel test.

*Introduction*

The Annual Social and Economic Supplement to the Current Population Survey (ASEC) is one of the most widely used surveys conducted by the government; it serves as the basis of national income measurement and the source of official poverty estimates. The ASEC is conducted in February through April with most of the sample falling in March. The ASEC asks questions about income received the prior calendar year, as well as questions on health insurance coverage

[1] In 1994 the CPS ASEC paper questionnaire transitioned to a computer environment.

[2] Evaluating the 2013 CPS ASEC Income Redesign Content Test, Proceedings of the 2013 Federal Committee on Statistical Methodology (FCSM) Research Conference, November 6, 2013, Jessica L. Semega and Edward Welniak, Jr.

(DeNavas-Walt et al., 2013). This paper presents findings from the new redesigned income questionnaire portion of the ASEC.

*Background*

Previous research shows the ASEC suffers from misclassification of certain types of income, general underreporting of income, and historically under-reported enrollment in means-tested government programs (Meyer et al., 2009). To address these issues, the Census Bureau contracted Westat Inc. and Mathematica, Policy Research in 2011 to evaluate the CPS ASEC questionnaire and to suggest ways to address its shortcomings and improve the instrument. In April of that year, Westat Inc. issued a report entitled "Cognitive Testing of Potential Changes to the Annual Social and Economic Supplement of the Current Population Survey" which suggested potential changes to income questions to correct income errors of varying magnitudes across income types, and by particular subpopulations based on the results of conducting cognitive tests. A nation-wide (sample of 23,000 households) content test was conducted by telephone interview of a redesigned ASEC questionnaire in March of 2013 based on their suggestions. The content test also included new health insurance questions (see Medalia et al., 2013). Based on the favorable results of that initial test which showed higher income source recipiency and income aggregates (see Semega and Welniak, 2013), a second, more comprehensive test was conducted in 2014 to take advantage of a full production environment. The test included both telephone and personal visits.

The 2014 CPS ASEC utilized a probability split panel design to test the new set of income questions. There were approximately 98,000 addresses in the 2014 ASEC sample; a subsample

of about 30,000 addresses (approximately 3/8 of the sample) were randomly assigned to be eligible to receive the redesigned income questions, the remaining sample (approximately 68,000 addresses or 5/8) were eligible to receive the set of ASEC income questions that have been in use since 1994, referred to here as the traditional income questions.[3]

The objectives of the redesigned income questions were to improve data quality by addressing misreporting of income amounts and item nonresponse, and to reduce error resulting from respondent fatigue. It was also an opportunity for the ASEC to address the changing retirement income environment. While retirement income is dominated by Social Security and traditional (defined benefit plans) pensions, the aggregate holdings in newer types of retirement accounts (defined contribution plans such as tax-advantaged IRAs and 401k plans) already exceed those of traditional pension plans by a substantial margin. Retirement, pensions, and annuities are historically under-reported in the ASEC (see Czajka and Denmead 2008). In addition, one of the largest aggregate shortfalls in measured ASEC income is asset income. The redesigned ASEC clarifies questions on asset income such as interest and dividends, by targeting income received from income accounts separately from traditional assets such as savings, checking, and mutual fund accounts.

*Summary of Changes*

The following were components of the new ASEC instrument:

[3] Each address in sample was assigned a random number to determine if the address would receive the traditional or redesigned ASEC questionnaire. One caveat was that all month-in-sample-one addresses received the traditional ASEC. Census field representatives did not know in advance if the household they were interviewing would receive the traditional or redesigned income questions until they began the interview. All CPS ASEC interviewers were trained to conduct both sets of questions. All 2014 CPS ASEC sample received the new set of health insurance questions.

- Remove the family income screener for determining which households to ask low-income sources (means tested programs such as Temporary Assistance for Needy Families [TANF]).

- Use a dual-pass, identifying all sources of income received first and then asking amounts for the sources the respondent indicated receiving.

- Tailor the order of income questions to match those sources most likely received by respondents given certain known characteristics of the household focusing on households with a householder aged 62 and older, lower income household, and a default for all other household types.

- Use income ranges as a follow-up for "don't know" or "refused" income amounts.

- Collect the value of assets that generate income if the respondent is unsure of the income generated.

- Ask about retirement account withdrawals and distributions.

- Use a new strategy to collect property income by asking separately about income from retirement accounts and other assets.

- Change the disability questions to eliminate confusion between disability from Social Security and Supplemental Security Income (SSI).

A discussion of each of these follows.

