

# Health Insurance in the United States: Evaluating the Effects of Changes in the CPS ASEC

Edward R. Berchick and Heide M. Jackson

2019 Population Association of America Annual Meeting



U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. CENSUS BUREAU  
[census.gov](https://www.census.gov)

*This presentation is released to inform interested parties of research and to encourage discussion. The views expressed on statistical or methodological issues are those of the authors and not necessarily those of the U.S. Census Bureau. It has undergone review by a Census Bureau Disclosure Avoidance Officer (CBDRB-FY19-ROSS-B0047 and CBDRB-FY19-ROSS-B0048).*

# Roadmap

- Background on improvements to the CPS ASEC
- Comparison of estimates across research and production files
  - Key estimates
  - Why estimates changed
  - New measures
- Important takeaways for data users

# Roadmap

- **Background on improvements to the CPS ASEC**
- Comparison of estimates across research and production files
  - Key estimates
  - Why estimates changed
  - New measures
- Important takeaways for data users

# Improvements to the CPS ASEC

- Two-Stage Process:
  - Redesign of questionnaire (released in 2014; starting with 2014 CPS ASEC)
    - To ensure timely release, missing and incomplete data were handled through the traditional processing system
  - Redesign of processing procedure (released in 2019; starting with 2017 CPS ASEC Research File)

# Health Insurance Instrument Redesign

## Design:

### Reference period

- New current coverage question to improve responses to questions about health insurance coverage in previous calendar year

### Health insurance coverage types

- Start with general coverage questions followed by more specific questions

### Hybrid person-household-level design

- After a person reports coverage, ask who else in household had ***that plan type***
- Ask about all household members ***individually by name*** to address gaps in household coverage

## Results:

- Improved respondent experience
- More precise measures of health insurance coverage
- Expanded coverage details

# Redesign of Processing System

## Legacy System

- Instrument output mapped into old variables – loss of information about types of coverage
- No information about subannual coverage
- Missing data was imputed for each individual one type at a time, leading to potential over-estimates of multiple coverage

## Updated System

- Instrument output used with full detail on types of plans that did not previously exist, including those purchased through a marketplace (healthcare.gov)
- Uses subannual information to improve edits and consistency between types of coverage held concurrently
- New imputation process groups people into health insurance units and fills missing data based on the characteristics of that unit

# Redesign of Processing System (Continued)

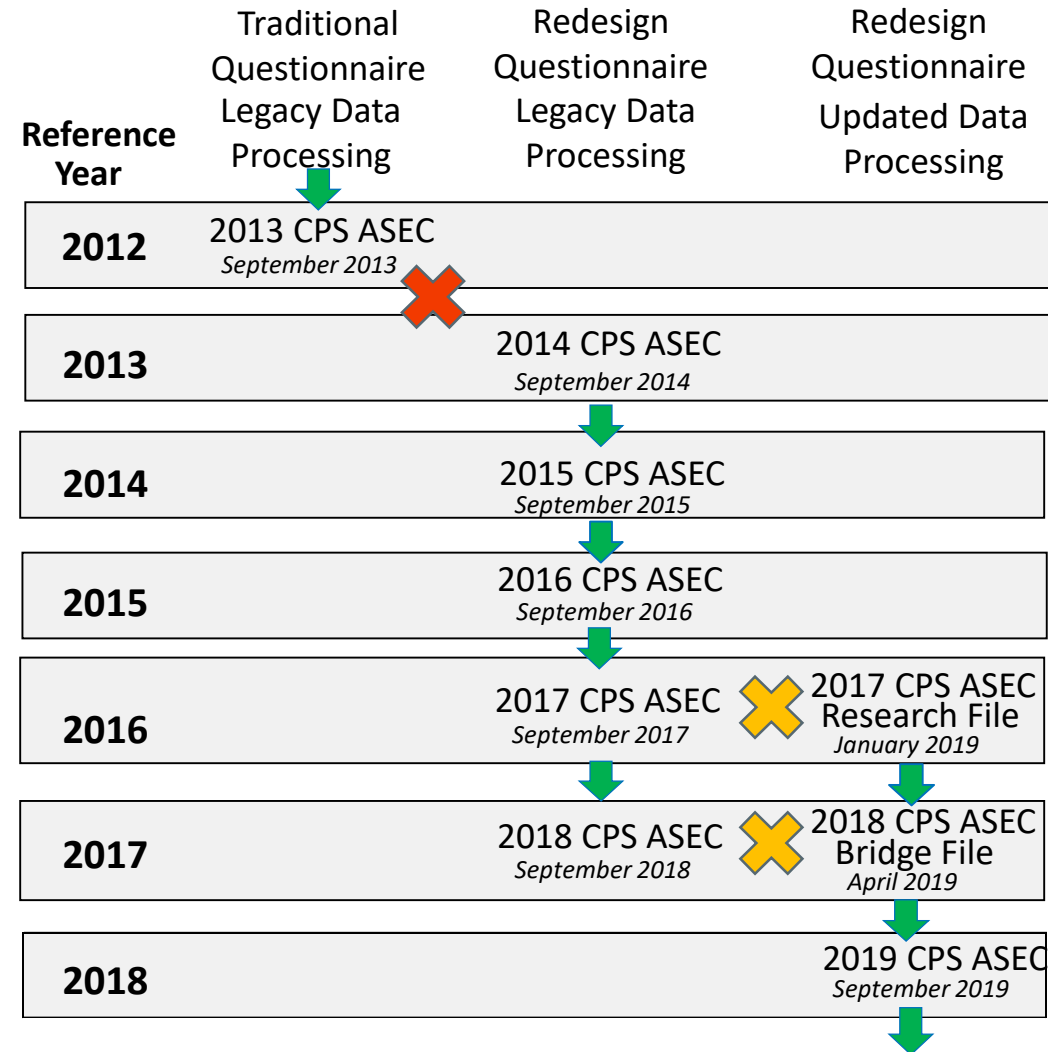
## Legacy System

- Contains calendar-year coverage information for all persons
- Defines private insurance as employer-sponsored, direct-purchase
- Defines public insurance as Medicare, Medicaid, military (incl. TRICARE, VA, CHAMPVA)

## Updated System

- Excludes calendar-year coverage information for infants born during the interview year
- Defines private insurance as employer-sponsored, direct-purchase, TRICARE
- Defines public insurance as Medicare, Medicaid, military (incl. VA, CHAMPVA)

# Health Insurance Implementation Timeline





# Data Files for 2016 Estimates

- 2017 CPS ASEC (also known as 2017 CPS ASEC Production File)
  - Collects information from redesigned instrument
  - Data set relies on legacy processing system
- 2017 CPS ASEC Research File
  - Collects information from redesigned instrument
  - Data set relies on updated processing system

