

The Impact of Alternative Inflation Adjustments on CPS ASEC Income Statistics

JSM

August 11, 2022

Matthew Unrath, US Census Bureau

Jessica Semega, US Census Bureau

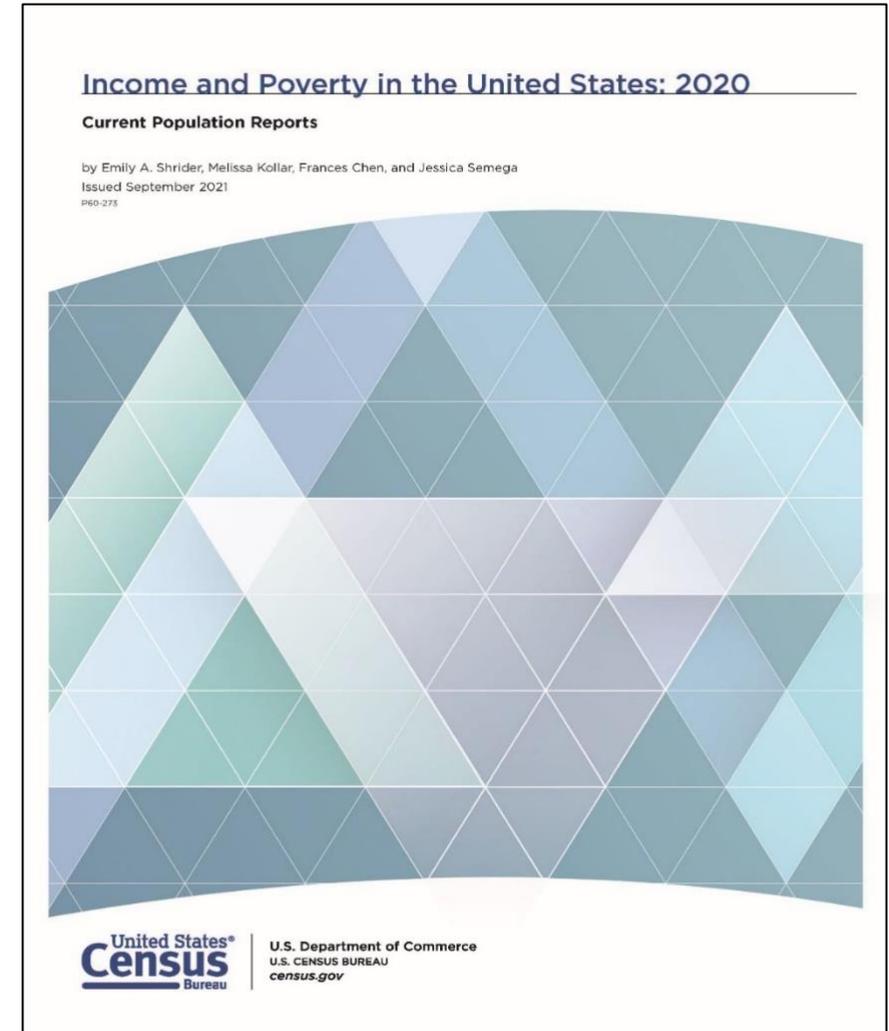
Melissa Kollar, US Census Bureau



Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the U.S. Census Bureau. The U.S. Census Bureau reviewed this data product for unauthorized disclosure of confidential information and approved the disclosure avoidance practices applied to this release, authorization number CBDRB-FY21-282.

Background: Income and Poverty Report

- Released with Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC) microdata each September
- Most downloaded Census report
- Reports current and historical income and earnings statistics



Alternative Inflation Measures

Standard Measures

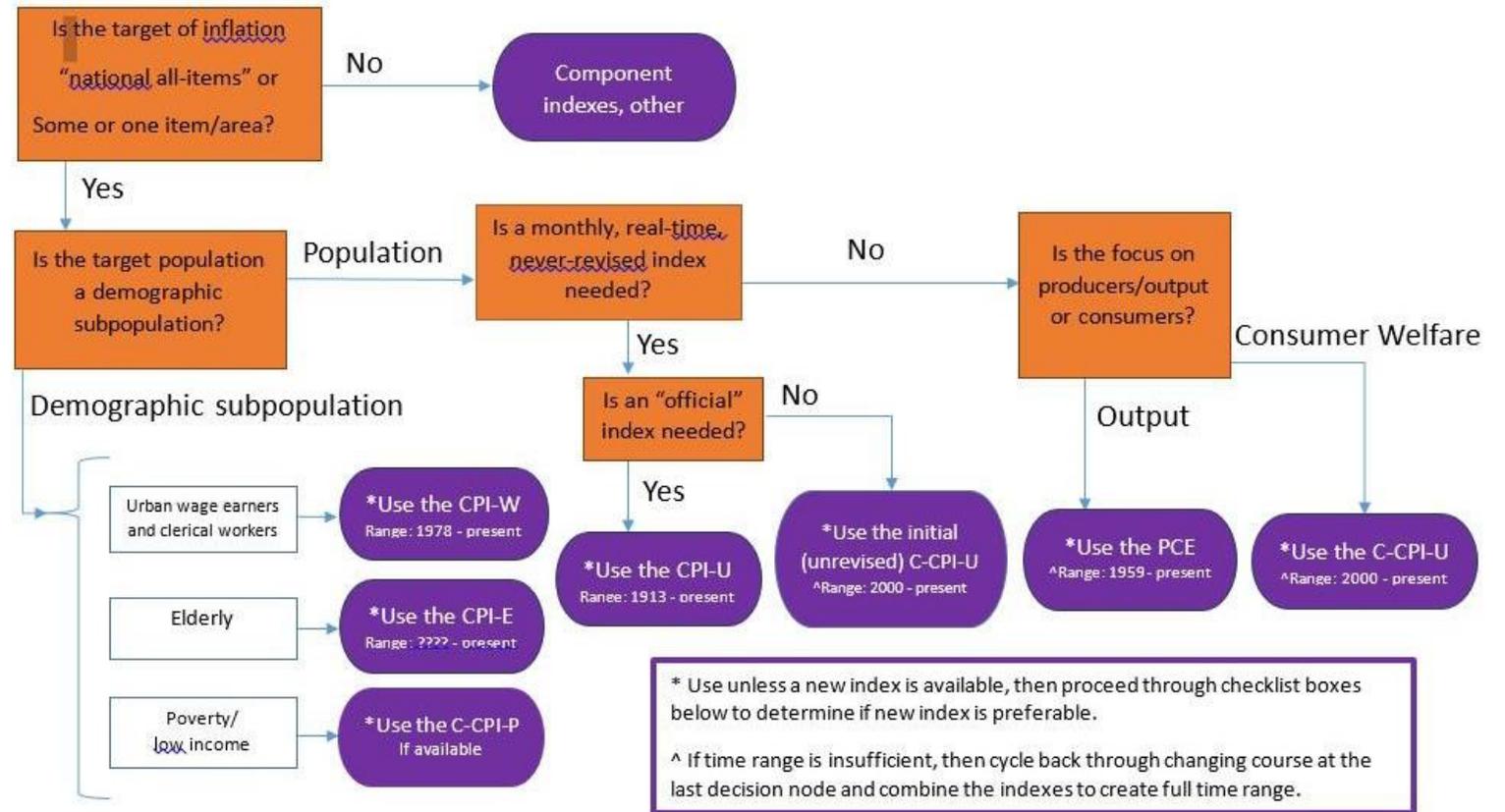
- e.g., Consumer Price Index for All Urban Consumers (CPI-U)
- *Fixed* weights using expenditure shares from *base period*

