Improvements to the Current Population Survey Processing System

2019 Joint Statistical Meetings

Examining Poverty in 2016 and 2017 Using the Legacy and Updated Current Population Survey Processing Systems

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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. CBDRB-FY19-POP001-000. This presentation is intended 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.

Updating the CPS ASEC

The Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC) is the official source of poverty estimates in the U.S.

Goal of Demographic Changes : Improve the measurement of same-sex couples

Goal of Income Changes : Improve the quality of income and program participation data

	Data Collection Changes	Data Processing Changes
Demographics	• expanded same/opposite-sex relationship categories	• more inclusive family assignments • removal of husband/wife programing logic
Income	• new question wording • range follow-ups • dynamic skip patterns • dual pass data collection	• new imputation techniques • new top-coding techniques

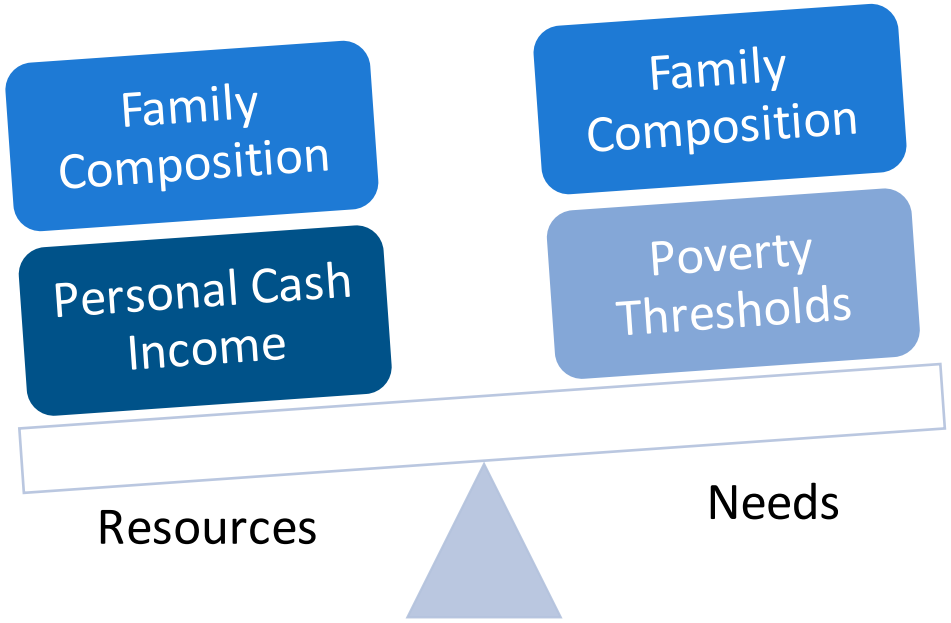
How Do Changes Impact the Official Poverty Measure (OPM)?

Resources

- Removed income screener for reporting means-based cash assistance
- Efforts to improve reporting of retirement income
- Dual pass approach
- Dynamic skip patterns
- New imputation techniques
- Revised family assignments

Needs

- Revised family assignments
- New poverty thresholds



How Do Changes Impact the Supplemental Poverty Measure (SPM)?

Resources

- Changes in insurance coverage and related out of pocket expenditures (MOOP)
- Removed income screener for reporting means-based non-cash assistance
- Impact on tax units and liability

Needs

- Thresholds not impacted

Source: U.S. Census Bureau, Current Population Survey, 2017 Annual Social and Economic Supplement. www2.census.gov/library/publications/2017/demo/p60-261.html.

Evaluating Changes

Goal is to evaluate overall and incremental impact of the revised demographic and income edit procedure across groups in the 2018 Bridge File

Considerations when comparing files:

- Different sample weights
- Different universes
- Changes in imputed characteristics not related to relationship status

Combined with the 2017 Research File allows us to compare calendar years (CY) 2016 to 2017 across the processing systems and create a time trend for 2019

		2018 Bridge File		
	2018 Production File	2018 Bridge File	Impact of Demo Edit	Impact of Income Edit
Family	old	new	new	old
Personal Income	old	new	old	new
Family Income	old	new	modified	modified

Overall Impact of New Processing System: OPM

The 2018 Bridge File will serve as the comparison file for estimates from the 2019 CPS ASEC, which will *only* be processed using the redesigned processing system

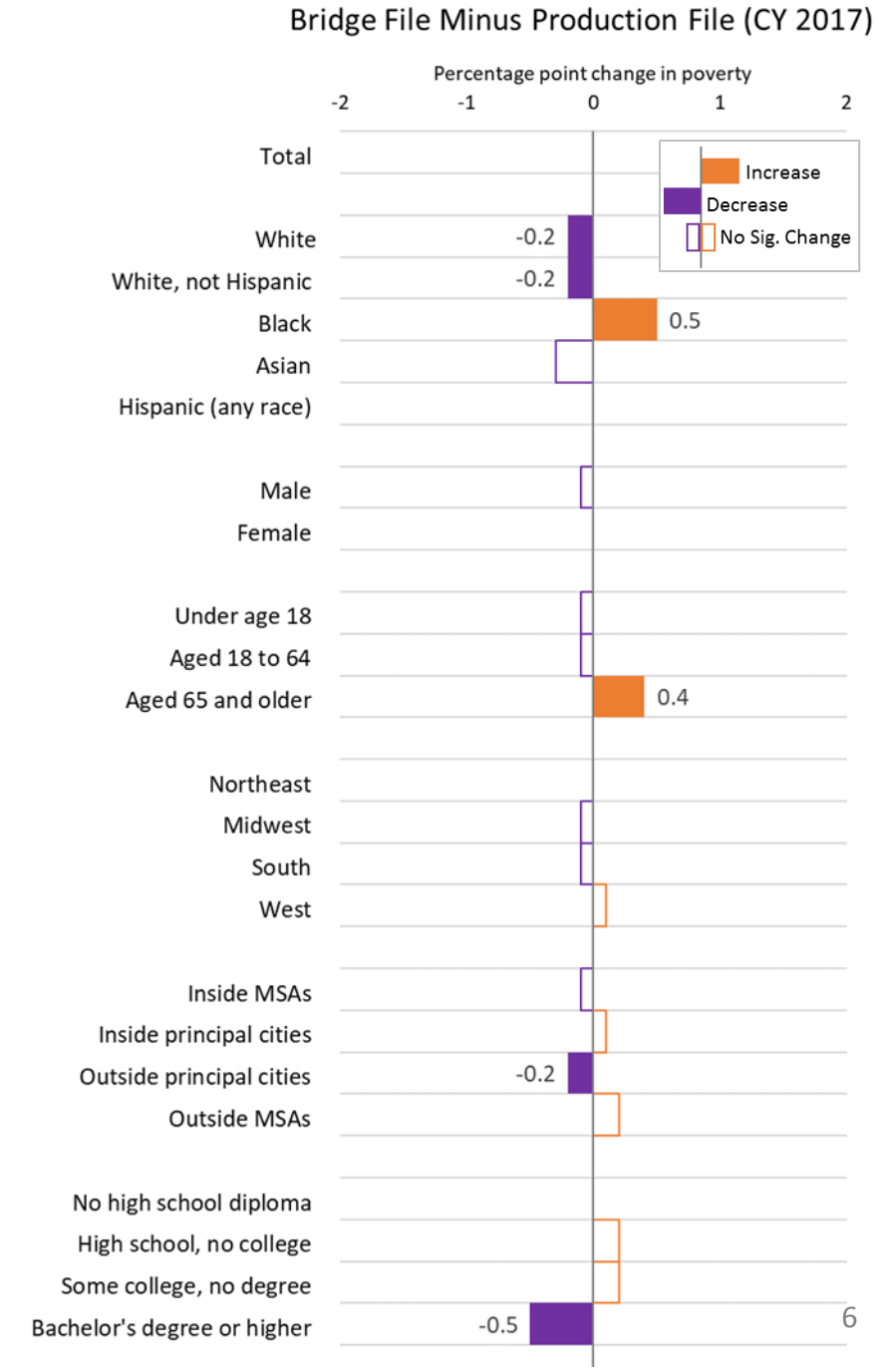
We find no significant overall change in poverty rates across the Production and Bridge File

Poverty rates increase for:

Blacks and individuals aged 65 and older

Poverty rates decrease for:

White, non-Hispanics, those living outside principal cities and people with a bachelor's degree or higher



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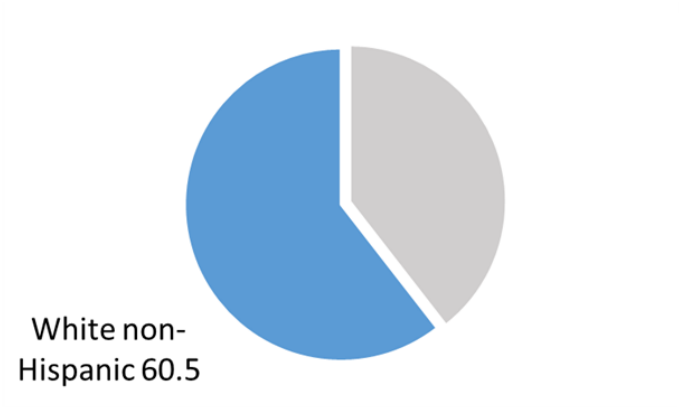
Characteristics of Individuals in Same-Sex Marriages

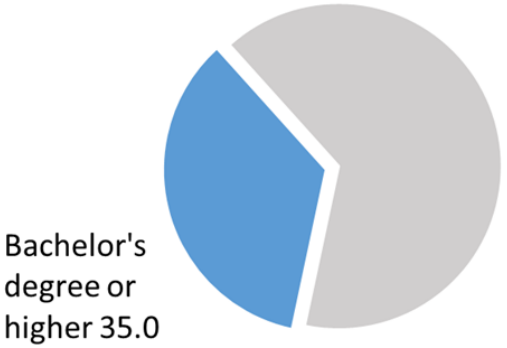
In 2017, approximately 1 million spouses were in a same-sex marriage