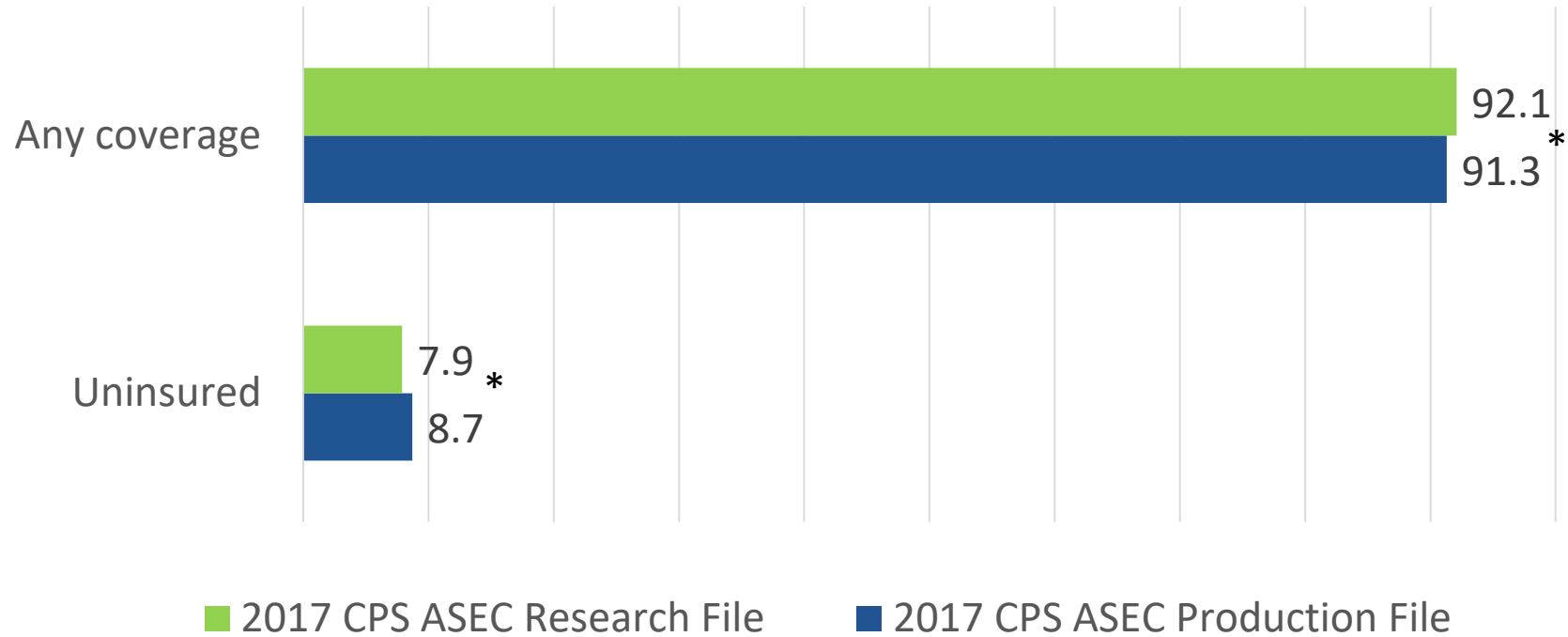
# Roadmap

- Background on improvements to the CPS ASEC
- **Comparison of estimates across research and production files**
  - **Key estimates**
  - Why estimates changed
  - New measures
- Important takeaways for data users

# Universes Differ Between Files

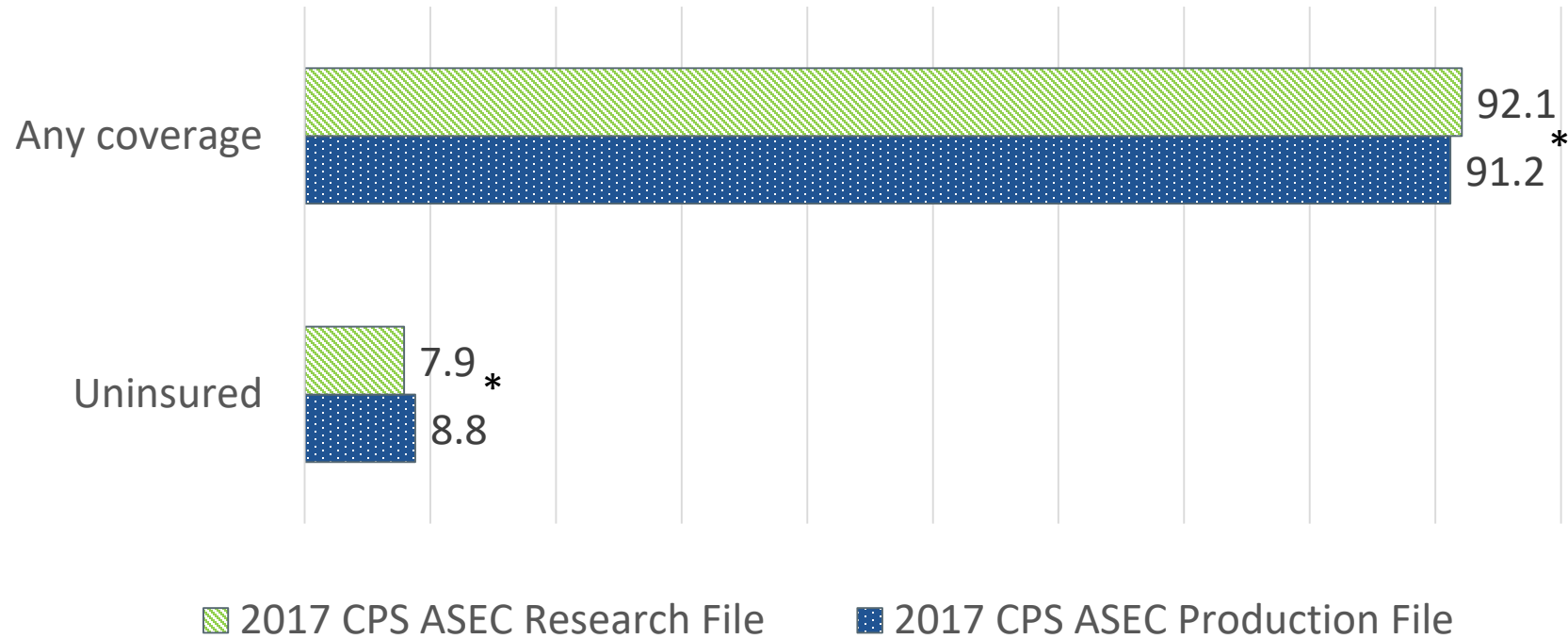
- The new processing system does not include calendar-year coverage information for infants born during the interview year
  - To compare files, we exclude infants from the production file
- Between changes in weights and changes in universe, total sample size also changes