“Chain-type” Measures

- e.g., Chained CPI-U
- Weights adjust according to *current* expenditure shares

Interagency Technical Working Group Report on Consumer Inflation Measures

Appendix A.3: All purpose index decision-making flowchart

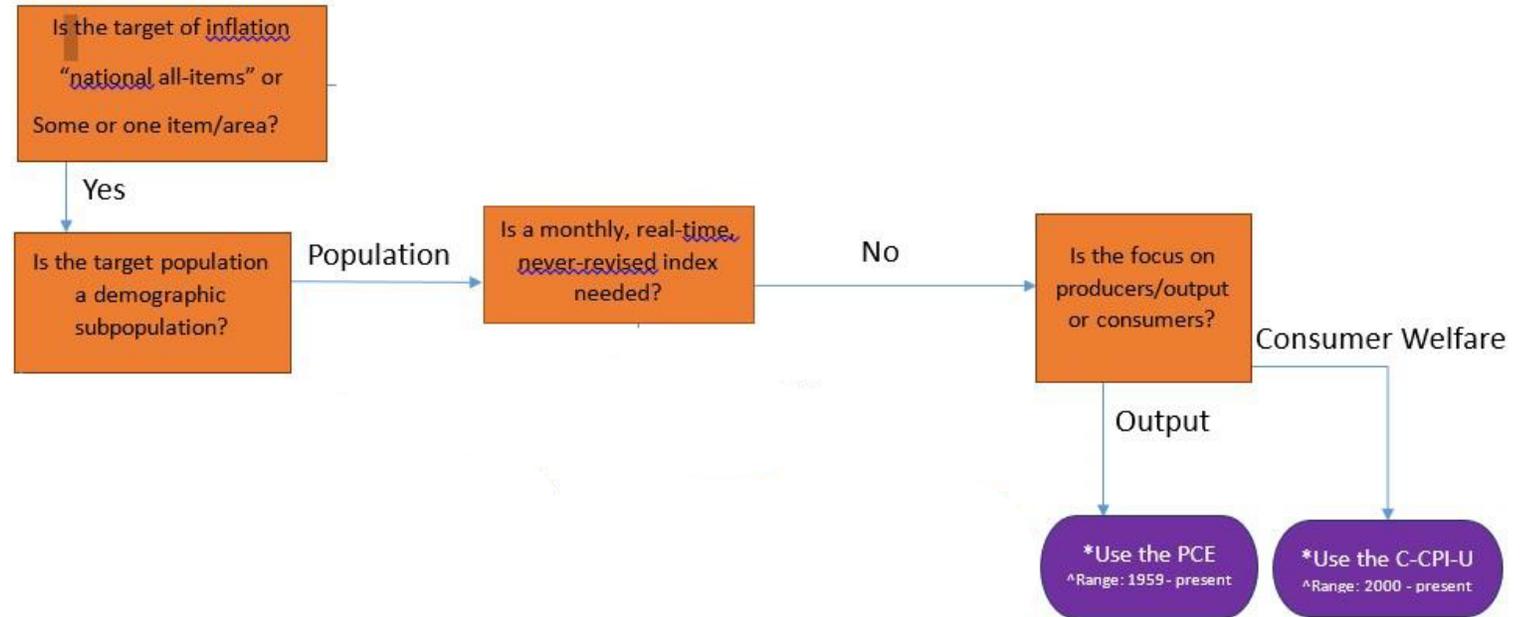


Checklist boxes for newly available indexes. If "no" to all, stay with choice(s) in purple; if "yes," to any, continue to check all boxes and use the index version mentioned in the checkbox farthest to the right.

- Is a previously more preferable choice newly available for the time range?
- Is there a version with current purchases available?
- Is there a version with recalculated-revised indexes available?
- If the target is the cost of living of median income earners, is there a version that also target the median income level itself?

Interagency Technical Working Group Report on Consumer Inflation Measures

Appendix A.3: All purpose index decision-making flowchart



* Use unless a new index is available, then proceed through checklist boxes below to determine if new index is preferable.
^ If time range is insufficient, then cycle back through changing course at the last decision node and combine the indexes to create full time range.

Alternative Inflation Series

Compare real income and earnings estimates using three different inflation series.

Alternative Inflation Series

Compare real income and earnings estimates using three different inflation series.

(1)

Current method

- R-CPI-U-RS (1978-Present)
- CPI-U-X1 (1967-1977)
- CPI-U (Before 1966)

Alternative Inflation Series

Compare real income and earnings estimates using three different inflation series.

(1)

Current method

- R-CPI-U-RS (1978-Present)
- CPI-U-X1 (1967-1977)
- CPI-U (Before 1966)

(2)

C-CPI-U + Current Method

- C-CPI-U (2000-Present)
- Current Method (Before 2000)

Alternative Inflation Series

Compare real income and earnings estimates using three different inflation series.