Spouses in same-sex marriages were:

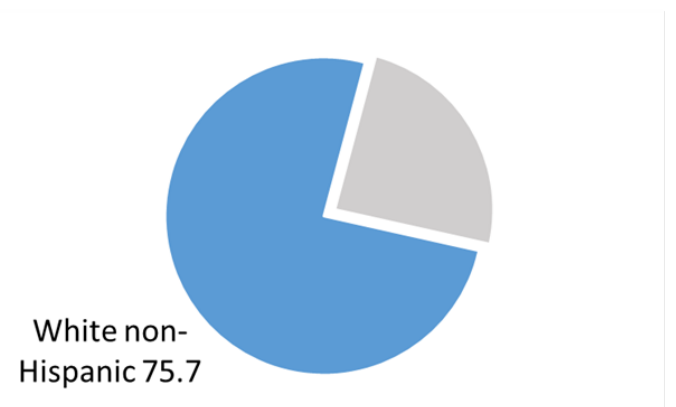
- Less diverse
- More highly educated

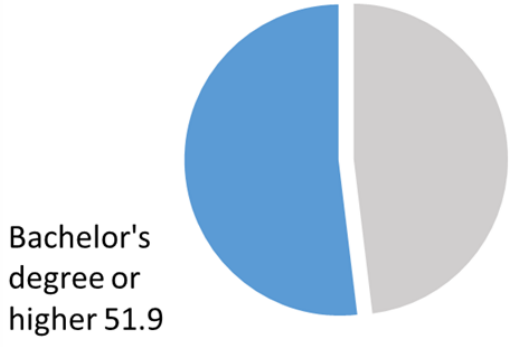
General Population





Same-Sex Married Couples





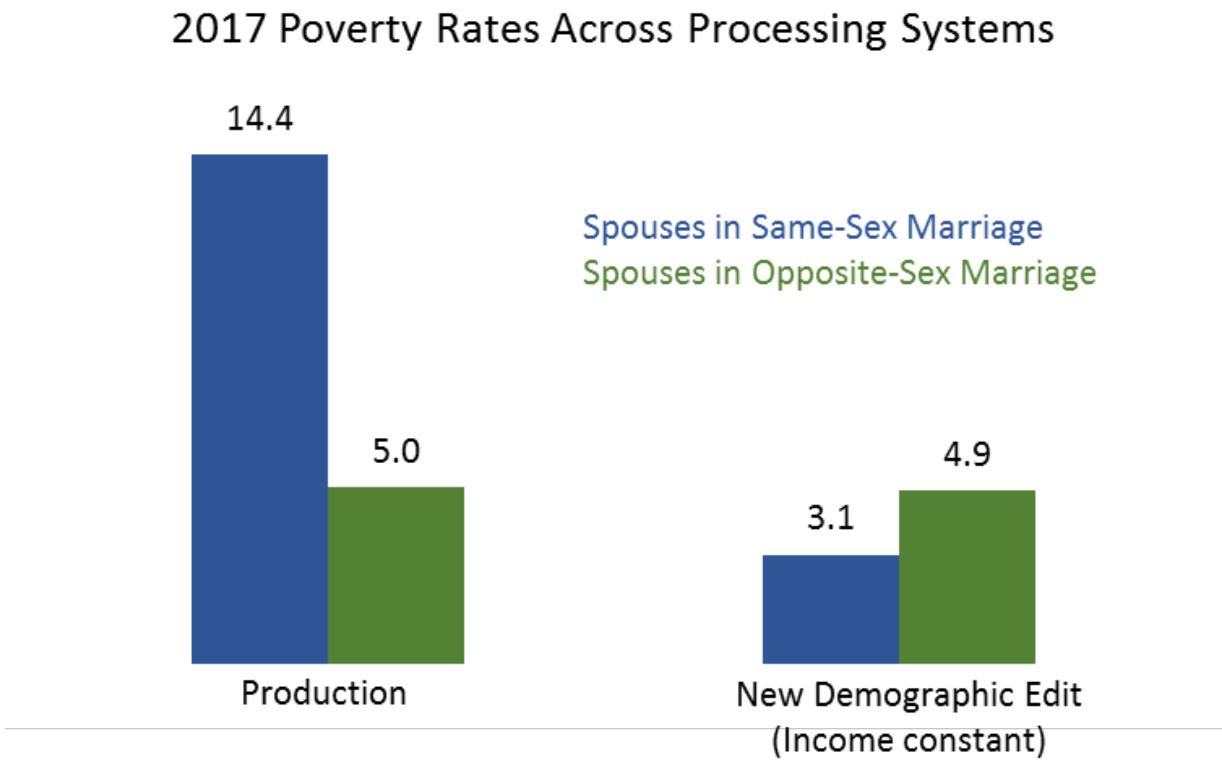
Measuring Poverty for Individuals in Same-Sex Marriages

Under legacy editing procedures:

- Treated as unmarried partners
- Poverty rate was 14.4 percent

With the 2018 Bridge File:

- Treated as a single family
- Poverty rate drops to 3.1 percent—not statistically different from those in opposite-sex marriages (when holding income constant)



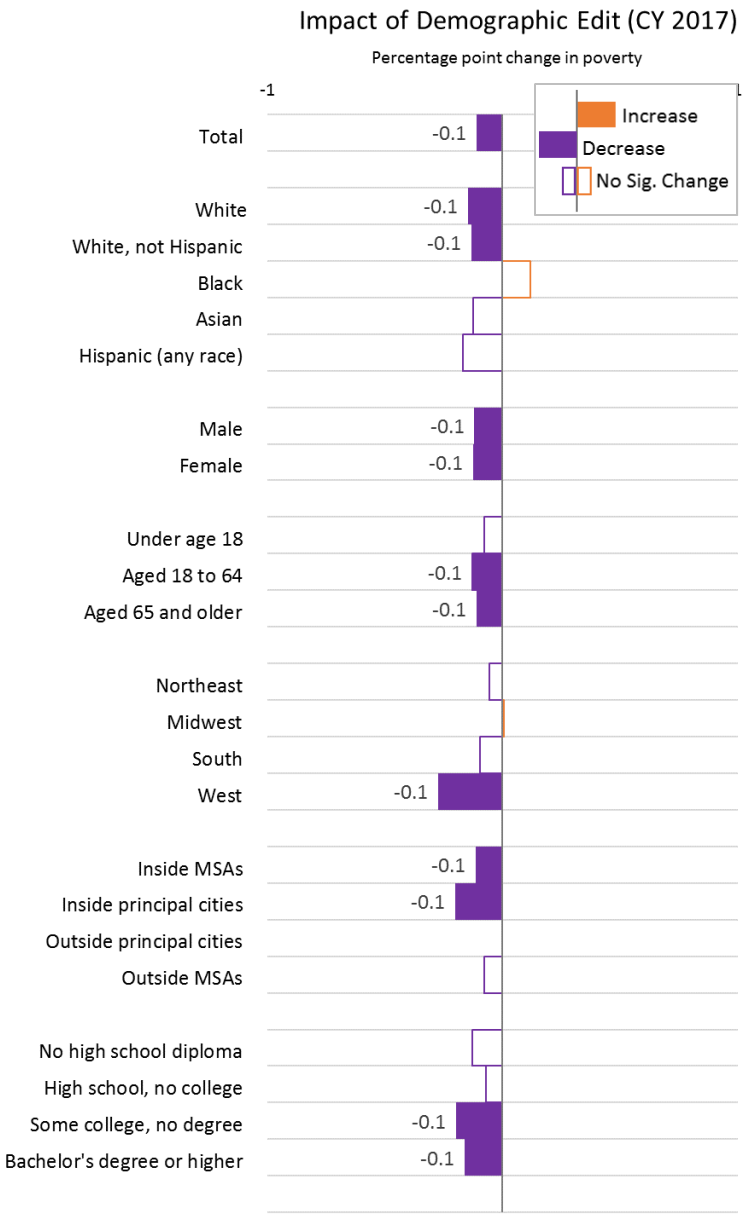
Impact of the Demographic Edits on Poverty: OPM

	2018 Production File	Impact of Demo Edit
Family	old	new
Personal Income	old	old
Family Income	old	modified

Impact of the Demographic Edits on Poverty: OPM

When holding income constant based on the Production File:

- Poverty rates decline 0.1 percentage points, with approximately 181,000 individuals no longer in poverty
- While statistically significant, point estimates of the poverty rate are consistent when rounded to the tenth decimal place
- The impact of the updated family edits across population groups is largely as expected given the characteristics of the same-sex married population