# (Un)insured Rate



# (Un)insured Rate: Published Estimates

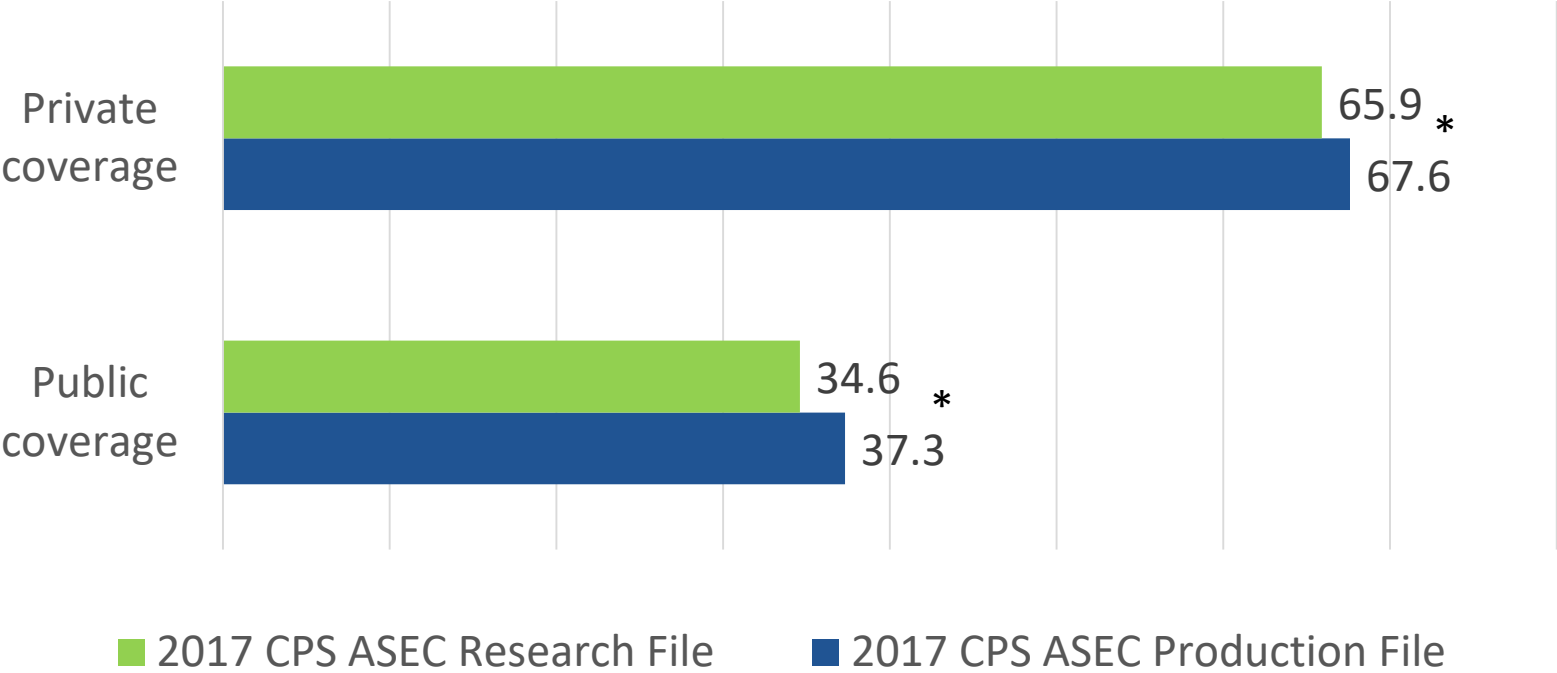
i.e. Including Infants in the Production File



# Private and Public Coverage

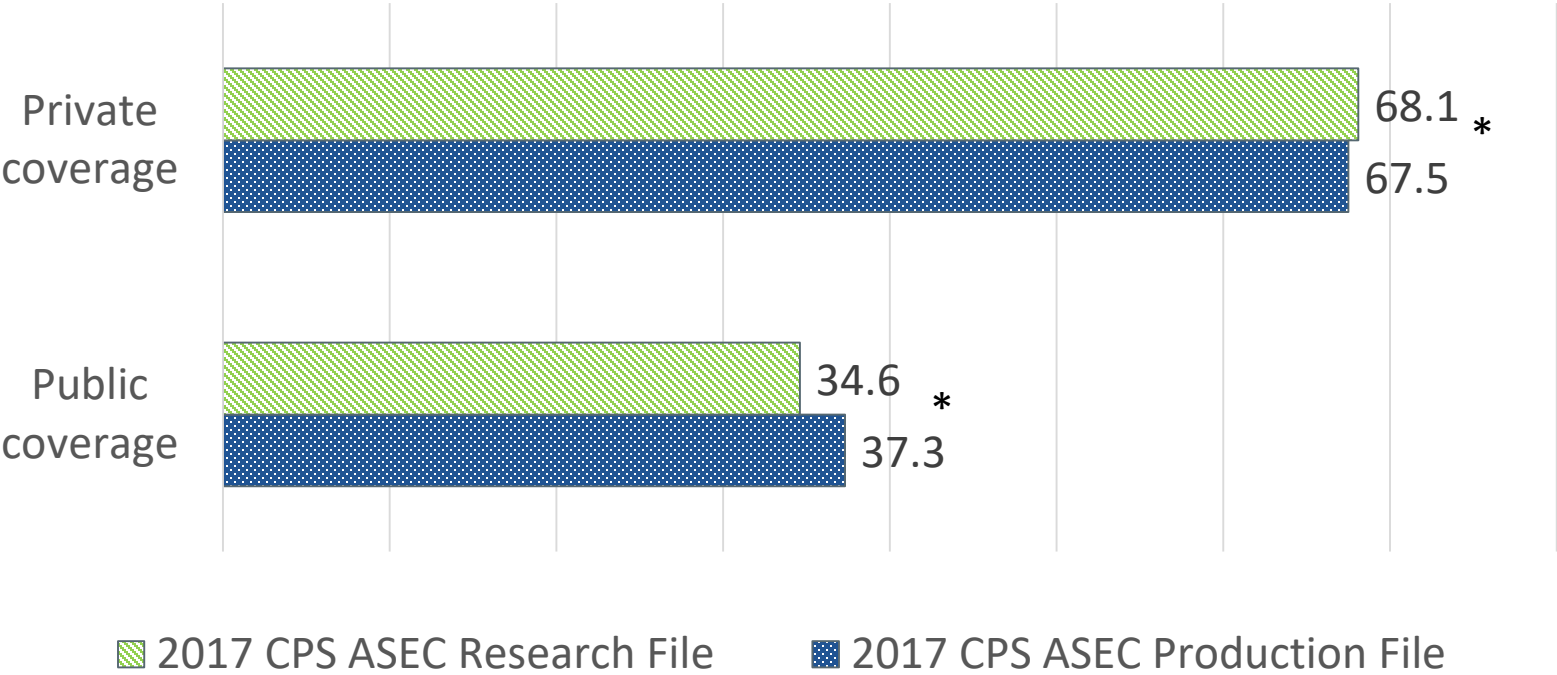
- Definitions differ across files because new processing system allows TRICARE to be disentangled from other types of military coverage
  - In production file:
    - Private: employer-sponsored, direct-purchase
    - Public: Medicare, Medicaid, military (incl. TRICARE, VA, CHAMPVA)
  - In research file:
    - Private: employer-sponsored, direct-purchase, TRICARE
    - Public, Medicare, Medicaid, military (incl. VA, CHAMPVA)
- For today, we recoded the research file to use production file definitions

# Private and Public Coverage



# Private and Public Coverage: Published Estimates

i.e. Including Infants in the Production File





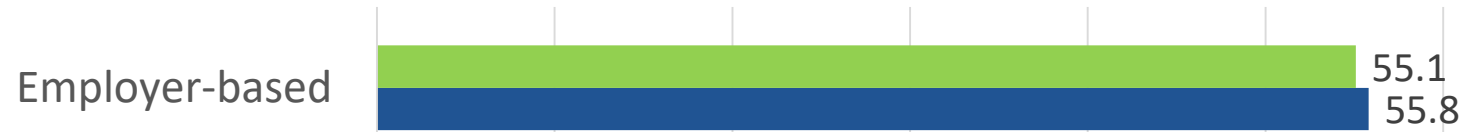
# Consistent with Change Expected from Earlier Field Testing

## HIGHLIGHTS

- The percentage of people without health insurance was 10.6 percent in the content test and 12.0 percent in the production instrument.
- The percentage of people with government coverage was statistically lower in the content test than the production instrument.
- The percentage of people with private coverage was statistically higher in the content test than the production instrument.