- *Removal of the Family Income Screener*

The traditional ASEC only asks households that reported less than $75,000 in combined family income about means-tested transfer programs such as food stamps and Temporary Assistance to Needy Families (TANF). The redesigned ASEC removes this family income screener based on evidence that the ASEC instrument inappropriately screens out some households that would have been eligible for participating in one or more transfer programs.[4] The redesigned ASEC asked all households all questions regardless of family income (including those above $75,000).

[4] Tabulations of 2008 American Community Survey (ACS) data show that 12% of SNAP recipient households and 20% of public assistance income recipients would have failed the family income screen test if it had been applied to the ACS.

- *Dual-Pass*

The traditional ASEC uses an interleaf design, for example, if a respondent answered affirmative to receiving a source of income then immediately a follow-up question is asked on the amount of the income or the easiest way to report the income (i.e. weekly, monthly, annually, etc). The redesigned ASEC uses a dual-pass approach. The "first pass" or first series of questions identifies all sources of income received by members of the household. After the "first pass" identifies all sources of income received by all members of the household, the "second pass" collects the income amounts from each identified source. The series of questions on earnings are unchanged in the redesigned ASEC. They do not follow the dual-pass approach and are always the first set of questions in the ASEC asked of each person in the household. The redesigned ASEC asked the series of questions on unemployment income and worker's compensation at the household-level and follow the dual-pass approach.[5]

- *Tailored Skip Patterns*

The redesigned ASEC tailors the order of income questions to match those sources most likely received by respondents given certain known characteristics of the household focusing on households with a householder aged 62 and older, lower income household, and a default for all other household types. Using tailored skip patterns allows prioritization of more relevant questions to help reduce respondent fatigue by presenting the most likely sources of income for that household earlier in the interview. Because of the removal of the family income screener, the redesigned ASEC asks all questions regardless of household composition, just in different orders. The three prioritized orders are:

[5] Traditional ASEC asks the series of questions on unemployment compensation and worker's compensation of each person age 15 and above in the household.

1) **Low income** (family income less than $75,000): prioritizes questions on public assistance, food stamps, WIC, and public housing;

2) **Senior** (householder/spouse age 62+): prioritizes questions on disability and retirement income; and

3) **Default**: presented to households that do not qualify as low income or senior and closely reflects the traditional instrument order.

- *Income Range Brackets*

The redesigned ASEC presents new range questions anytime a respondent says they "don't know" or "refuse" to provide a dollar amount for an income source they (or someone in the household) indicated as having received.[6] The income ranges depend on the source of income. The redesigned ASEC uses high, middle, and low ranges developed and assigned based on the type of income. The objective of the income range questions is to reduce item nonresponse by allowing respondents to provide a less precise amount. The Census Bureau is currently working on developing new allocation procedures to incorporate this new income data.[7] The three levels of income range follow-up questions were:

➢ **<u>High-range</u>:**

- Less than $45,000
- Between $45,000 and $60,000
- $60,000 or more

If the respondent selects the <u>lowest bracket</u> (less than $45,000), the instrument presents the following ranges:

- Less than $15,000
- Between $15,000 and $30,000
- $30,000 or more

[6] The traditional ASEC moves on to ask about the next source of income if a respondent says they "don't know" or "refuse" to provide an income amount.

[7] At the time of this release it was not possible to integrate the new income range data into processing. If a respondent did not know an income amount or refused to provide an amount, then an amount was assigned using the same allocation system used for the traditional ASEC data.

- **Mid-range:**

  - Less than $10,000
  - Between $10,000 and $20,000
  - $20,000 or more

  If the respondent selects the lowest bracket (less than $10,000), the instrument presents the following ranges:

  - Less than $1,000
  - Between $1,000 and $5,000
  - $5,000 or more

- **Low-range:**

  - Less than $1,000
  - Between $1,000 and $3,000
  - $3,000 or more

  If the respondent selects the lowest bracket (less than $1,000), the instrument presents the following ranges:

  - Less than $100
  - Between $100 and $500
  - $500 or more

| Income Source | Range Level |
|---|---|
| Earnings | High |
| State or Federal Unemployment Compensation | Mid |
| Social Security | Mid |
| Supplemental Security Income (SSI) | Mid |
| Disability Income | Mid |
| Veteran's Payments | Mid |
| Survivor Benefits | Mid |
| Pensions/Retirement/Annuities | Mid |
| Retirement Interest | Mid |
| Property Income | Mid |
| Child Support | Mid |
| Nonretirement Interest | Low |
| Education Assistance | Low |
| Regular Financial Assistance | Low |
| Interest earning accounts | Low |
| Public Assistance/ TANF | Low |
| Food Assistance/ SNAP | Low |