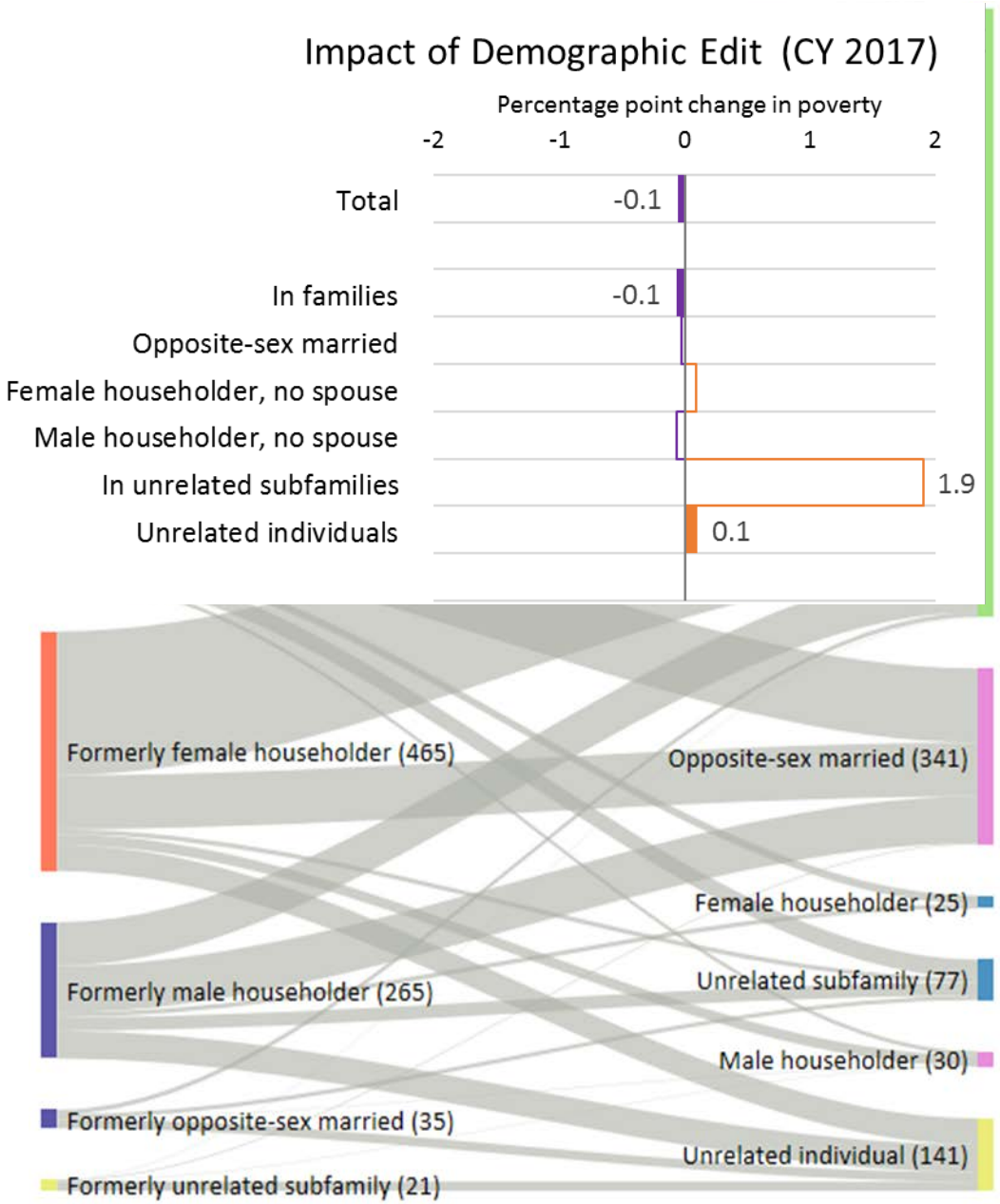


Impact of Demographic Edits on Family Assignment

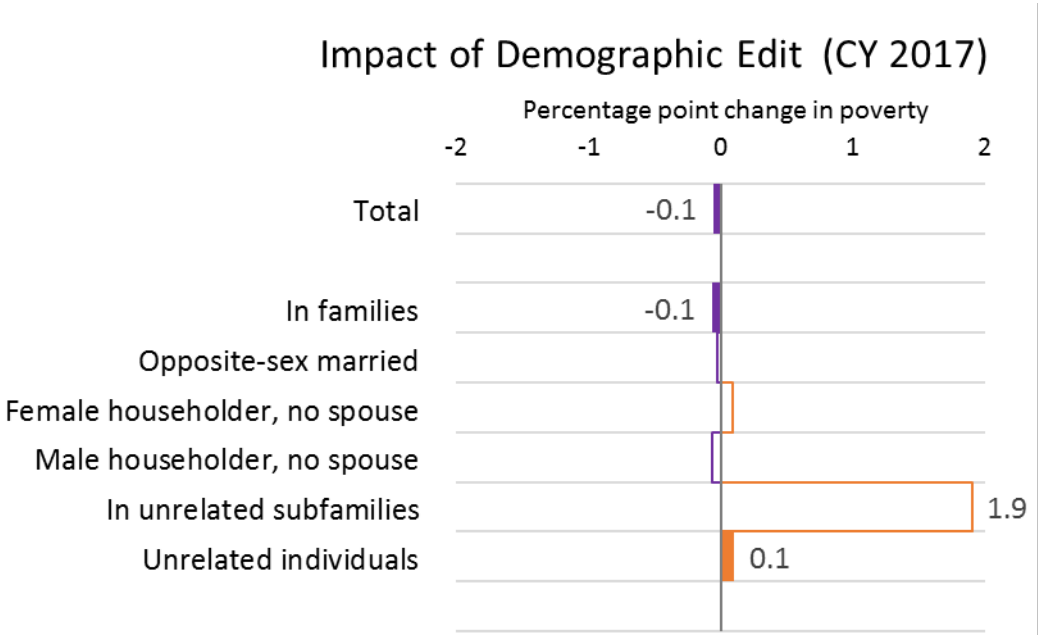
By family type, poverty rates decrease for primary families and increase for unrelated individuals

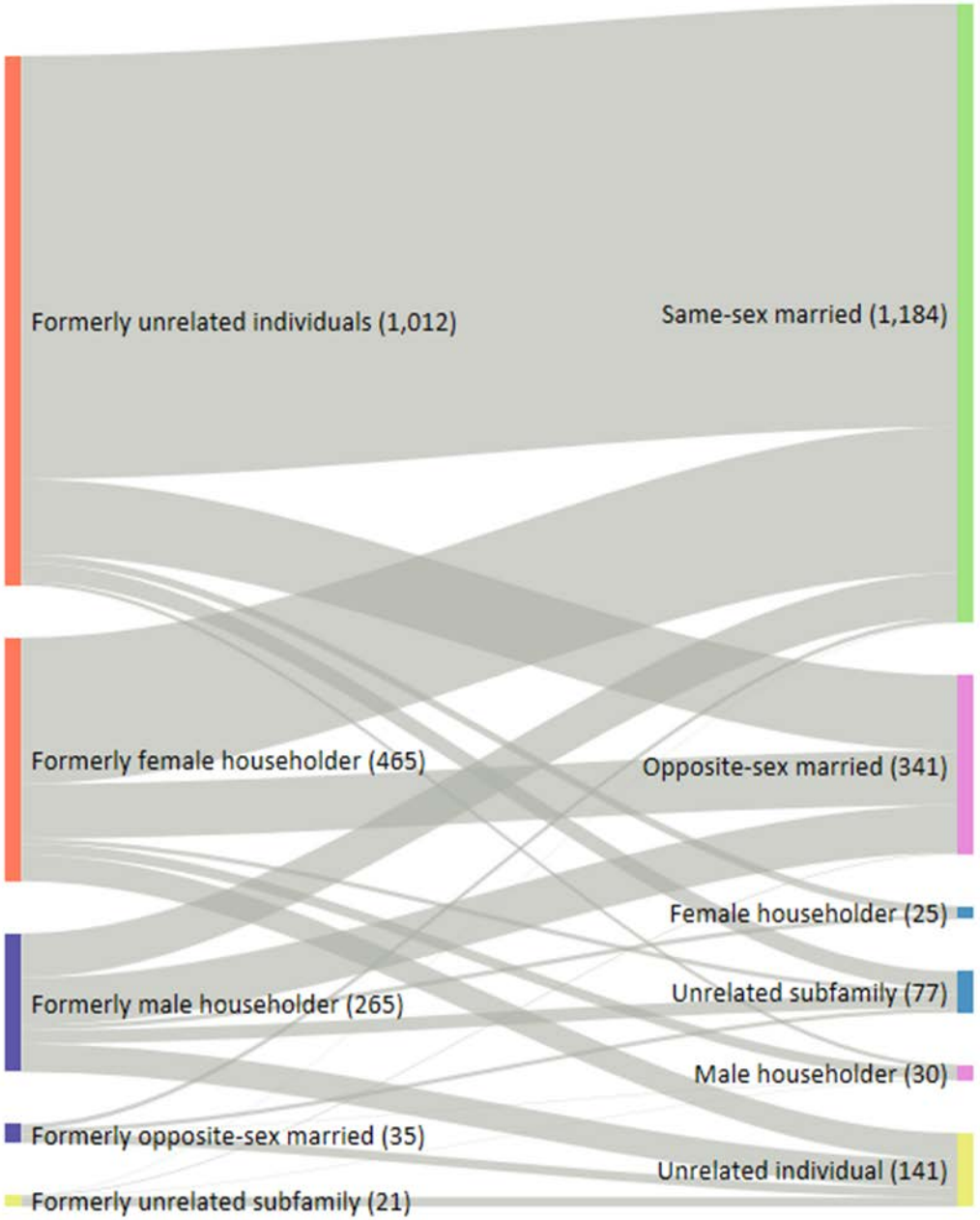
Changes in poverty reflect the complicated movement of individuals' family classification across files

- Unrelated individuals who join primary families had lower poverty rates than those who continued to be classified as unrelated individuals
- Poverty decreases for unrelated individuals moving into same-sex married couple families. The poverty rate is not significantly different than the rate for those moving into opposite sex-married couple families



Numbers in thousands


Impact of Demographic Edit (CY 2017)
Percentage point change in poverty
-2
-1
0
1
2
Total
-0.1
In families
-0.1
Opposite-sex married
Female householder, no spouse
Male householder, no spouse
In unrelated subfamilies
1.9
Unrelated individuals
0.1


Formerly unrelated individuals (1,012)
Formerly female householder (465)
Formerly male householder (265)
Formerly opposite-sex married (35)
Formerly unrelated subfamily (21)
Same-sex married (1,184)
Opposite-sex married (341)
Female householder (25)
Unrelated subfamily (77)
Male householder (30)
Unrelated individual (141)