[Medalia et al, 2014](#)

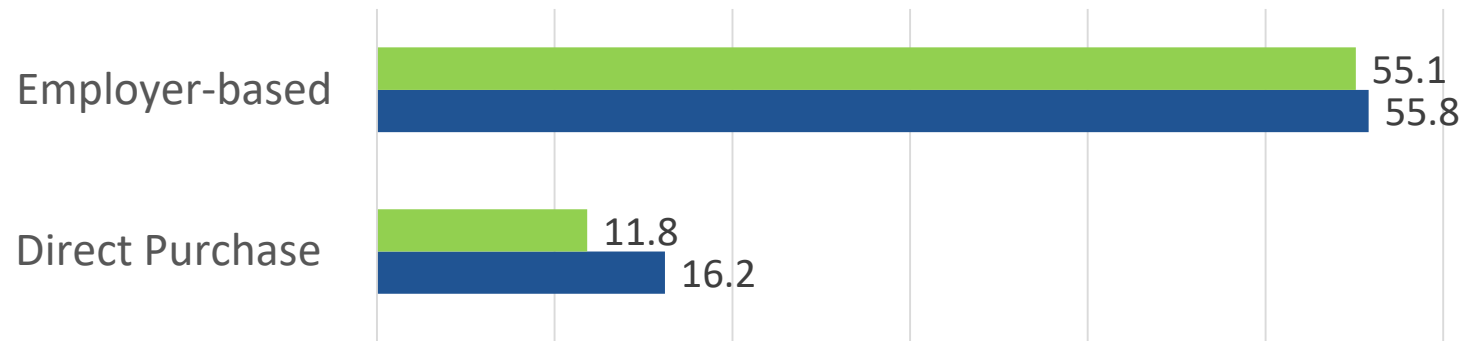
# Changes to Most Coverage Types



■ 2017 CPS ASEC Research File

■ 2017 CPS ASEC Production File

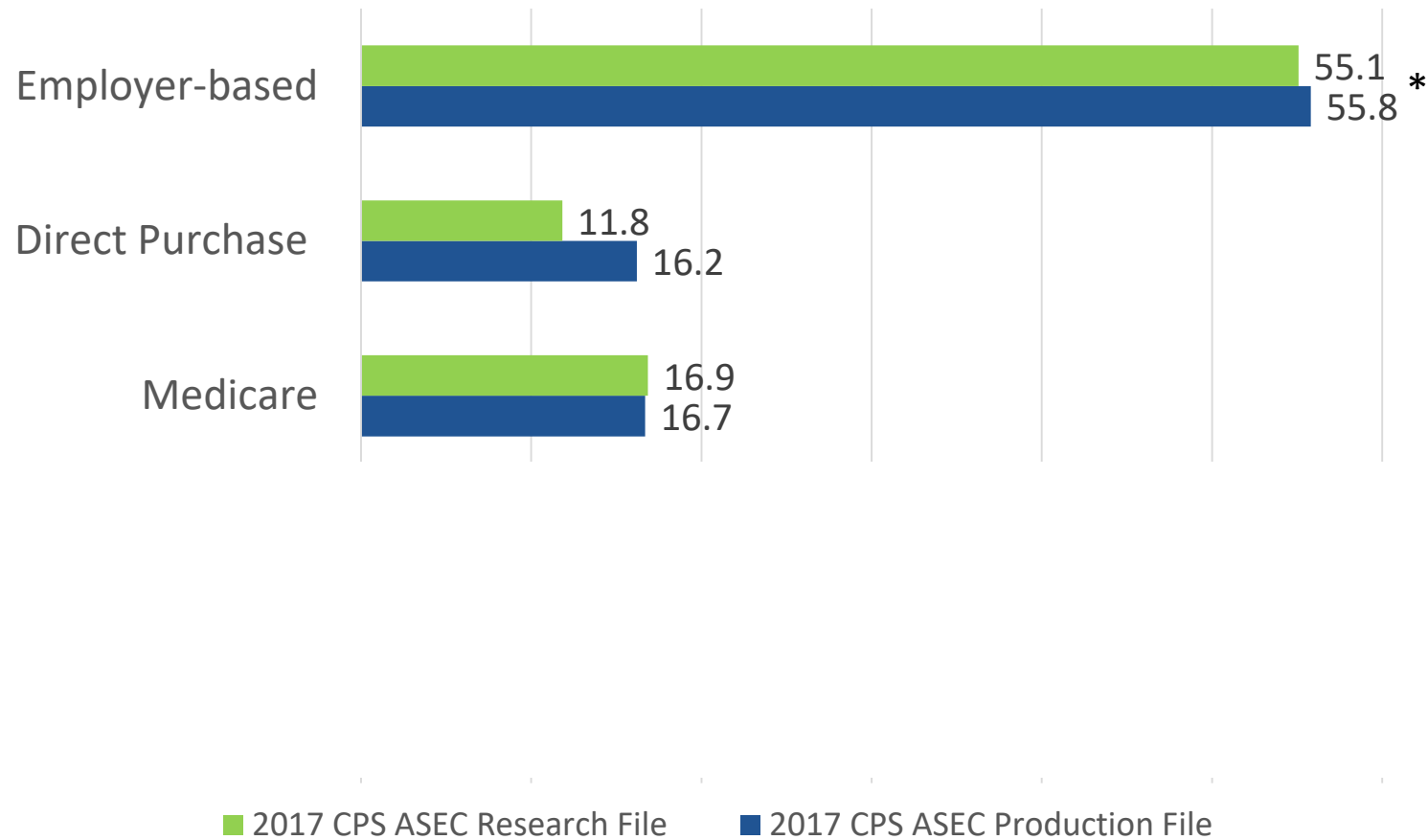
# Changes to Most Coverage Types



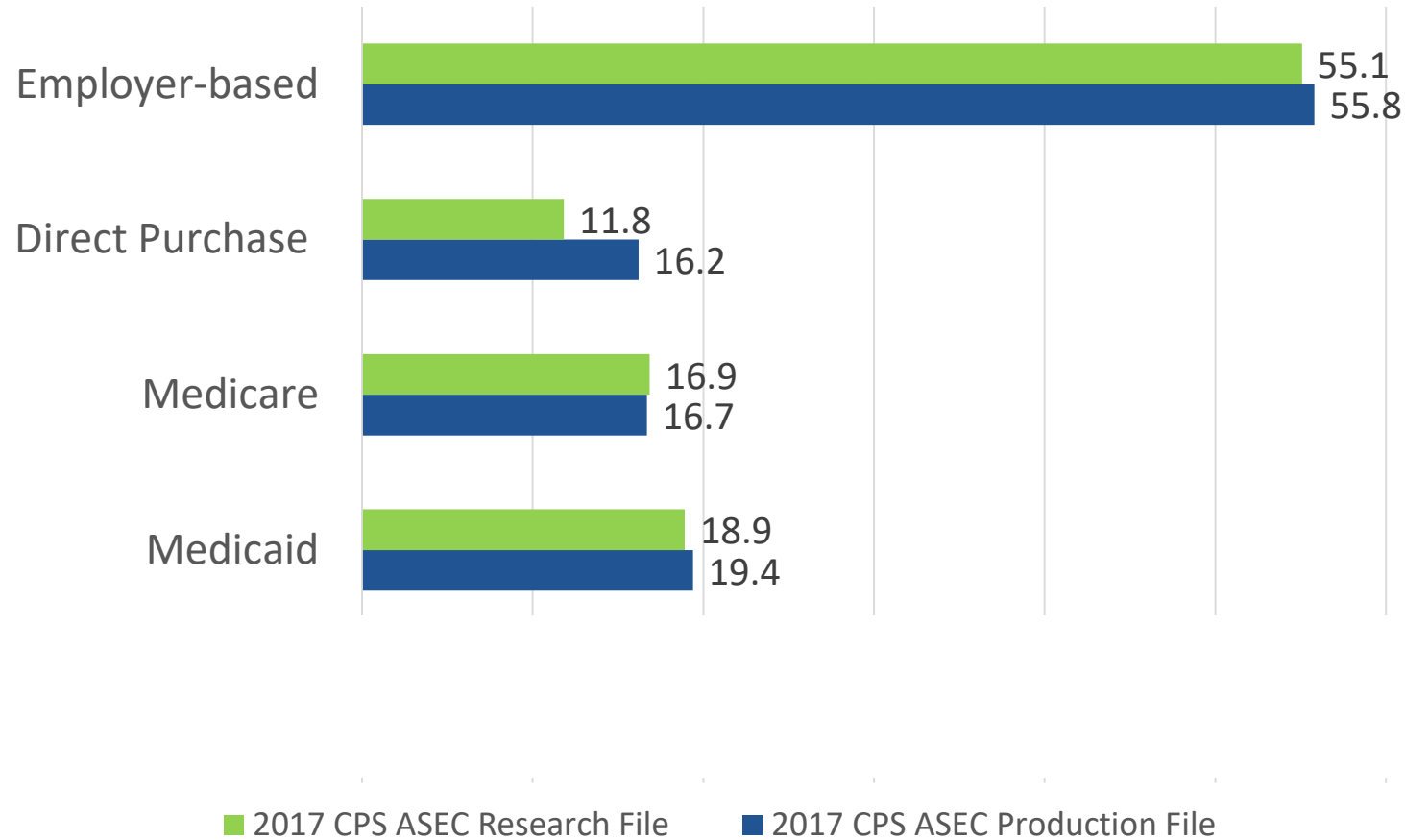
■ 2017 CPS ASEC Research File

■ 2017 CPS ASEC Production File

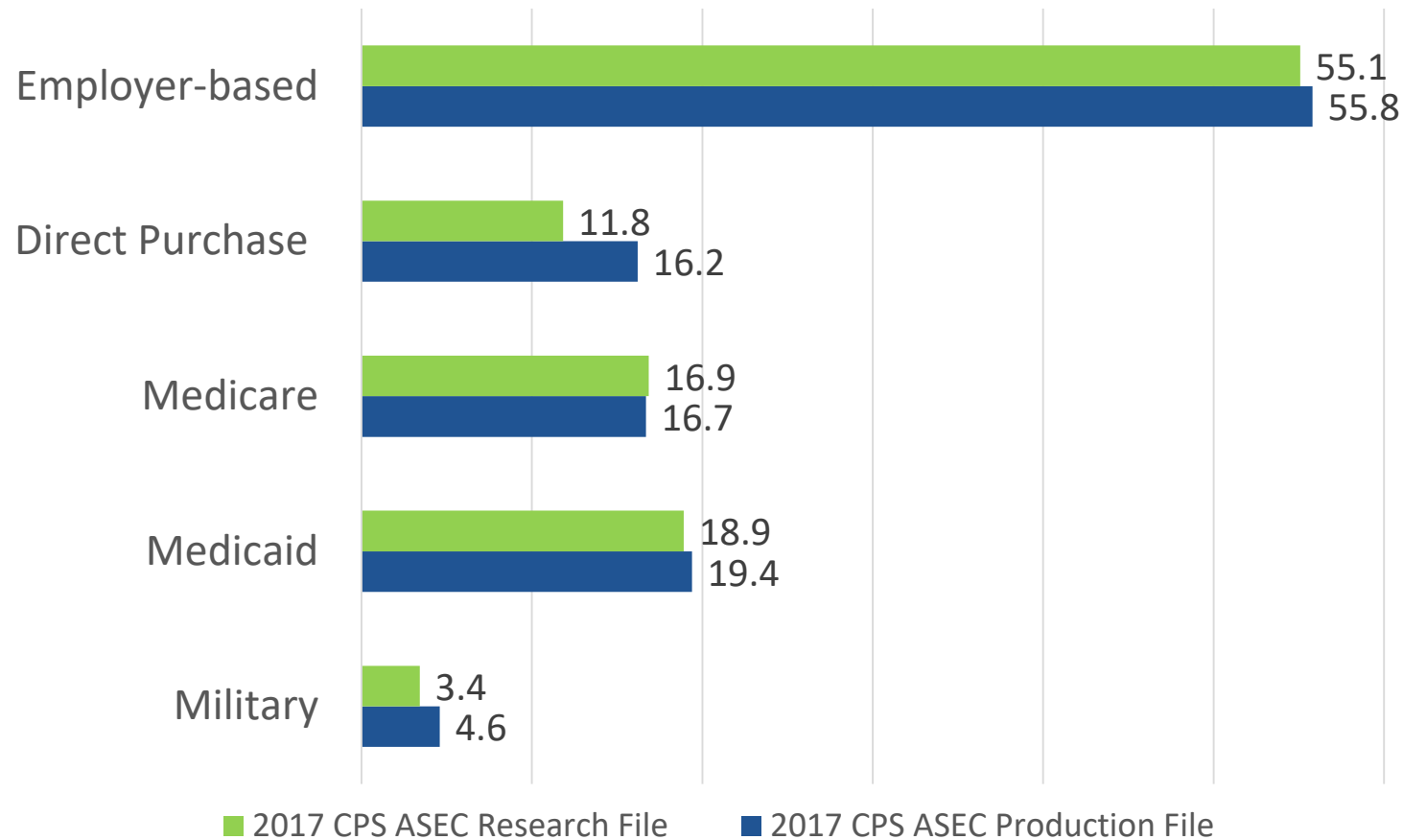
# Changes to Most Coverage Types



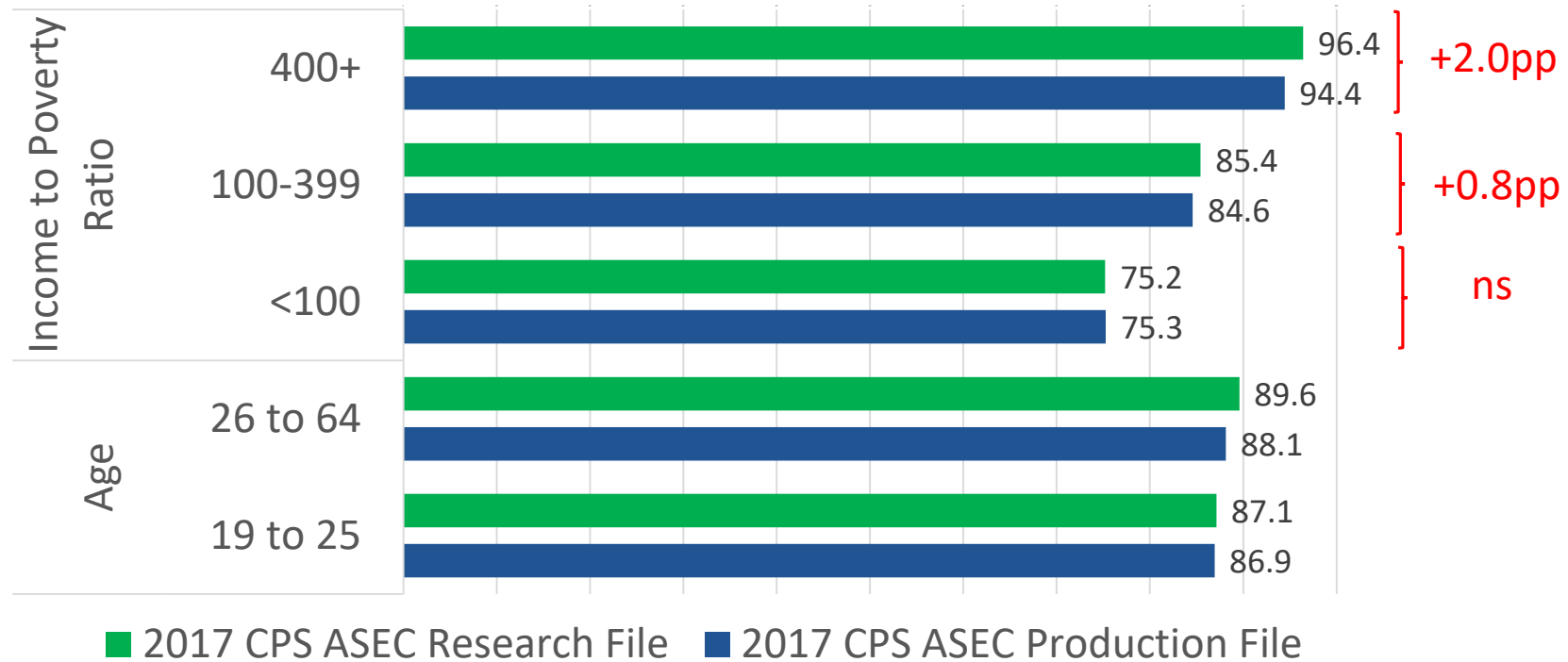
# Changes to Most Coverage Types



# Changes to Most Coverage Types



# Changes in Coverage by Income-to-Poverty Ratio for Adults 19 to 64



# Reports of Multiple Coverage Types

	Research File (RF)	Production File (P) <sup>1</sup>	Difference (RF-P)*
Any health plan	92.1	91.3	0.8
Any Combination of Coverage	13.5	19.6	-6.1
Private and Public <sup>2</sup>	10.1	13.5	-3.4
Medicaid	18.9	19.4	-0.5
Medicaid Alone	15.1	12.9	2.2
Direct-Purchase	11.8	16.2	-4.4
Direct-Purchase Alone	6.5	6.8	-0.3

Source: 2017 CPS ASEC and 2017 CPS ASEC Research File.

\*All differences significant at the  $p < 0.05$  level



# Reports of Multiple Coverage Types

	Research File (RF)	Production File (P) <sup>1</sup>	Difference (RF-P)*
Any health plan	92.1	91.3	0.8
<b>Any Combination of Coverage</b>	<b>13.5</b>	<b>19.6</b>	<b>-6.1</b>
Private and Public <sup>2</sup>	10.1	13.5	-3.4
Medicaid	18.9	19.4	-0.5
Medicaid Alone	15.1	12.9	2.2
Direct-Purchase	11.8	16.2	-4.4
Direct-Purchase Alone	6.5	6.8	-0.3