- *Changes to Retirement Accounts and Asset Income*

To capture more relevant retirement income, the redesigned ASEC specifically asks if anyone in the household has a pension, and then if anyone has a retirement account (such as a 401(k), 403(b), IRA, or other account designed specifically for retirement savings). In contrast, the traditional ASEC asks one broad question on receipt of pension and retirement income. If the respondent has a retirement account, the redesigned ASEC instrument asks the respondent to identify the specific type of account. The instrument proceeds to inquire if there was a withdrawal or distribution from that retirement account.[8] For recipients over 70 years old the

[8] The 2011 Data Analysis Report by the Urban Institute identified that the ASEC misses over 90 percent of retirement account withdrawals.

question text changes to add, "including distributions you may have been required to take." To make sure the value of the withdrawal correctly counts as household income, there is a follow-up question on if the money was "rolled over" or reinvested to another account.

To better capture asset income, interest and dividend income received on retirement accounts was asked separately from non-retirement accounts in the redesigned ASEC. Traditional ASEC makes no distinction between investment income received in a retirement account and investment income received outside of a retirement account.[9] Asking about the specific types of accounts or assets could cue respondents and decrease underreporting.

*Results*

Income source recipiency, means, medians and aggregate income totals from the traditional ASEC (five-eighths sample) are compared to data from the redesigned ASEC (three-eights sample), both sets of data were weighted to national population controls, to evaluate the performance of the redesigned ASEC.[10] Table 1 shows the percentage change in real median household income and earnings by select characteristics. None of the characteristics examined shows a statistically significantly lower median income for the redesigned ASEC. Overall median household income based on the redesigned ASEC was $53,514 in 2013, 3.0 percent higher than median household income using the traditional ASEC ($51,939). Family household median income was 2.6 percent higher and 4.3 percent higher for married-couple households in 2013 using the redesigned ASEC compared to traditional ASEC. Among the other types of

[9] Czajka and Denmead (2008) estimate that the ASEC misses about 40 percent of aggregate interest income and about 75 percent of dividend income.

[10] The current ASEC processing system does not maximize income by source using the redesigned ASEC. In order to expedite the release of this report and the research file, the redesigned ASEC data were formatted to match the traditional ASEC data so the same processing to create fully edited variable could be done. The estimates in this report do not include any data from the income range questions as the Census Bureau is researching how to incorporate them in the allocation matrix.

family and nonfamily households, the changes in median income were not statistically significant. Non-Hispanic White household median income was 3.7 percent higher using the redesigned ASEC while Black and Asian median household income were not statistically different from the traditional ASEC. There was no statistically significant difference in Hispanic median household income. Households maintained by a householder aged 45 to 54 years and aged 65 and over, had higher median incomes using the redesigned ASEC (5.5 percent and 4.6 percent higher, respectively.) Only households in the West had higher median household income (5.3 percent higher) using the redesigned ASEC, the Northeast, Midwest, and South were not statistically different. Earnings of men and women who worked year round, full time were not statistically different between the redesigned and traditional ASEC.

Table 2 shows the number of people with income, mean dollars, and aggregates in 2013 by income source for people age 15 and older based on redesigned and traditional ASEC. Total recipiency, mean, and aggregate income was higher based on the redesigned ASEC than traditional. A stated goal of the redesigned ASEC was to increase income source reporting using the dual-path approach of identifying all sources of income before asking amounts. Table 2 shows that, with the exception of workers' compensation, all income recipiency was higher or not statistically different in the redesigned ASEC. Specifically, recipiency was higher for Social Security, Supplemental Security income, public assistance, disa bility benefits, retirement income, interest earning accounts and dividends.[11] The increased recipiency of these types of income sources resulted in lowered mean amounts, but increased aggregate income per source. Aggregate income was higher in the redesigned ASEC for all of the same sources of income that

[11] Recipiency was statistically lower for Workers' Compensation.