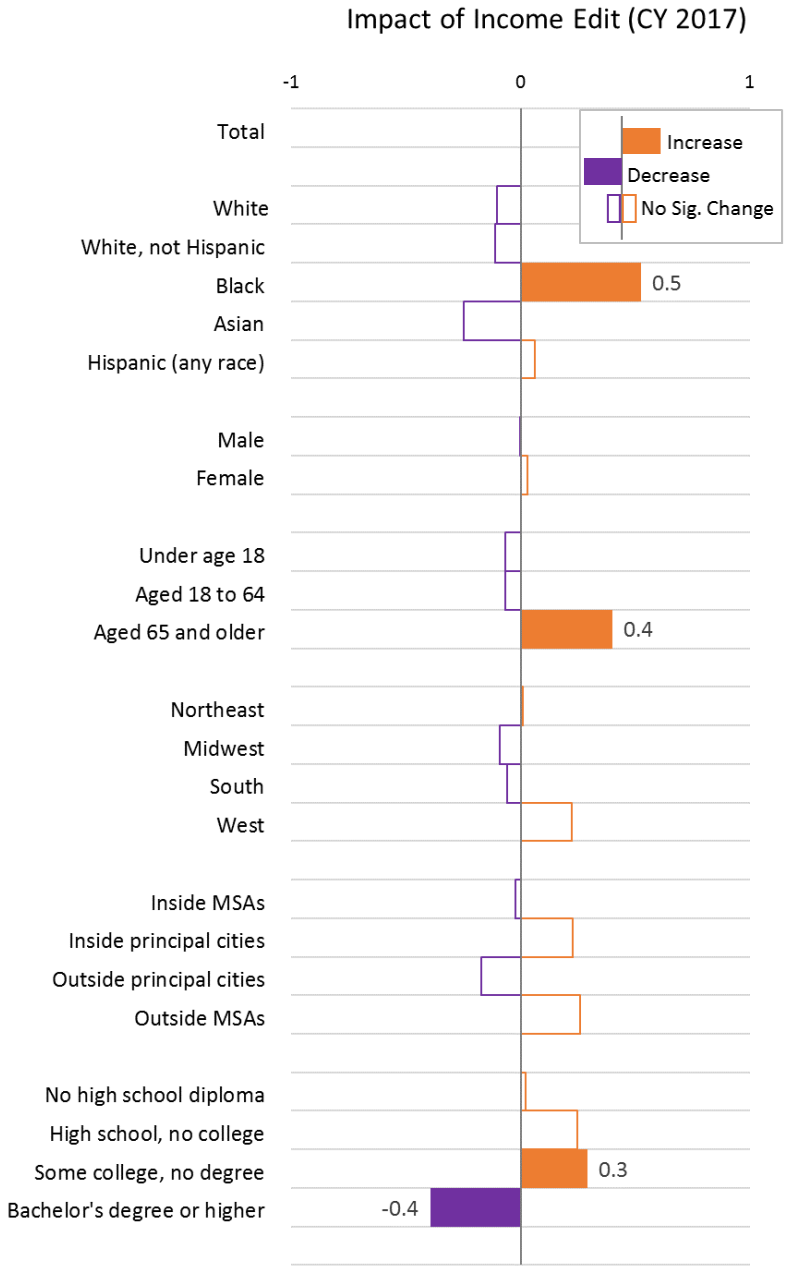
How Income Edits Impact Poverty: OPM

	2018 Production File	Impact of Income Edit
Family	old	old
Personal Income	old	new
Family Income	old	modified

How Income Edits Impact Poverty: OPM

When holding family assignments constant based on the Production File there is no significant change in the overall number or percent of people in poverty

- Increases in poverty for:
  - Blacks, aged 65 and older, and those with some college experience, but no degree
- Decrease in poverty for those with a bachelor's degree or more education

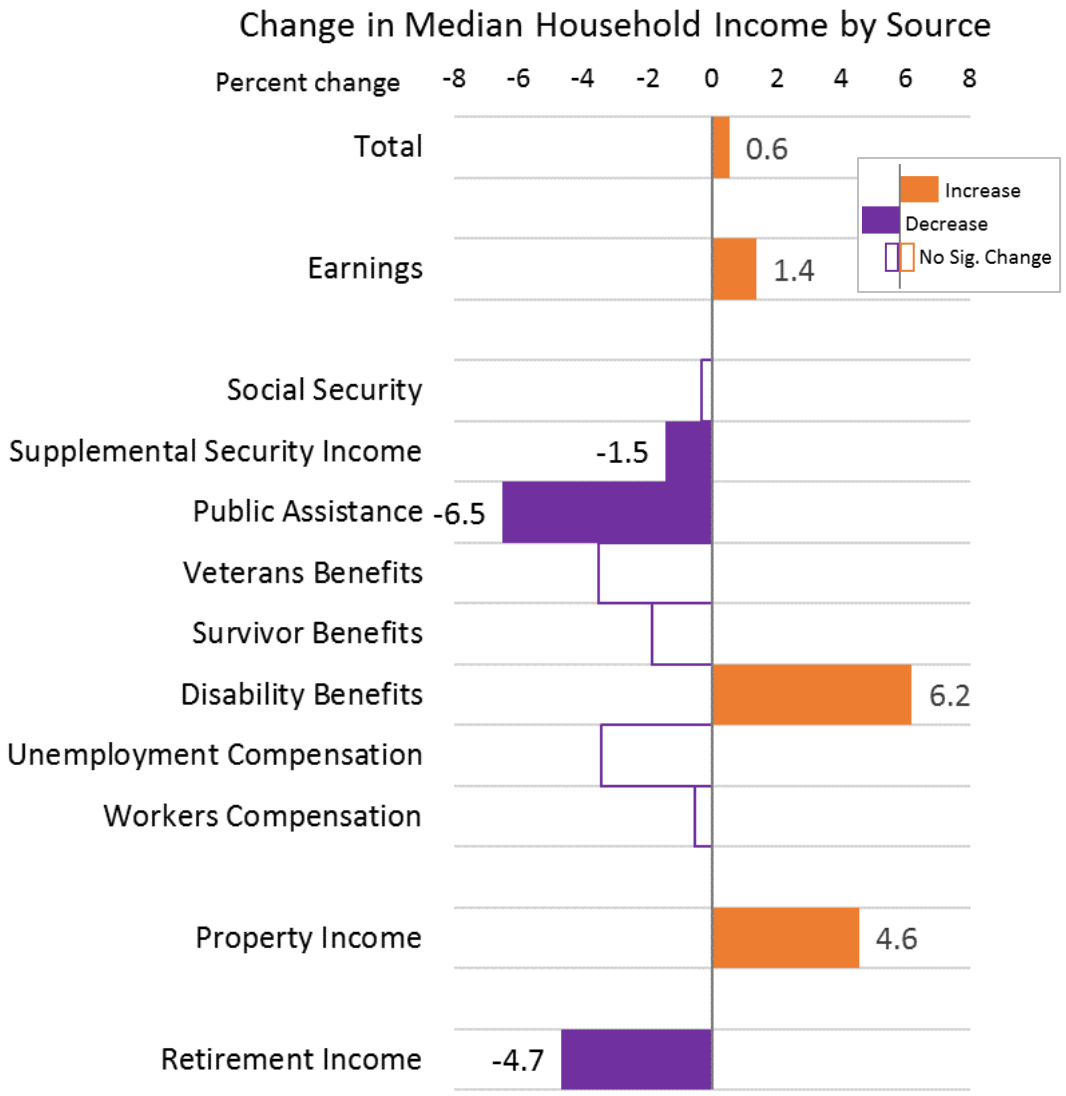


Changes in Reported Income

While median household income increases in the Bridge File, we do not see large scale decreases in the poverty rate for selected subgroups

Rothbaum (2019) shows that median household income reporting varies between files depending on income source

This is particularly interesting for the aged 65 and older population because we see decreases in Supplemental Security Income and total retirement income, two key sources of income



Individuals aged 15 and older. Source: Rothbaum (2019).

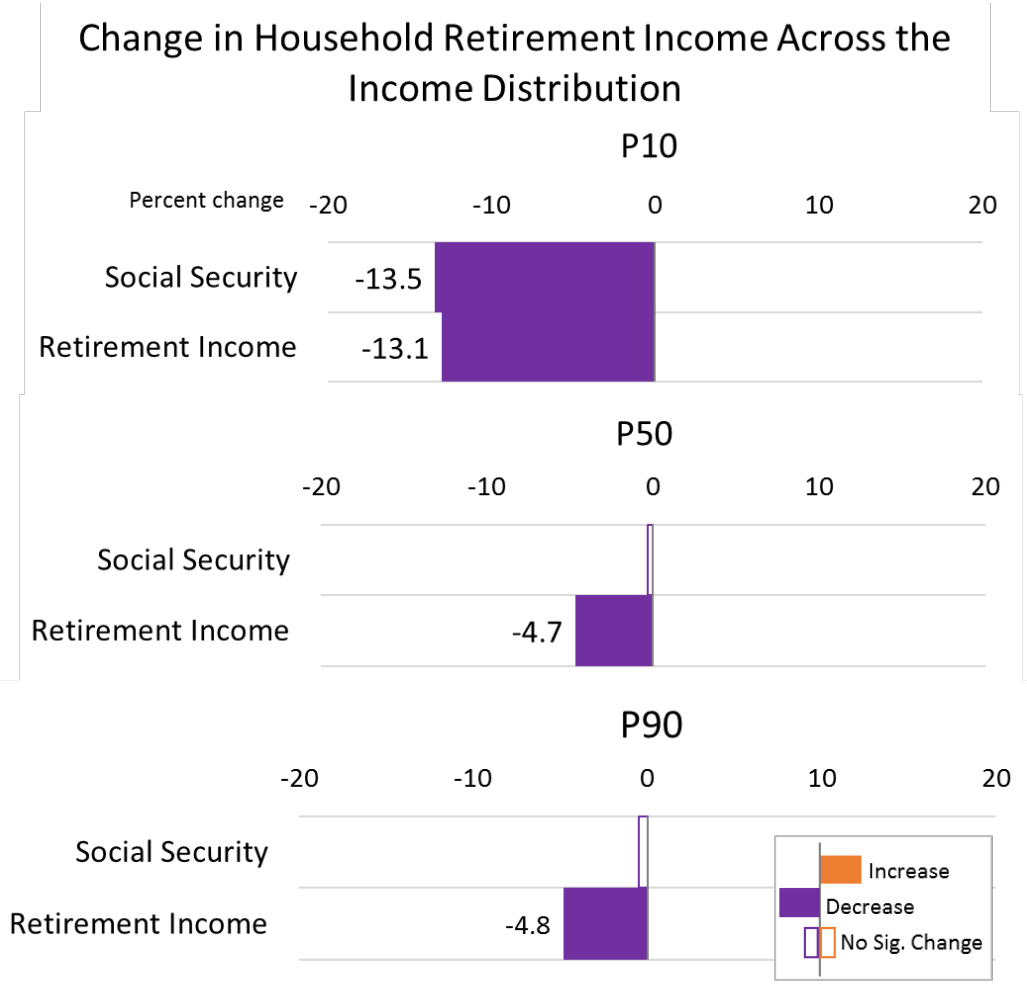
Changes in Social Security and Retirement Income