# Reports of Multiple Coverage Types

	Research File (RF)	Production File (P) <sup>1</sup>	Difference (RF-P)*
Any health plan	92.1	91.3	0.8
Any Combination of Coverage	13.5	19.6	-6.1
Private and Public <sup>2</sup>	10.1	13.5	-3.4
<b>Medicaid</b>	<b>18.9</b>	<b>19.4</b>	<b>-0.5</b>
<b>Medicaid Alone</b>	<b>15.1</b>	<b>12.9</b>	<b>2.2</b>
Direct-Purchase	11.8	16.2	-4.4
Direct-Purchase Alone	6.5	6.8	-0.3

Source: 2017 CPS ASEC and 2017 CPS ASEC Research File.

\*All differences significant at the  $p < 0.05$  level

# Reports of Multiple Coverage Types

	Research File (RF)	Production File (P) <sup>1</sup>	Difference (RF-P)*
Any health plan	92.1	91.3	0.8
Any Combination of Coverage	13.5	19.6	-6.1
Private and Public <sup>2</sup>	10.1	13.5	-3.4
Medicaid	18.9	19.4	-0.5
Medicaid Alone	15.1	12.9	2.2
<b>Direct-Purchase</b>	<b>11.8</b>	<b>16.2</b>	<b>-4.4</b>
<b>Direct-Purchase Alone</b>	<b>6.5</b>	<b>6.8</b>	<b>-0.3</b>

Source: 2017 CPS ASEC and 2017 CPS ASEC Research File.

\*All differences significant at the  $p < 0.05$  level

# Reports of Multiple Coverage Types

	Research File (RF)	Production File (P) <sup>1</sup>	Difference (RF-P)*
Any health plan	92.1	91.3	0.8
Any Combination of Coverage	13.5	19.6	-6.1
Private and Public <sup>2</sup>	10.1	13.5	-3.4
Medicaid	18.9	19.4	-0.5
Medicaid Alone	15.1	12.9	2.2
<b>Direct-Purchase</b>	<b>11.8</b>	<b>16.2</b>	<b>-4.4</b>
<b>Direct-Purchase Alone</b>	<b>6.5</b>	<b>6.8</b>	<b>-0.3</b>

Source: 2017 CPS ASEC and 2017 CPS ASEC Research File.