(1)

Current method

- R-CPI-U-RS (1978-Present)
- CPI-U-X1 (1967-1977)
- CPI-U (Before 1966)

(2)

C-CPI-U + Current Method

- C-CPI-U (2000-Present)
- Current Method (Before 2000)

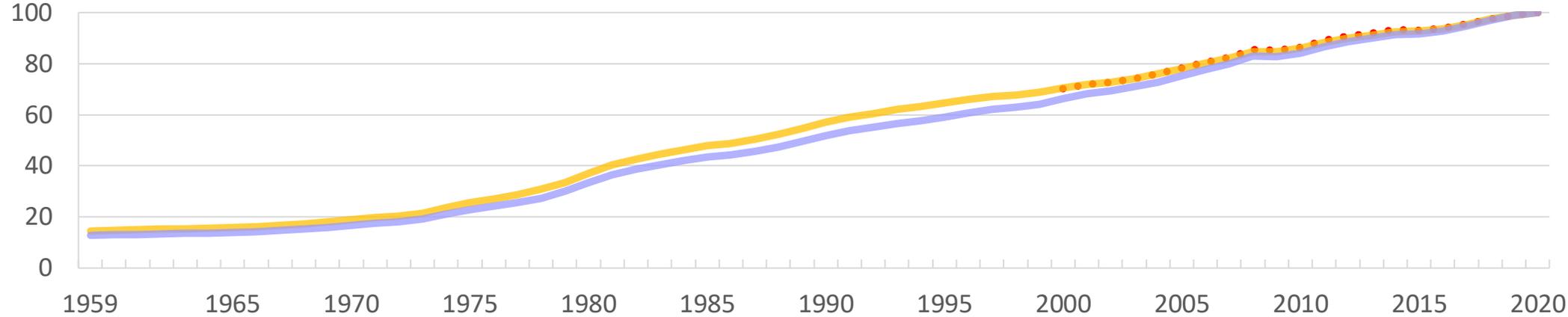
(3)

C-CPI-U + PCEPI

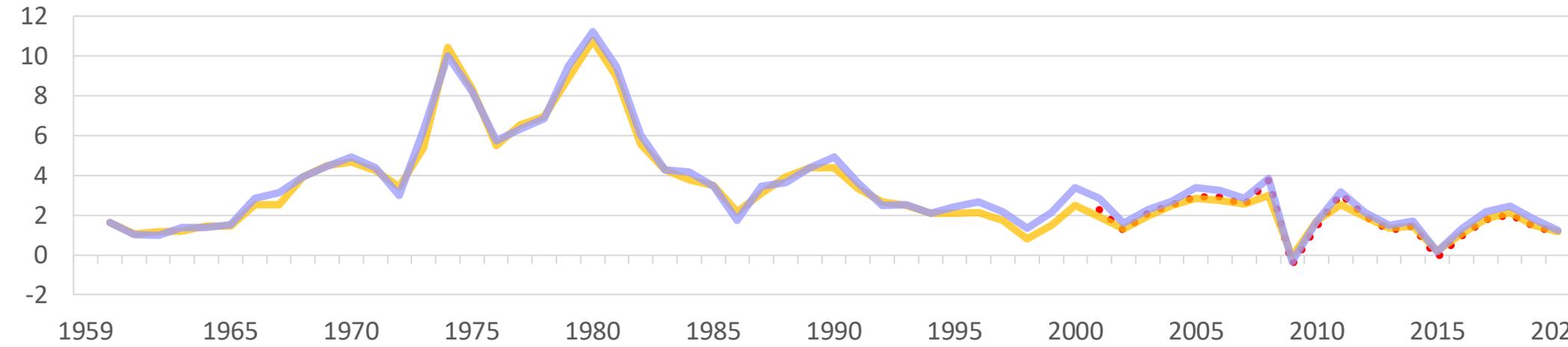
- C-CPI-U (2000-Present)
- PCEPI (Before 2000)