Rothbaum (2019) finds that changes in retirement income between the Production File and Bridge File vary by location on the distribution

Overall retirement income decreased at the 10th, median and 90th percentiles

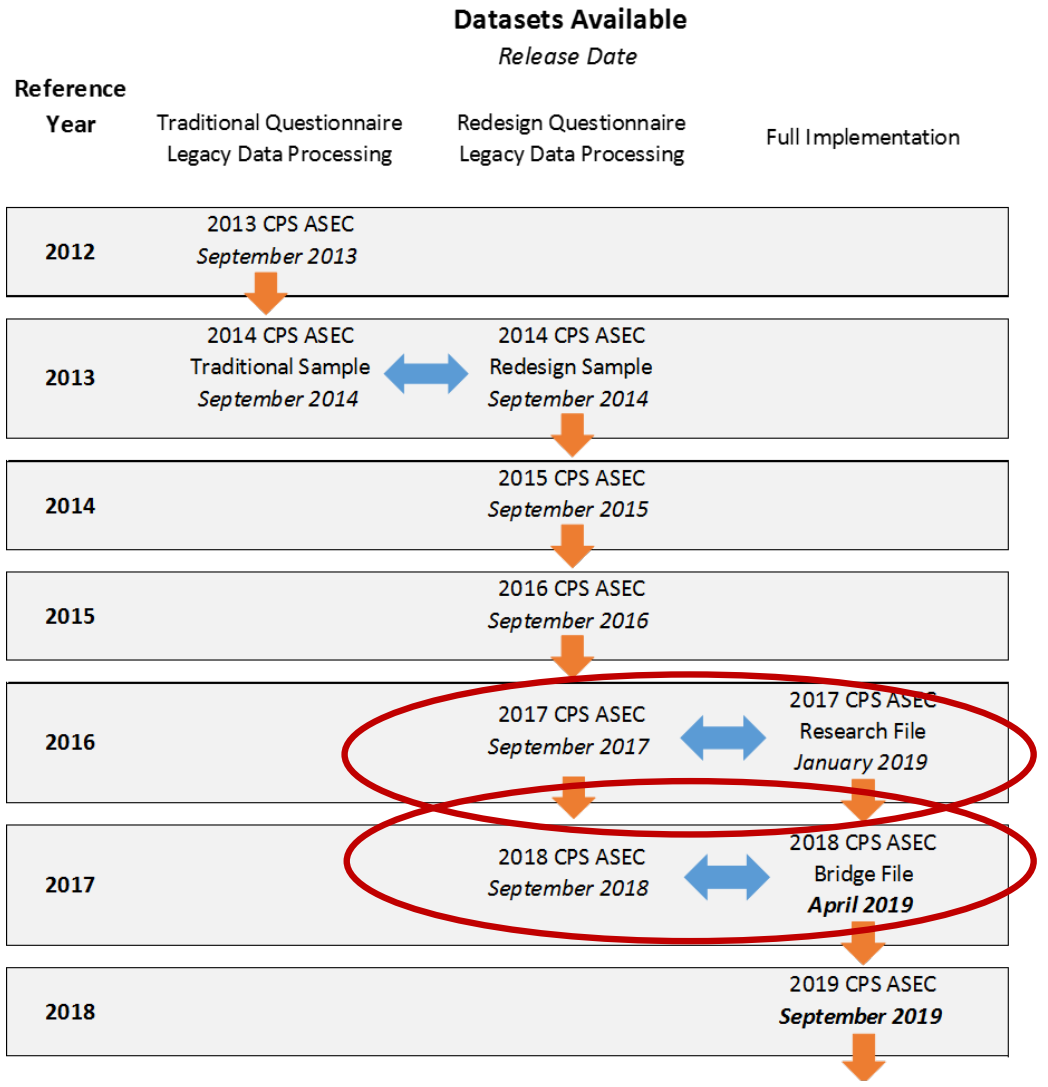
- The new processing system fixed an error with second pension sources which affects this population

Individual sources vary across the distribution, but tend to be lower in the Bridge File at the lower end of the distribution



Individuals aged 15 and older. Source: Rothbaum (2019).

2016-2017 Poverty Changes Across Processing Systems

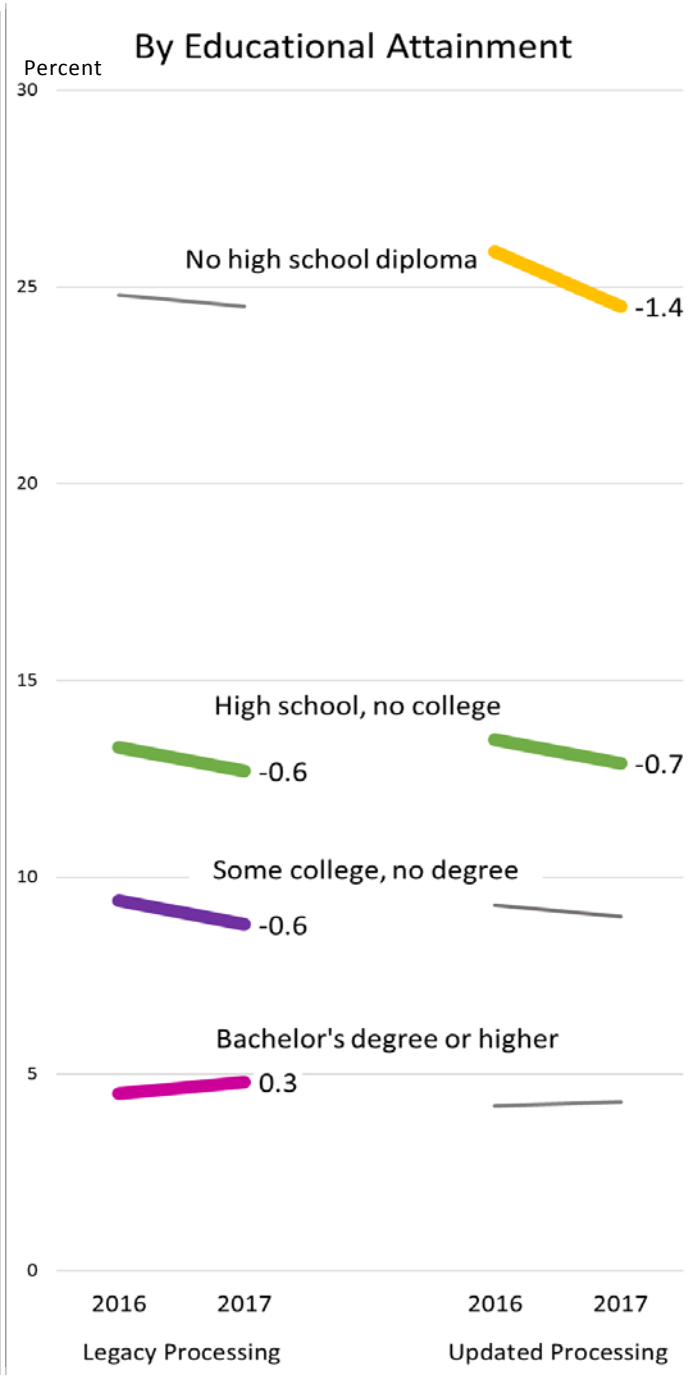


2016-2017 Poverty Changes Across Processing Systems

Using the legacy processing system, last year's *Income and Poverty in the United States: 2017* report showed significant drops in overall poverty as well as by demographic groups from 2016 to 2017

How does that story change if we had implemented the new processing system?

- Both files show a decrease in poverty for the overall population
- Some differences in significance of year-to-year changes across demographic groups based on files being used



Series in grey denote no significant change across years.