\*All differences significant at the  $p < 0.05$  level

# Roadmap

- Background on improvements to the CPS ASEC
- Comparison of estimates across research and production files
  - Key estimates
  - **Why estimates changed**
  - New measures
- Important takeaways for data users

# Imputation

- Production file imputed each insurance type and each person separately (see Davern, 2007)
  - Overestimates of multiple coverage
  - Underestimate coverage rate
- Research file groups people into health insurance units within a household and imputes their information simultaneously
  - Based on a “health insurance unit” (HIU) (SHADAC, 2005)

# Coverage Rate by Imputation Status

	Production File				Research File			
	Fully Imputed	Not Fully Imputed	Diff.	Sig.	Fully Imputed	Not Fully Imputed	Diff.	Sig.
<b>Any Coverage</b>	<b>86.8</b>	<b>92.6</b>	<b>-5.8</b>	<b>***</b>	91.6	92.3	-0.7	**
Private Coverage Only	48.6	55.7	-7.0	***	56.0	55.7	0.2	
Public Coverage Only	17.8	25.4	-7.6	***	26.1	26.2	-0.2	
Private and Public Coverage	20.3	11.5	8.8	***	9.5	10.3	-0.8	***

# Coverage Rate by Imputation Status

	Production File				Research File			
	Fully Imputed	Not Fully Imputed	Diff.	Sig.	Fully Imputed	Not Fully Imputed	Diff.	Sig.
<b>Any Coverage</b>	86.8	92.6	-5.8	***	<b>91.6</b>	<b>92.3</b>	<b>-0.7</b>	<b>**</b>
Private Coverage Only	48.6	55.7	-7.0	***	56.0	55.7	0.2	
Public Coverage Only	17.8	25.4	-7.6	***	26.1	26.2	-0.2	
Private and Public Coverage	20.3	11.5	8.8	***	9.5	10.3	-0.8	***