had higher recipiency except dividends.[12] One of the focuses of the redesigned ASEC was to increase public assistance values by removing the family income screener, tailoring the income questions for low-income households, and using the dual path approach. Public assistance recipiency, based on the redesigned ASEC, was up 23.6 percent and aggregate income was 36.7 percent higher compared to traditional ASEC. Another goal of the redesigned ASEC was to collect more retirement account income by specifically asking if anyone in the household has a pension, and then if anyone has a retirement account (such as a 401(k), 403(b), IRA, or other account designed specifically for retirement savings) and then asking separately about income from retirement accounts and other assets. This emphasis resulted in a 419.5 percent increase in people that received income from an IRA, Keogh, and/or 401(k) using the redesigned ASEC and a 230 percent increase in aggregate income from retirement accounts. Property income was also targeted with the redesigned instrument. Aggregate interest income was up 111.7 percent using the redesigned ASEC though aggregate dividend income was 20 percent lower. This is probably a product of the redesigned questionnaire better classifying what constitutes dividend income, separate from interest earned or capital gains. Collectively, aggregate interest and dividend income was up 52.8 percent using the redesigned compared to the traditional ASEC.

Table 3 shows comparisons of inequality measures for the redesigned and traditional ASEC. In spite of the overall increase in income recipiency and aggregate income including means-tested income sources, the shares of income going to the first and second quintile were lower for the redesigned ASEC. Of note is the increase in the redesigned ASEC Atkinson measure where e=.75, indicating the increased inequality was occurring because of changes in the lower end of the income distribution. An examination of the lowest quintile of households showed that

[12] Aggregate income for Veterans' Benefits was statistically lower based on redesigned ASEC.

aggregate income of many income sources were, in fact, lower (see Mitchell and Renwick, 2015).

*Conclusion*

The redesigned ASEC show increases in household medians, income recipiency, and aggregates. The redesigned questionnaire also seemed to improve the reporting for targeted income sources such as TANF, retirement and asset income. These improvements did not seem to be equally distributed, however, with the lower end of the income distribution showing less aggregate income for many income sources contributing to a lower overall share of aggregate income.

Future work will need to focus on how best to use income range reporting and testing a new processing system that utilizes the full detail of the redesigned questionnaire. In the meantime, based on these results, the Census Bureau plans to move forward with the redesigned ASEC and it will be used as the full production instrument in 2015.

## REFERENCES


Bee, Adam and Aaron Cantu. 2013. "Evaluating Respondent Burden of the CPS ASEC Content Test with Timer Data." Paper presented at the 2013 meetings of the Federal Committee on Statistical Methodology.

Brault, Matthew W. 2013. "Non-response Bias in the 2013 CPS ASEC Content Test." Paper presented at the 2013 meetings of the Federal Committee on Statistical Methodology.

Czajka, John L. and Gabrielle Denmead. 2008. "Income data for Policy Analysis: A Comparative Assessment of Eight Surveys" Mathematica Reference No.: 6302-601 [http://mathematica-mpr.com/publications/PDFs/incomedata.pdf]

DeNava-Walt, Carmen, Bernadette D. Proctor, and Jessica C. Smith. 2012. Income, Poverty, and Health Insurance Coverage in the United States: 2012. U.S. Bureau of the Census, Current Population Reports, P60-243. Washington, DC.: U.S. Government Printing Office.

Hicks, Wendy and Jeffrey Kerwin, 2011. "Cognitive Testing of Potential Changes to the Annual Social and Economic Supplement of the Current Population Survey." Unpublished Westat report to the U.S. Census Bureau. July 25, 2011.

Hornick, David. 2013. "The 2013 Annual Social Economic Supplement Health Insurance Questionnaire Test: The Sample Design." Paper presented at the 2013 meetings of the Federal Committee on Statistical Methodology.

Medalia, Carla, Amy Steinweg, Brett O'Hara, David Lee, Jessica Smith, Joanne Pascale, and Jonathan Rodean. 2013. "Health Insurance in the Current Population Survey: Redesign and Production." Paper presented at the 2013 meetings of the Federal Committee on Statistical Methodology.

Meyer, Bruce, Wallace K. C. Mok, and James X. Sullivan. 2009. "The Under-Reporting of Transfers in Household Surveys: Its Nature and Consequences." Harris School Working Paper #09.03.

Mitchell, Joshua, Renwick, Trudi, 2015, "A Comparison of Official Poverty Estimates in the Redesigned Current Population Survey Annual Social and Economic Supplement." Paper presented at the Allied Social Science Association Research Conference.

Semega, Jessica and Edward Welniak Jr. "Evaluating the 2013 CPS ASEC Income Redesign Content Test." 2013. Presented at the proceeding of the 2013 FCSM conference. U.S. Census Bureau Income Statistics working paper available online at: http://www.census.gov/hhes/www/income/publications/Evaluating the 2013 CPS ASEC Income Redesign Content Test.pdf