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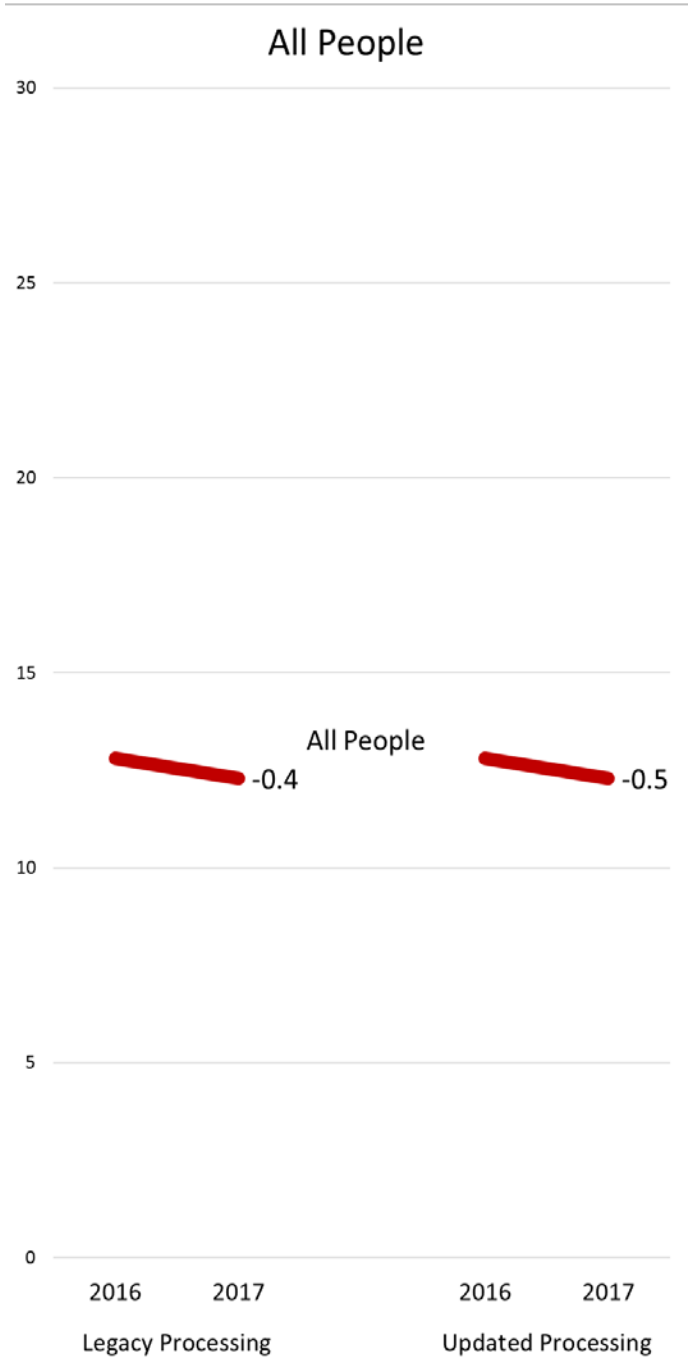

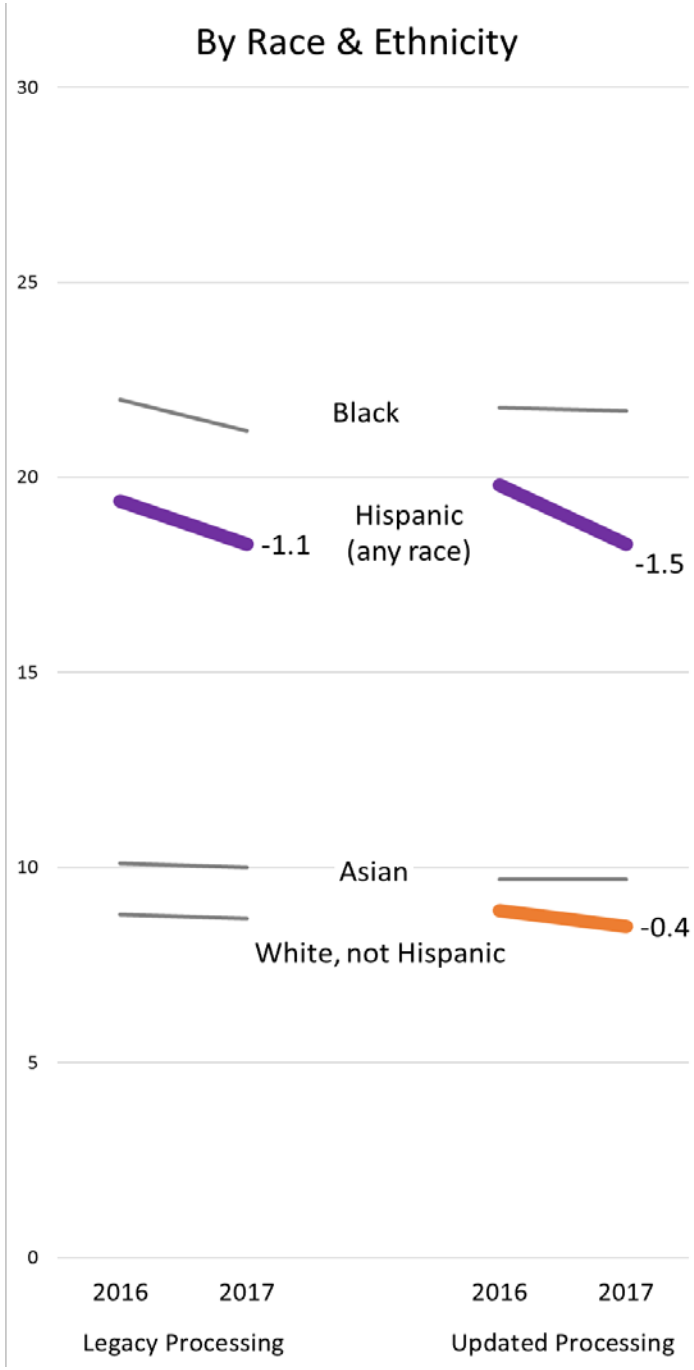

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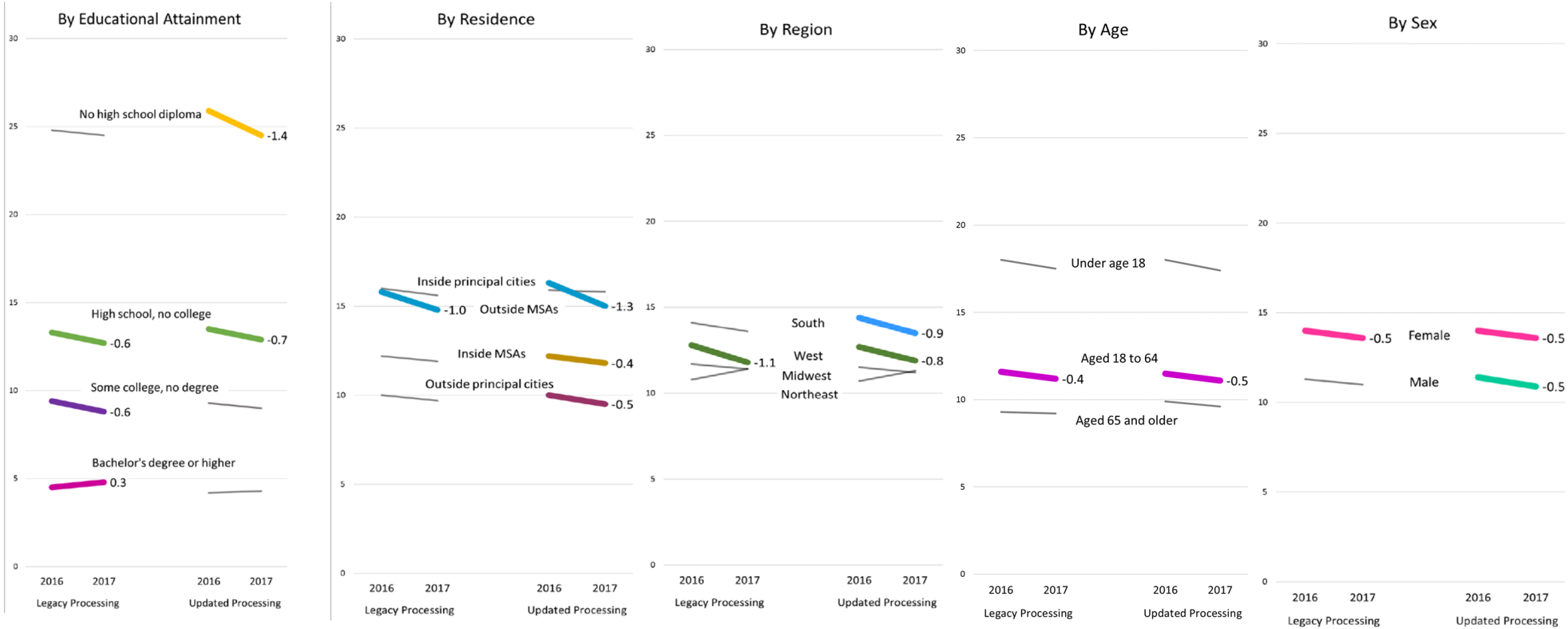
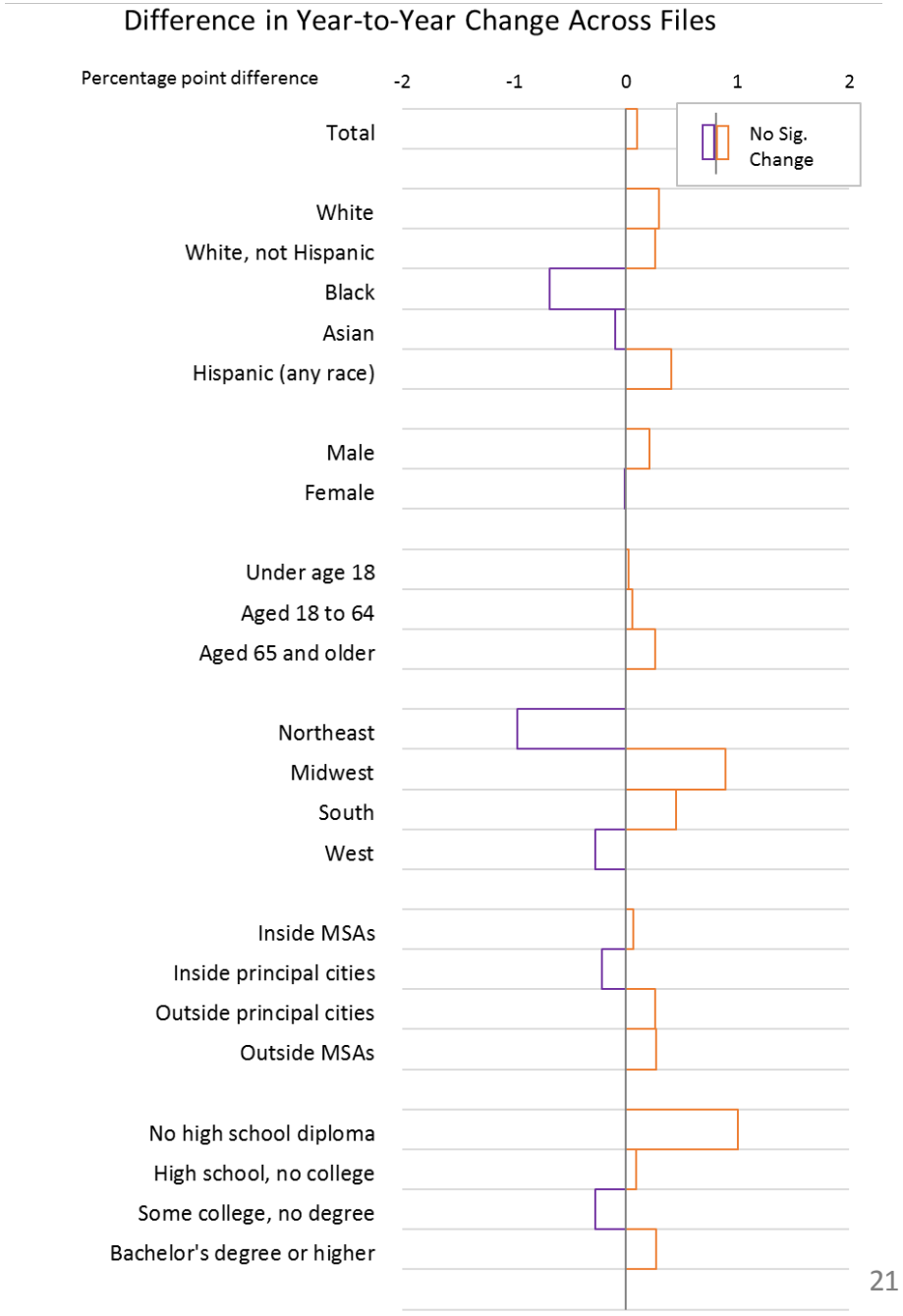