# Coverage Rate by Imputation Status

	Production File				Research File			
	Fully Imputed	Not Fully Imputed	Diff.	Sig.	Fully Imputed	Not Fully Imputed	Diff.	Sig.
<b>Any Coverage</b>	<b>86.8</b>	<b>92.6</b>	<b>-5.8</b>	<b>***</b>	<b>91.6</b>	<b>92.3</b>	<b>-0.7</b>	<b>**</b>
Private Coverage Only	48.6	55.7	-7.0	***	56.0	55.7	0.2	
Public Coverage Only	17.8	25.4	-7.6	***	26.1	26.2	-0.2	
Private and Public Coverage	20.3	11.5	8.8	***	9.5	10.3	-0.8	***

# Coverage Rate by Imputation Status

	Production File				Research File			
	Fully Imputed	Not Fully Imputed	Diff.	Sig.	Fully Imputed	Not Fully Imputed	Diff.	Sig.
Any Coverage	86.8	92.6	-5.8	***	91.6	92.3	-0.7	**
<b>Private Coverage Only</b>	<b>48.6</b>	<b>55.7</b>	<b>-7.0</b>	<b>***</b>	<b>56.0</b>	<b>55.7</b>	<b>0.2</b>	
<b>Public Coverage Only</b>	<b>17.8</b>	<b>25.4</b>	<b>-7.6</b>	<b>***</b>	<b>26.1</b>	<b>26.2</b>	<b>-0.2</b>	
Private and Public Coverage	20.3	11.5	8.8	***	9.5	10.3	-0.8	***

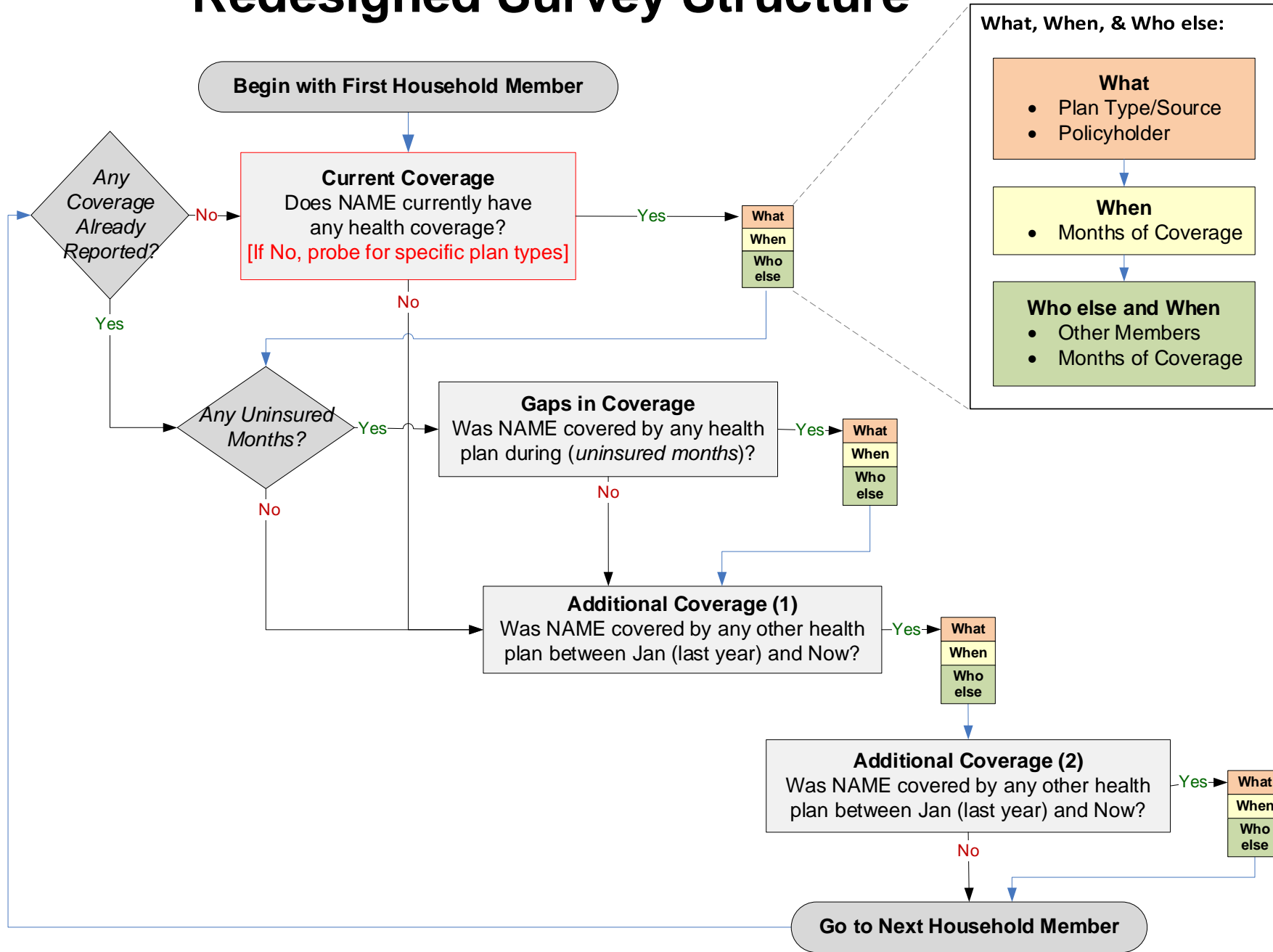
# Coverage Rate by Imputation Status

	Production File				Research File			
	Fully Imputed	Not Fully Imputed	Diff.	Sig.	Fully Imputed	Not Fully Imputed	Diff.	Sig.
Any Coverage	86.8	92.6	-5.8	***	91.6	92.3	-0.7	**
Private Coverage Only	48.6	55.7	-7.0	***	56.0	55.7	0.2	
Public Coverage Only	17.8	25.4	-7.6	***	26.1	26.2	-0.2	
<b>Private and Public Coverage</b>	<b>20.3</b>	<b>11.5</b>	<b>8.8</b>	<b>***</b>	<b>9.5</b>	<b>10.3</b>	<b>-0.8</b>	<b>***</b>

# Imputation

- Hotdecks for item-level missing data were refined
  - Include more covariates
  - Incorporate richer demographic and income information through redesigns

# Redesigned Survey Structure



# Roadmap

- Background on improvements to the CPS ASEC
- Comparison of estimates across research and production files
  - Key estimates
  - Why estimates changed
  - **New measures**
- Important takeaways for data users

# New Information About...

- Marketplace coverage
  - Whether direct-purchase coverage was obtained through the marketplace
  - If so, whether the premium was subsidized
- Subannual coverage

# Subannual Estimates

	Duration of Health Insurance Coverage					
	No months		1-11 months		All 12 months	
	%	SE <sup>3</sup>	%	SE <sup>3</sup>	%	SE <sup>3</sup>
Any coverage	7.9	0.1	4.2	0.1	88.0	0.1
Private Coverage <sup>1</sup>	31.9	0.2	3.7	0.1	64.4	0.2
Public Coverage <sup>2</sup>	65.4	0.2	2.6	0.1	32.0	0.2
Medicaid	81.1	0.2	2.2	0.1	16.7	0.2

<sup>1</sup> Includes employer-based, direct-purchase, and TRICARE coverage

<sup>2</sup> Includes Medicare, Medicaid, and VA/CHAMPVA coverage

<sup>3</sup> SE stands for standard error.