Comparing Price Index Values: 1959 to 2020

Index values relative to 2020



Annual percent change



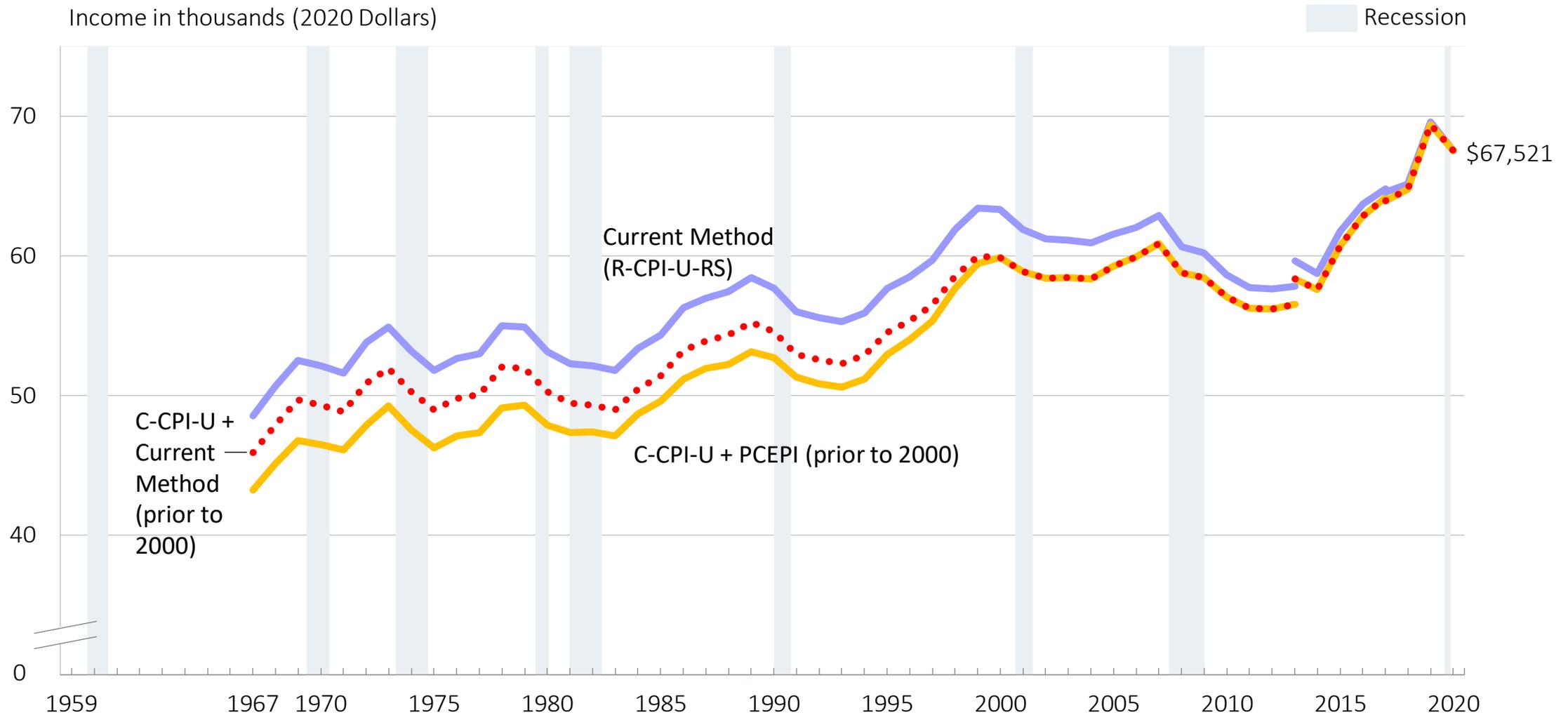
— R-CPI-U-RS ···· C-CPI-U — PCEPI



Note: Published values are indexed to different years. These index values are all normalized to 2020 for comparison.

Source: U.S. Bureau of Labor Statistics publishes the R-CPI-U-RS and the C-CPI-U. The U.S. Bureau of Economic Analysis publishes the PCEPI.

Impact on Household Median Income: 1967 to 2020

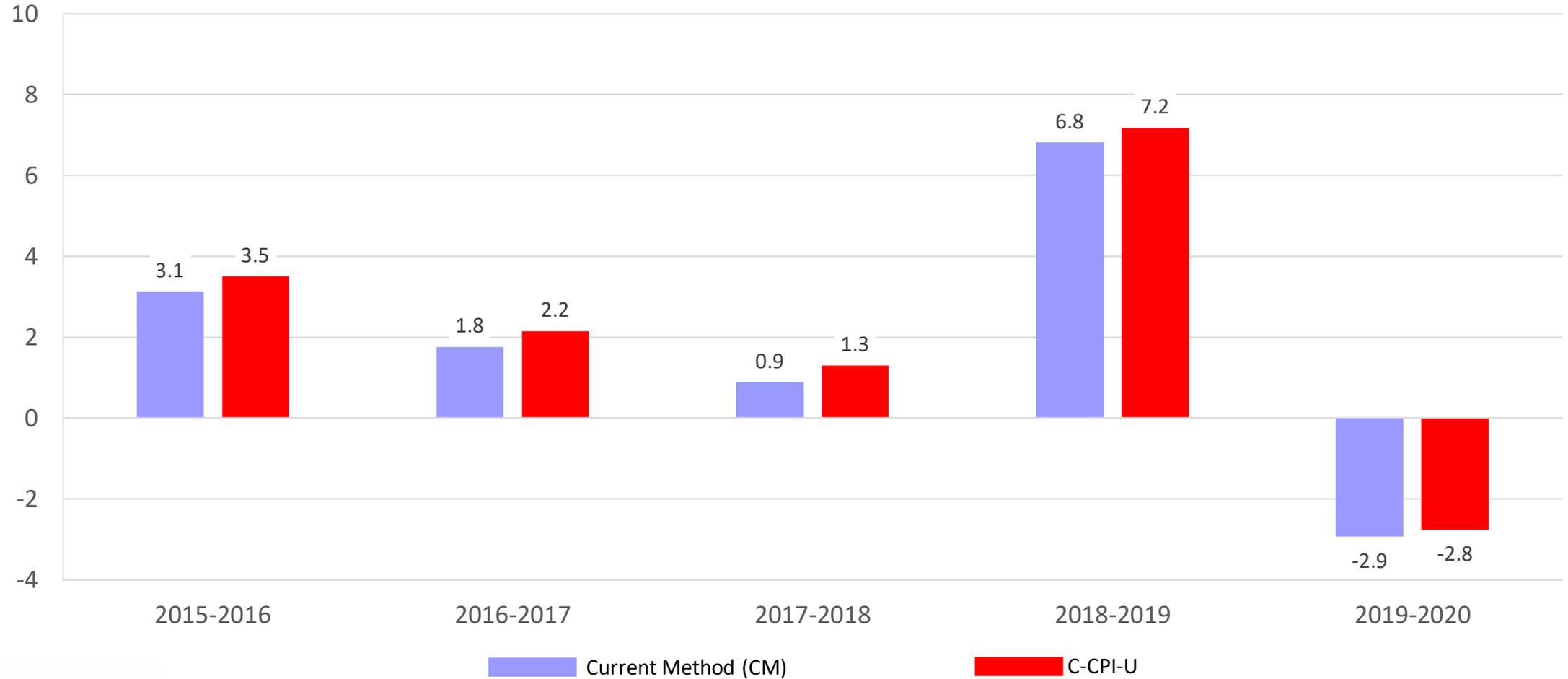


Note: Households as of March of the following year. The data for 2017 and beyond reflect the implementation of an updated processing system. The data for 2013 and beyond reflect the implementation of the redesigned income questions. Inflation-adjusted estimates may differ slightly from other published data due to rounding. Information on confidentiality protection, sampling error, nonsampling error, and definitions are available at <https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar21.pdf>.

Source: U.S. Census Bureau, Current Population Survey, 1968 to 2021 Annual Social and Economic Supplements (CPS ASEC).