By Educational Attainment
No high school diploma
-1.4
High school, no college
-0.6
-0.7
Some college, no degree
-0.6
Bachelor's degree or higher
0.3
2016
2017
2016
2017
Legacy Processing
Updated Processing
By Residence
Inside principal cities
-1.0
Outside MSAs
-1.3
Inside MSAs
-0.4
Outside principal cities
-0.5
2016
2017
2016
2017
Legacy Processing
Updated Processing
By Region
South
-0.9
West
-1.1
-0.8
Midwest
Northeast
2016
2017
2016
2017
Legacy Processing
Updated Processing
By Age
Under age 18
Aged 18 to 64
-0.4
-0.5
Aged 65 and older
2016
2017
2016
2017
Legacy Processing
Updated Processing
By Sex
-0.5
Female
-0.5
Male
-0.5
2016
2017
2016
2017
Legacy Processing
Updated Processing

Difference-in-Difference Across Years

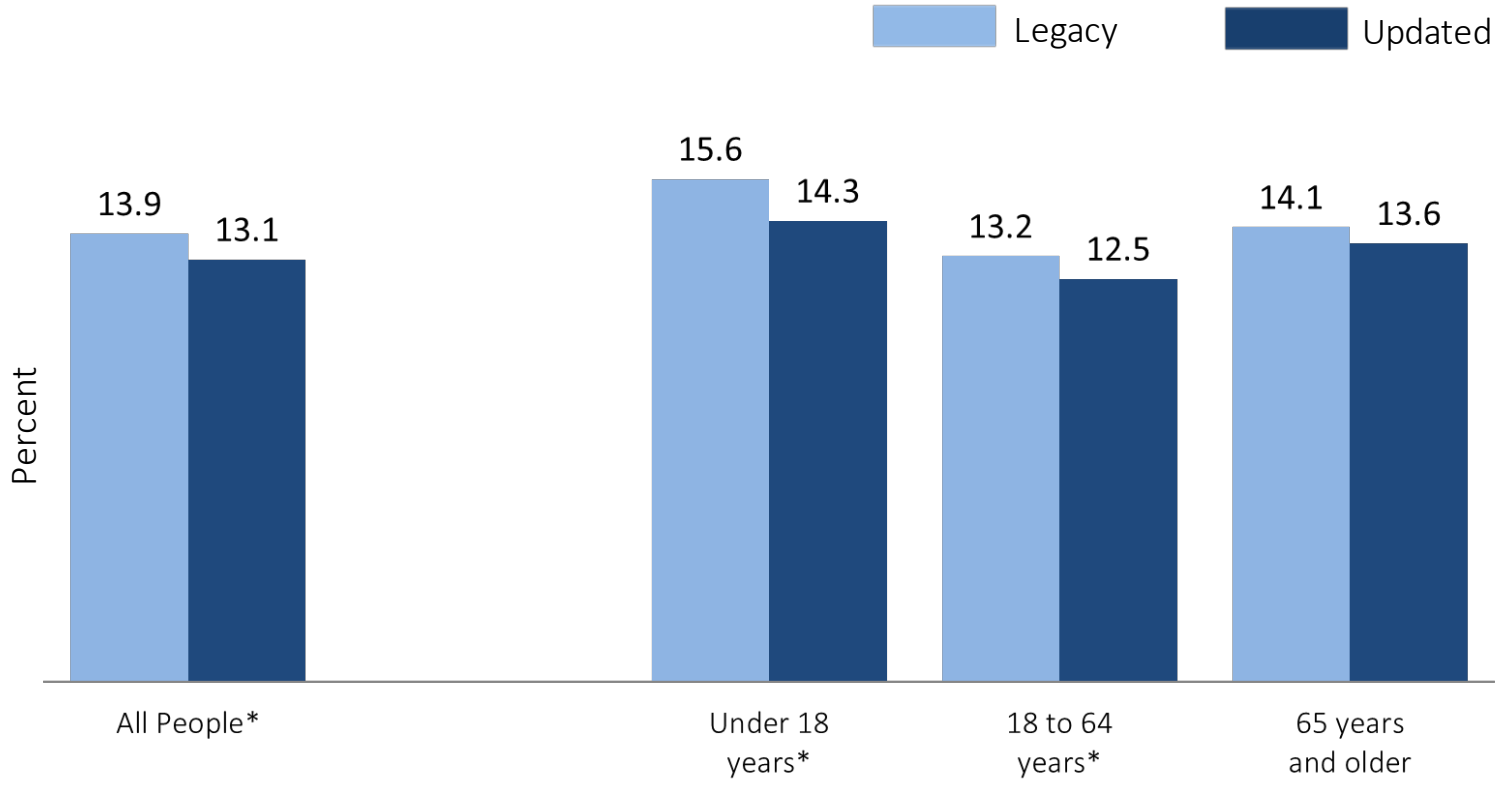
Although the significance of changes in poverty rates across years does vary across demographic groups based on the files being used, the percentage point change across years is **not** statistically different across files for any demographic group



Implications for the Supplemental Poverty Measure: CY 2017

Estimates of poverty based on the SPM showed *decreases* in overall poverty, as well as for all major age groups except adults aged 65 and older.

This conflicts with findings from the official poverty measure (OPM) where poverty *increased* for those aged 65 and older under the updated processing system.

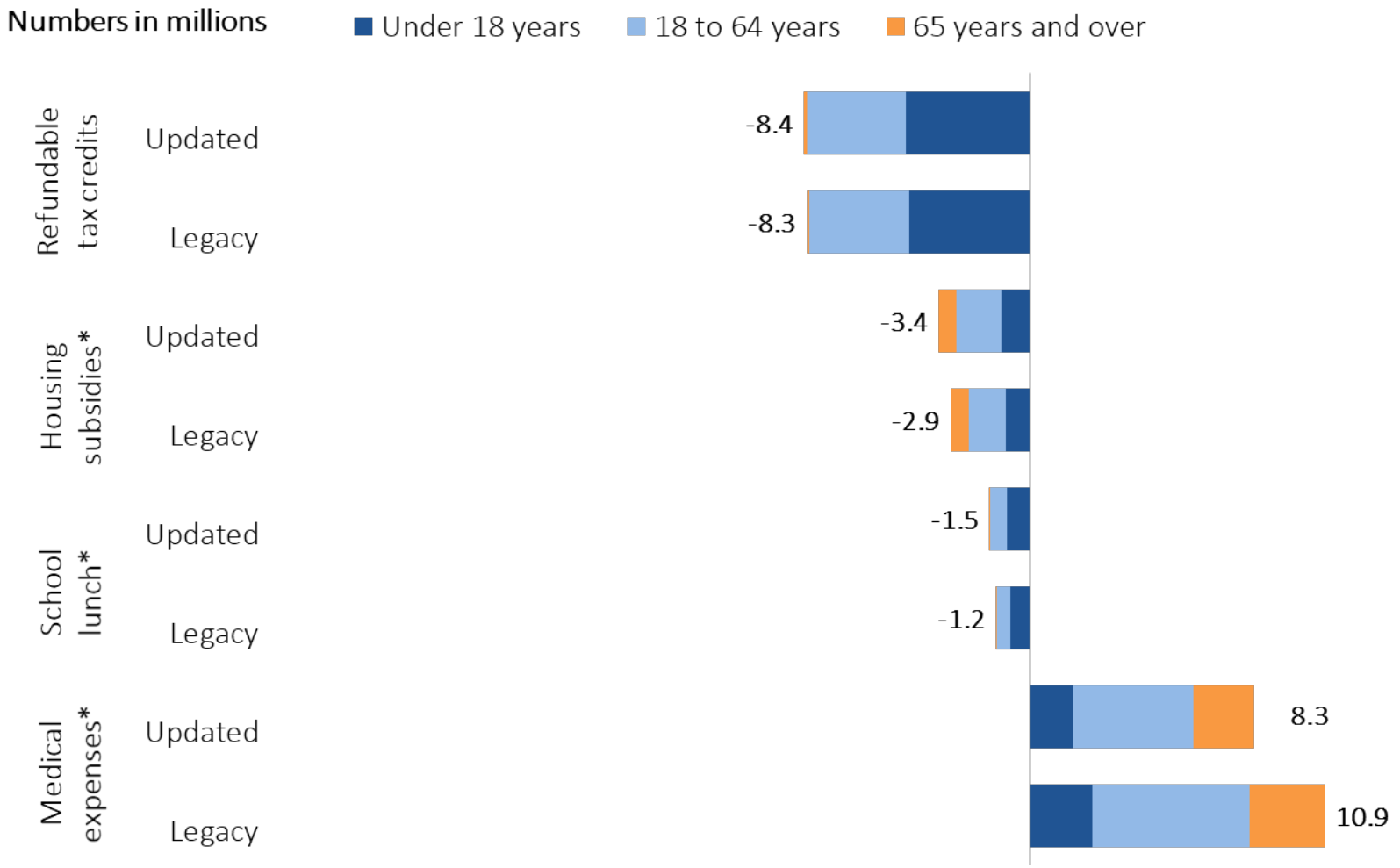


* Represents statistical difference at 90% level

Change in Number of SPM Poor by Resource Element: CY 2017

No significant difference on the impact of refundable tax credits across processing systems