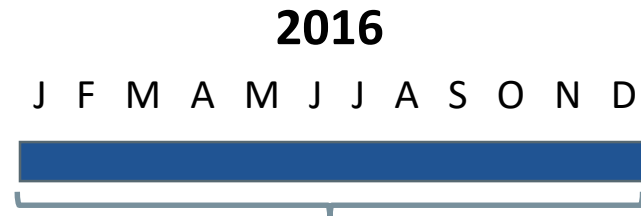
# New Information About...

- Marketplace coverage
  - Whether direct-purchase coverage was obtained through the marketplace
  - If so, whether the premium was subsidized
- Subannual coverage
- Military coverage
  - Separate TRICARE from other types of military coverage
- Coverage at the time of interview

# Two measures of insurance coverage

- **Calendar year coverage:** Had coverage any time during previous calendar year
- **Current coverage:** had coverage at time when interviewed
  - CPS ASEC interviews are conducted between February and April.

# Two Measures of Coverage: Uninsured Rates



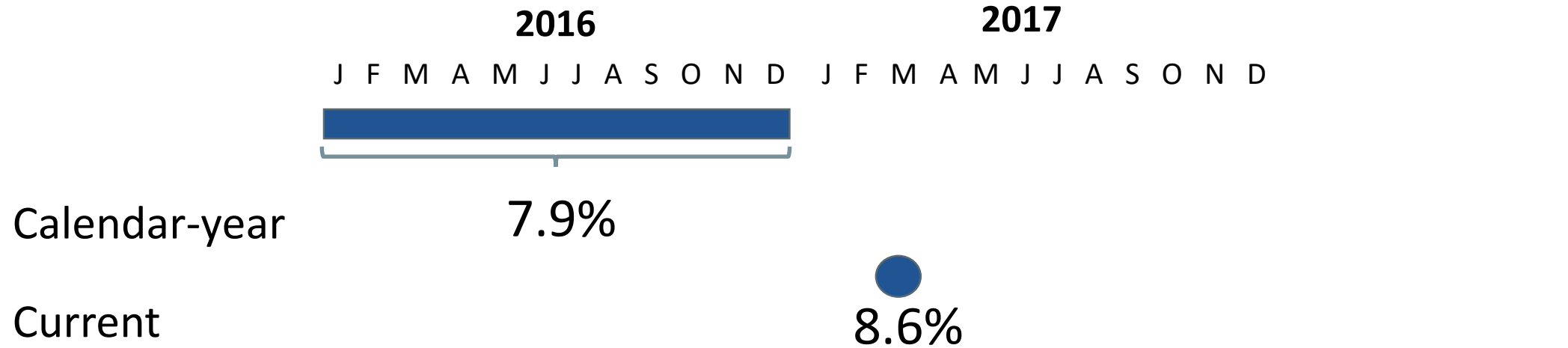
Calendar-year

7.9%

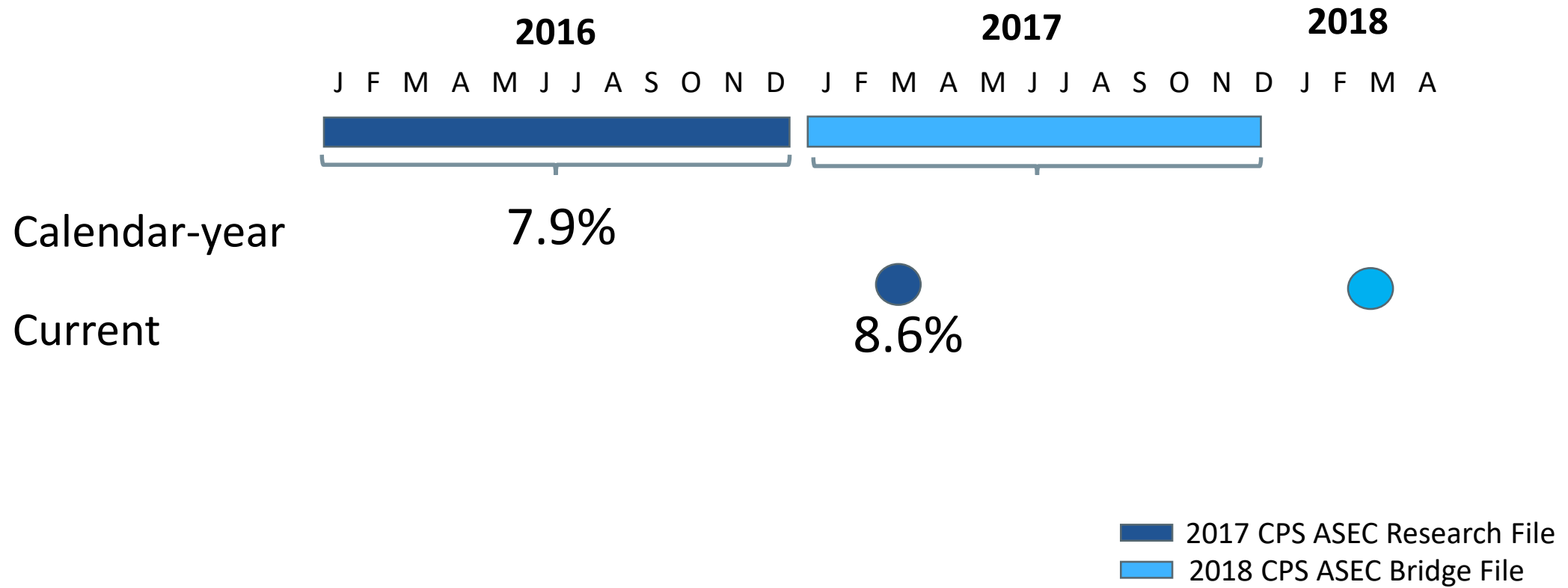
Current

- 2017 CPS ASEC Research File
- 2018 CPS ASEC Bridge File

# Two Measures of Coverage: Uninsured Rates



# Two Measures of Coverage: Uninsured Rates



# Roadmap

- Background on improvements to the CPS ASEC
- Comparison of estimates across research and production files
  - Key estimates
  - Why estimates changed
  - New measures
- **Important takeaways for data users**

# The CPS ASEC Research File Reflects:

- Changes to...
  - Data reformatting
  - Imputation of missing/incomplete data
  - Weighting
  - Population
- Additional information about...
  - Marketplace coverage
  - Subannual coverage
  - Military coverage

# Key Takeaways

- Research file addresses data quality limitations of previous production files
- Differences in the interpretation of some variables
  - Especially definition of private and public coverage
- New information is available on health insurance subannual estimates and marketplace coverage



## **For additional information see:**

Berchick & Jackson. 2019. "Health Insurance Coverage in the 2017 CPS ASEC Research File." SEHSD WP 2019-01.

Berchick & Jackson. 2019. "Health Insurance Coverage in the Current Population Survey: Estimates from the 2017 Research File." SEHSD WP 2019-02.

Jackson. 2019. "Uninsurance Estimates from the Redesigned Current Population Survey. An Examination of the Imputation Process." SEHSD WP-2019-20.

Working papers are available on the Census Bureau website  
(<https://www.census.gov/data/datasets/time-series/demo/income-poverty/data-extracts.html>)

# Within-Person Changes

	% With Change	% Without Change
Insured	4.8	95.2
Private Insurance	9.2	90.8
Employer-Sponsored	10.6	89.4
Direct Purchase	8.1	91.9
Public Coverage	8.4	91.6
Medicare	1.5	98.5
Medicaid	7.2	92.8
Military Coverage	2.4	97.6