Year-Over-Year Real Median Household Income Growth Using Alternative Price Indices: 2015 to 2020

Real income growth (percentage)

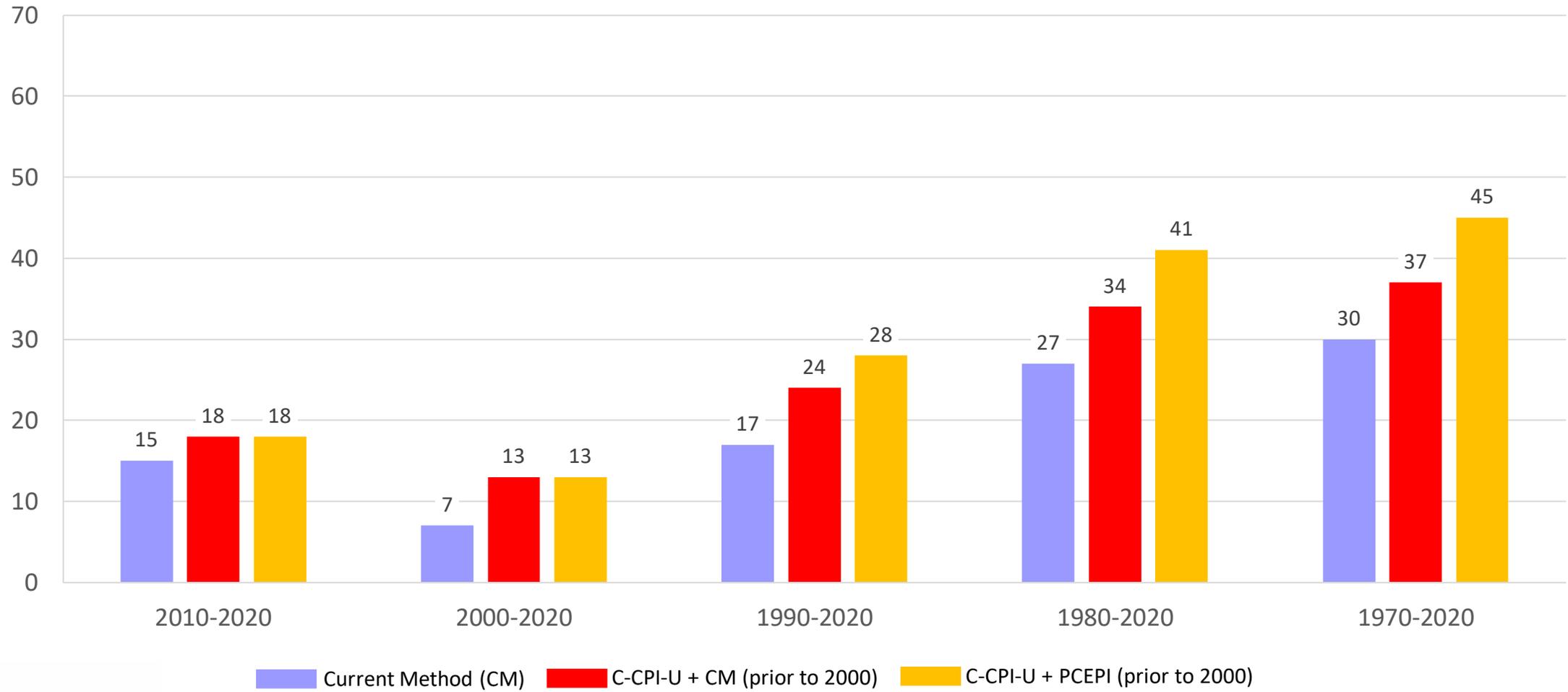


Note: Households as of March of the following year. The data for 2017 reflect the implementation of an updated processing system.

Source: U.S. Census Bureau, Current Population Survey, 2016 to 2021 Annual Social and Economic Supplements (CPS ASEC).

Real Median Household Income Growth Using Alternative Price Indices Over the Decades: 1970 to 2020

Real income growth (percentage)

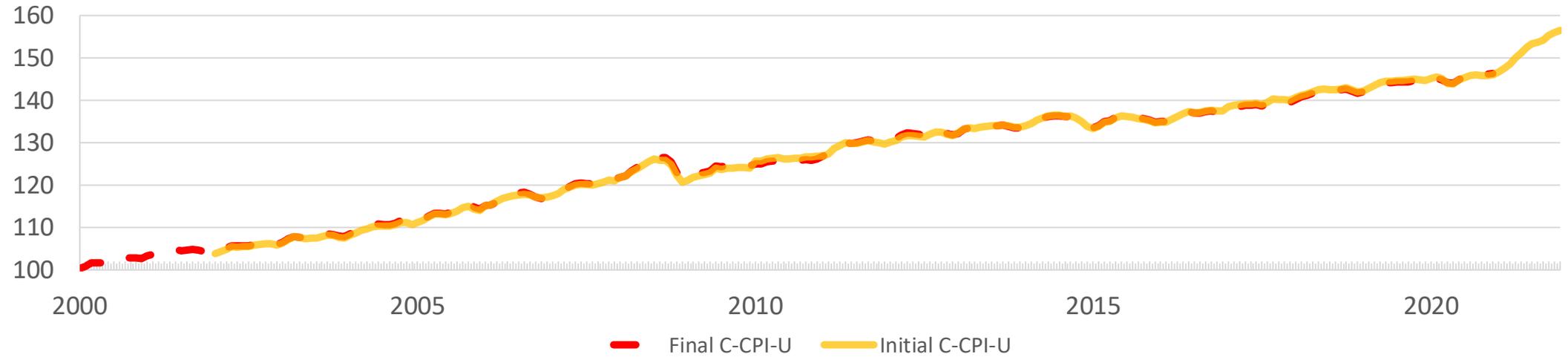


Additional Analyses

- Working paper presents historical series using alternative adjustments for...
 - Household income
 - All
 - Race and Hispanic origin
 - Age (65+)
 - Earnings
 - All workers and full-time, year-round workers
 - Sex
- *N.B.* Using an alternative index would not affect ratios between these groups or inequality measures in any given year.