More people moved out of poverty based on housing subsidies and school lunch and fewer people moved into poverty based on medical expenses under new editing procedures

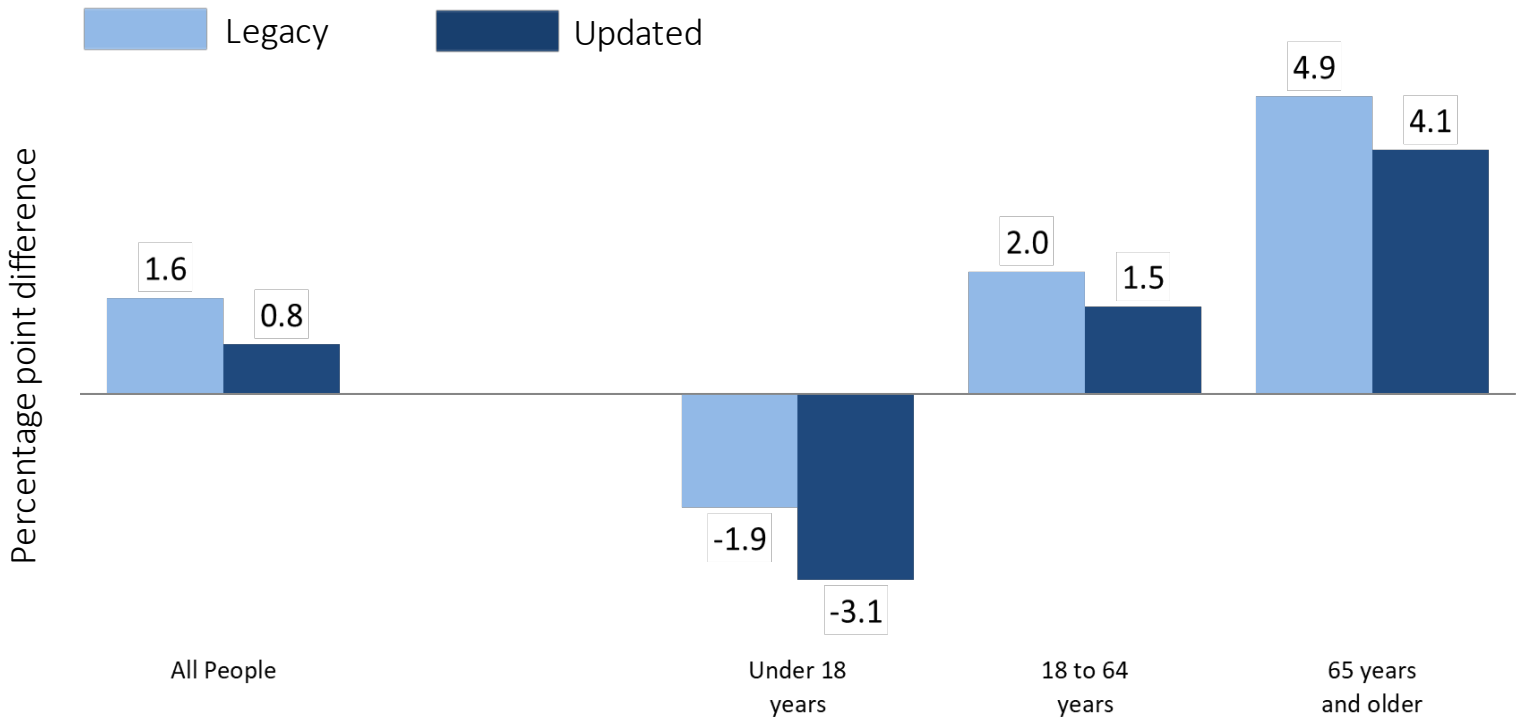


* Represents statistical difference at 90% level

The Relationship Across the OPM and SPM: CY 2017

The difference across the OPM and SPM narrows to 0.8 percentage points when using the updated processing system

- No significant change in overall OPM rate while poverty declines using the SPM



Discussion

Goal: Improve the measurement of same-sex couples

- Identify 1.2 million individuals in same-sex married couple families
- Poverty estimates for individuals in same-sex marriages decline 11.2 percentage points

Goal: Improve the quality of income and program participation data

- We see *increases* in poverty across three demographic groups based on income processing changes
- At the 10th percentile, we see declines in Social Security and retirement income

Discussion

No significant overall change in the number or percent of people in poverty across files for reference years 2016 or 2017

- Some demographic groups have significant differences using one processing system and not the other

Decrease in the number and percent of SPM poor for reference year 2017

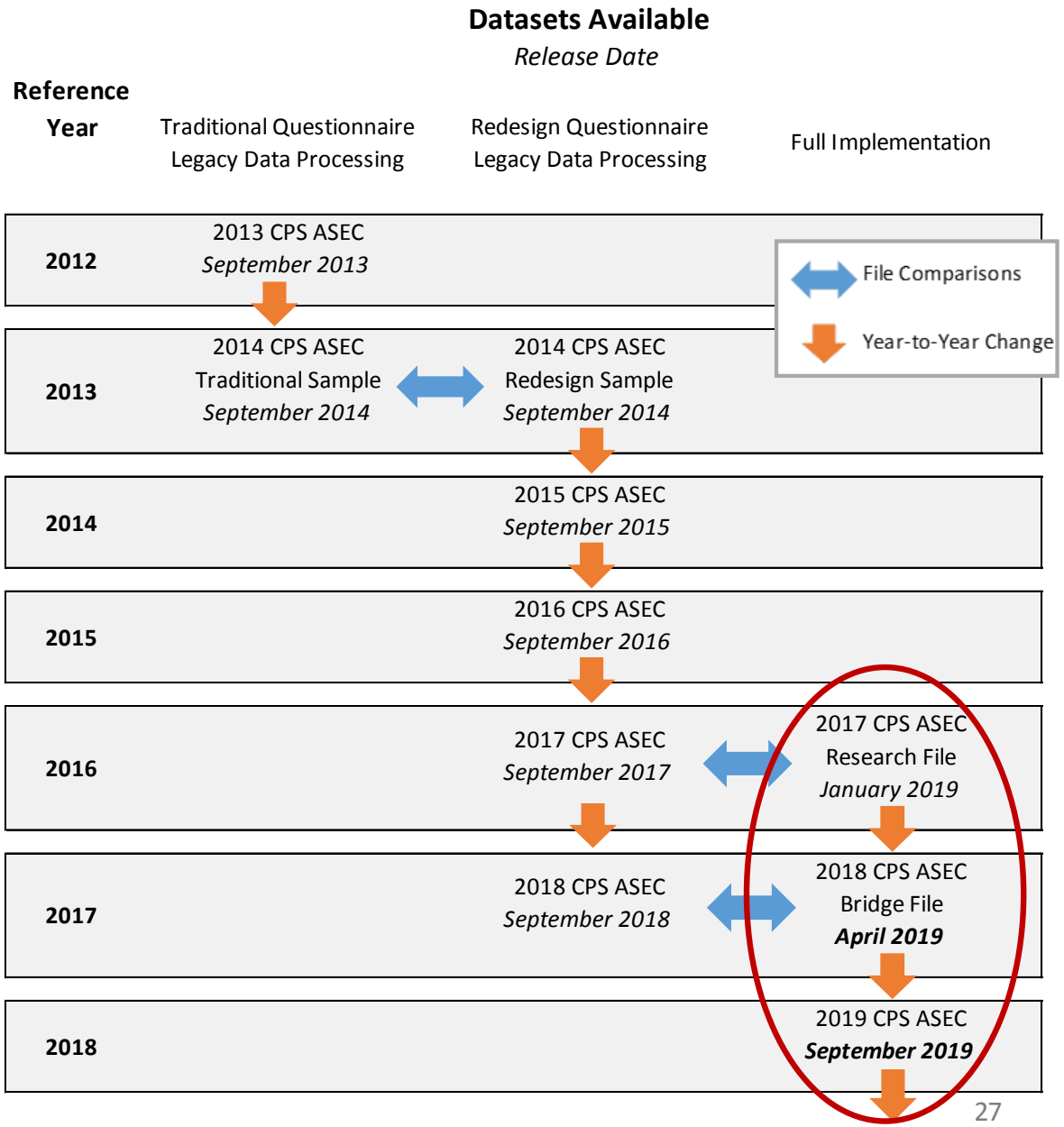
- Removal of means-tested benefit caps and improvements in medical expense estimation decrease SPM poverty

Next Steps

The 2019 CPS ASEC File will be released in September 2019, reflecting all processing changes

- 2017 CPS ASEC Research Public Use File released January 2019
- 2018 CPS ASEC Bridge Public Use File released April 2019

Income & Demographic Content Implementation Timeline



Resources & Contact

For additional information see <https://census.gov/topics/income-poverty/poverty.html>.

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