Comparing the Chained CPI-U Initial and Final Monthly Index Values: 2000 to 2020

Index Values

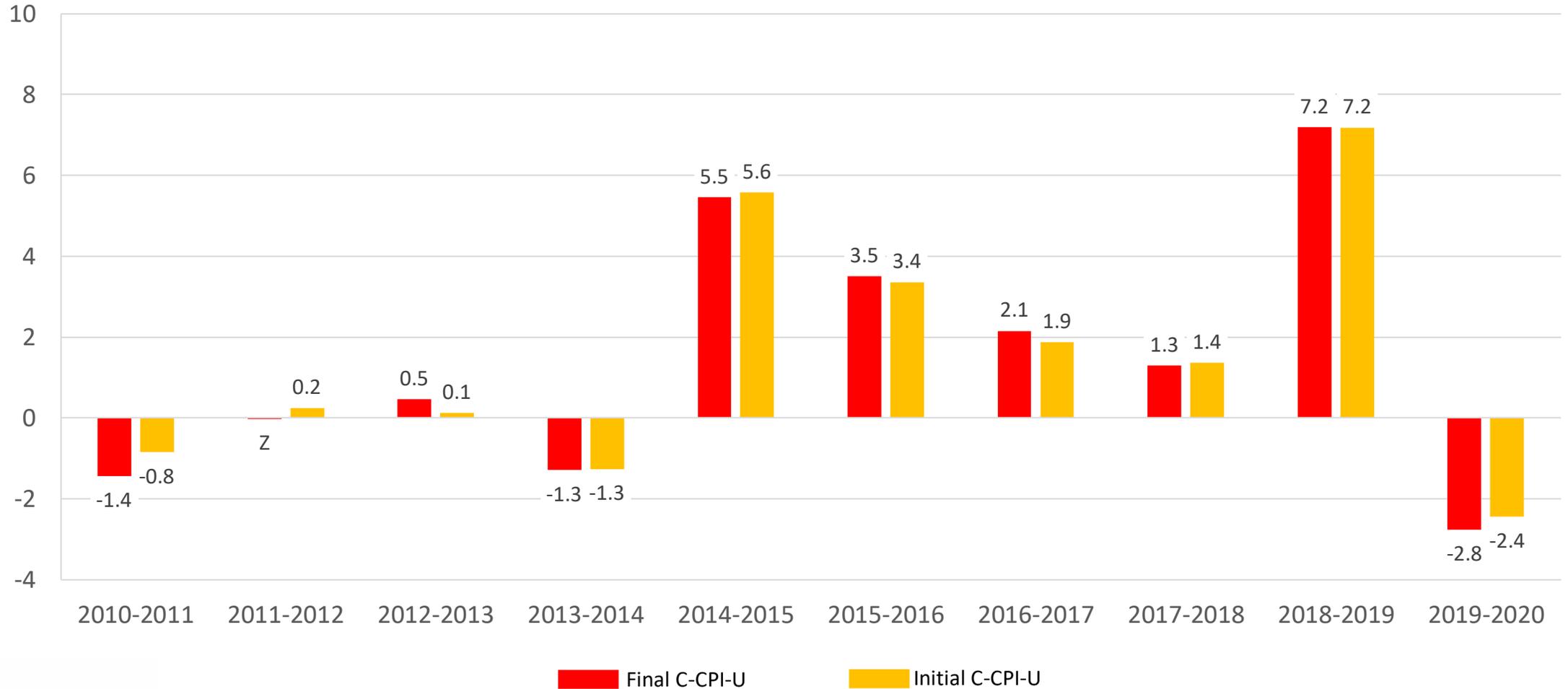


Percent difference (Final - Initial)



Estimates of Annual Percent Change in Real Median Household Income Growth Using Initial versus Final Values of C-CPI-U: 2010 to 2020

Real income growth (percent)



Conclusion

- Chain-type price indices account for upper-level substitution bias and tend to document lower inflation rates.
- Limited effect on estimates of year-over-year income changes, but large differences in estimates of income growth over many years.
- Initial and final C-CPI-U values track each other closely.
- Proposal: Adopt chained-type price index for future Income Reports using CPS ASEC
 - Internet tables will contain unadjusted estimates.
 - Report would include an appendix adjusting income with old index to allow users to understand the impact of the change.

Public Engagement Soliciting Feedback

- Special Report Appendix (September 2020, September 2021, September 2022)
- Federal register notice
- Other Outreach
 - Census Scientific Advisory Committee (March, 2022)
 - Expert Meeting (March, 2022)
 - Society of Government Economists Annual Conference (April, 2022)
 - Joint Statistical Meetings (August, 2022)

Thank you!

Matt Unrath

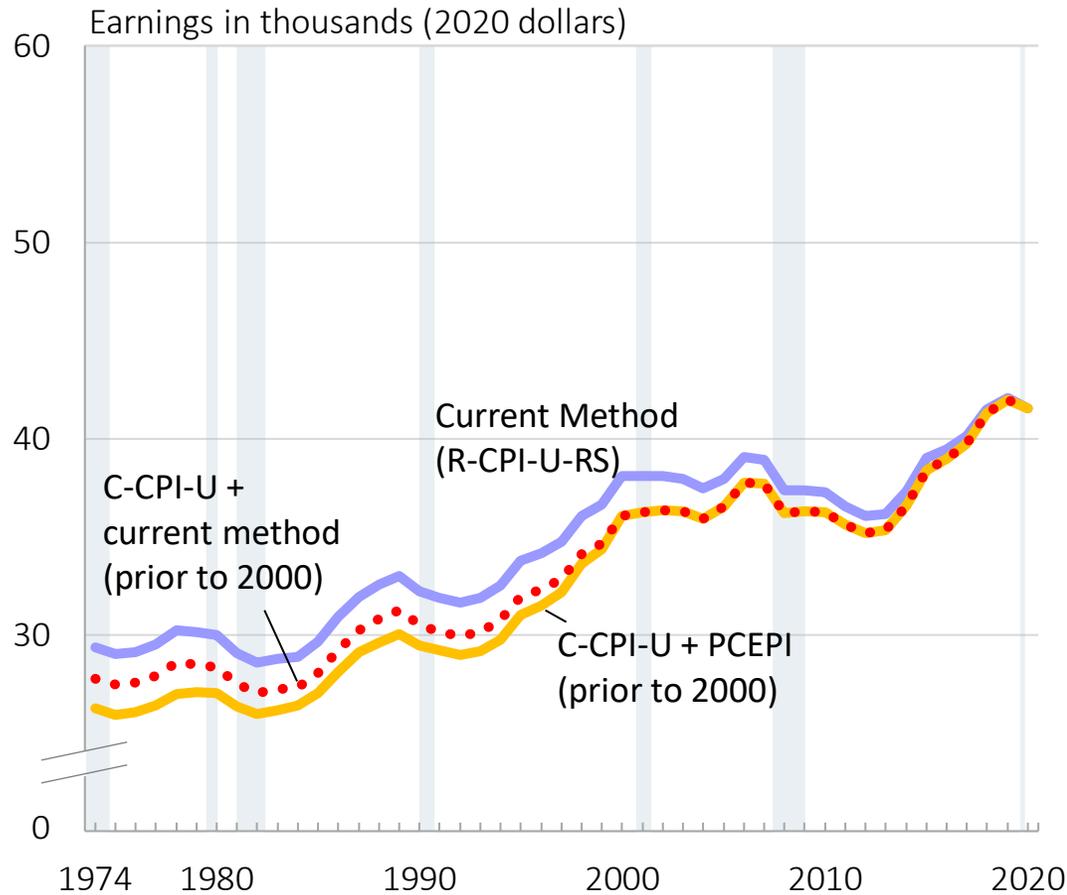
U.S. Census Bureau

matthew.unrath@census.gov

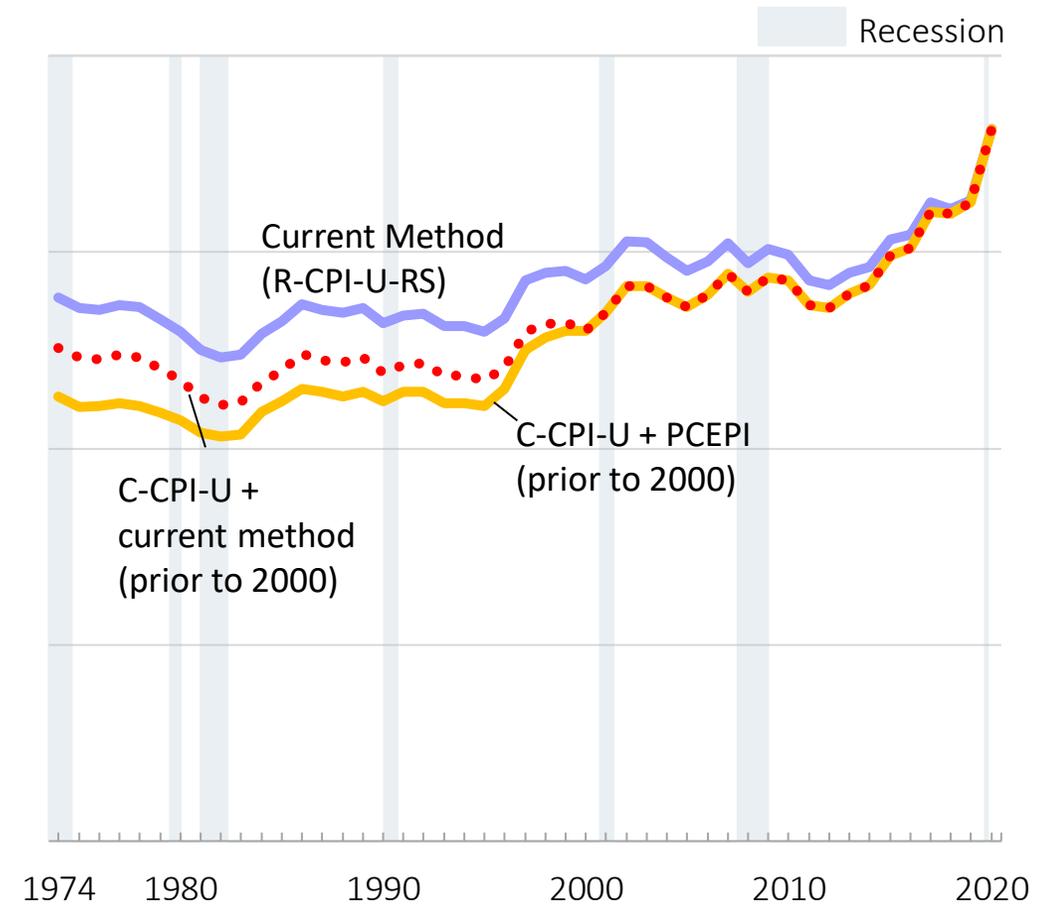
Extra Slides

Impact on Median Earnings: 1974 to 2020

Total workers



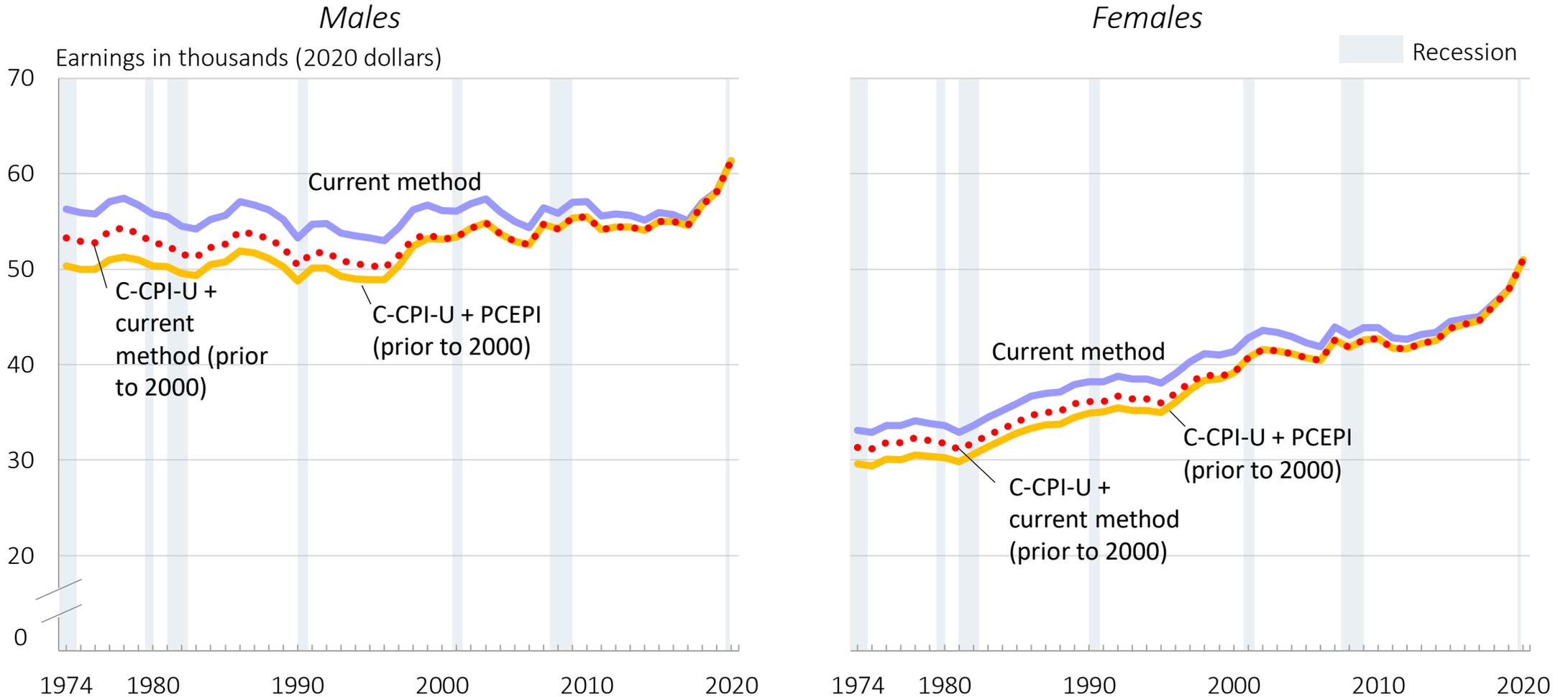
Full-time, year-round workers



Note: Workers aged 15 and older as of March of the following year with earnings. The data for 2017 and beyond reflect the implementation of an updated processing system. The data for 2013 and beyond reflect the implementation of the redesigned income questions.

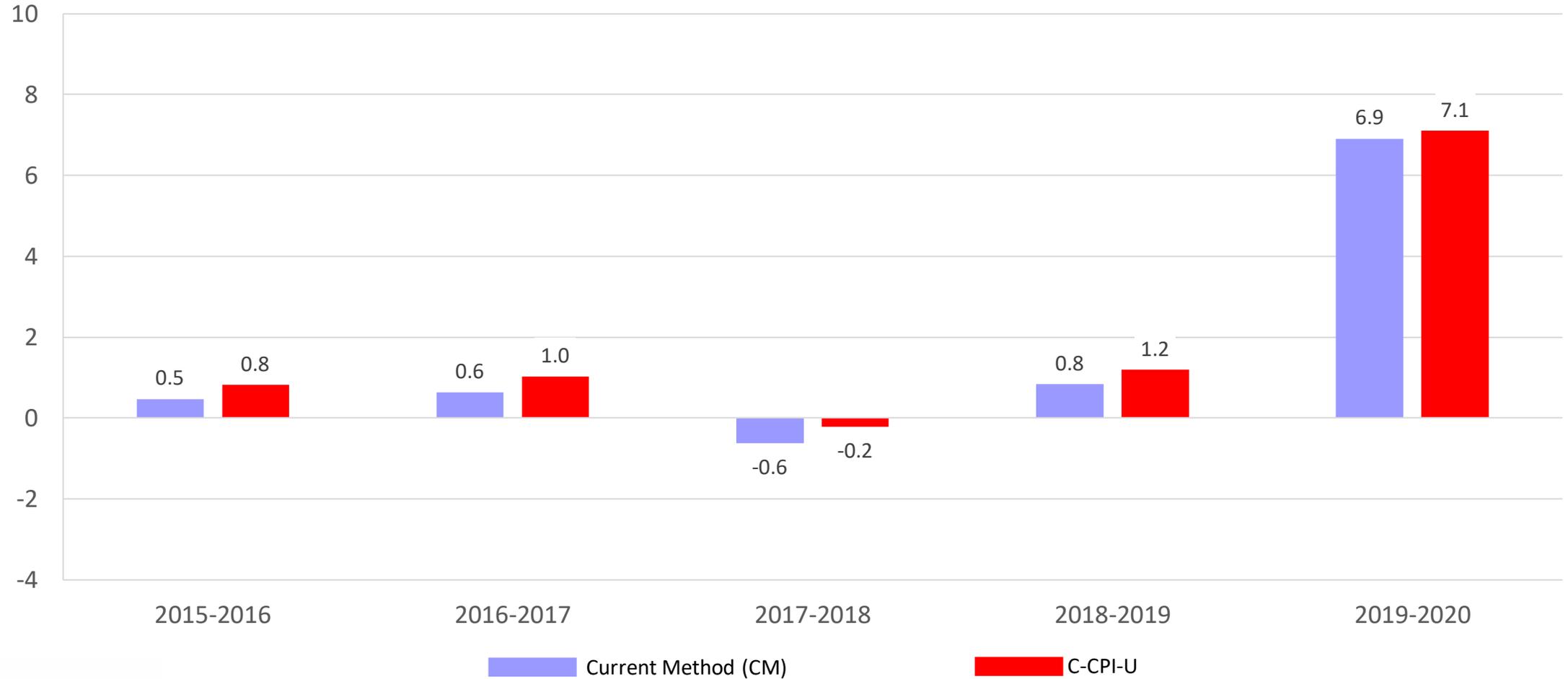
Source: U.S. Census Bureau, Current Population Survey, 1975 to 2021 Annual Social and Economic Supplements (CPS ASEC).

Median Earnings of Full-time, Year-round Workers By Sex Using Alternative Price Indices: 1974 to 2020



Year-Over-Year Real Earnings Growth of Full-time, Year-round Workers Using Alternative Price Indices: 2015 to 2020

Real earnings growth (percent)



Note: People 15 years and over as of March of the following year with earnings. The data for 2017 reflect the implementation of an updated processing system.

Source: U.S. Census Bureau, Current Population Survey, 2016 to 2021 Annual Social and Economic Supplements (CPS ASEC).

Real Earnings Growth of Full-time, Year-round Workers Using Alternative Price Indices Over the Decades: 1974 to 2020

Real earnings growth (percent)

