

# Impact of Weight Timeliness on the US CPI

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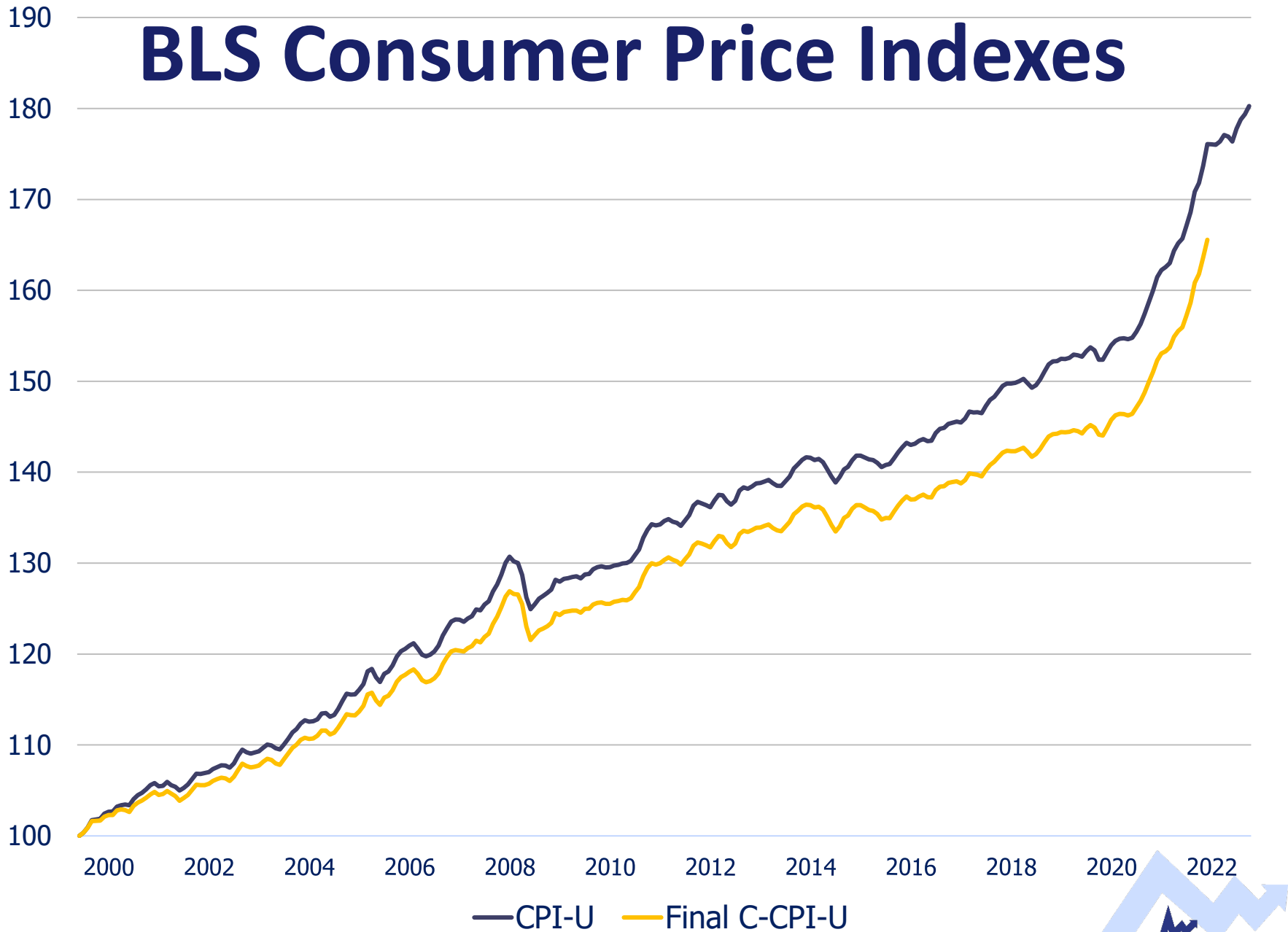
Bureau of Labor Statistics

Meeting of the Group of Experts on CPIs

June 9, 2023



# BLS Consumer Price Indexes



# Motivation: Weighting Improvements

Product	Release Lag (difference between index reference period and publication)	Weight Lag (difference between weight and index reference period)	Improvement Goals
CPI-U	~10 days	Biennial: 12-60 months  Annual: 12-36 months	Reduce weight lag
Final Chained CPI-U	~10 days + 10-12 months	1-2 months	Reduce release lag Increase visibility



# Outline



Motivation



Impact of weight timeliness



Reducing weight lag in CPI-U

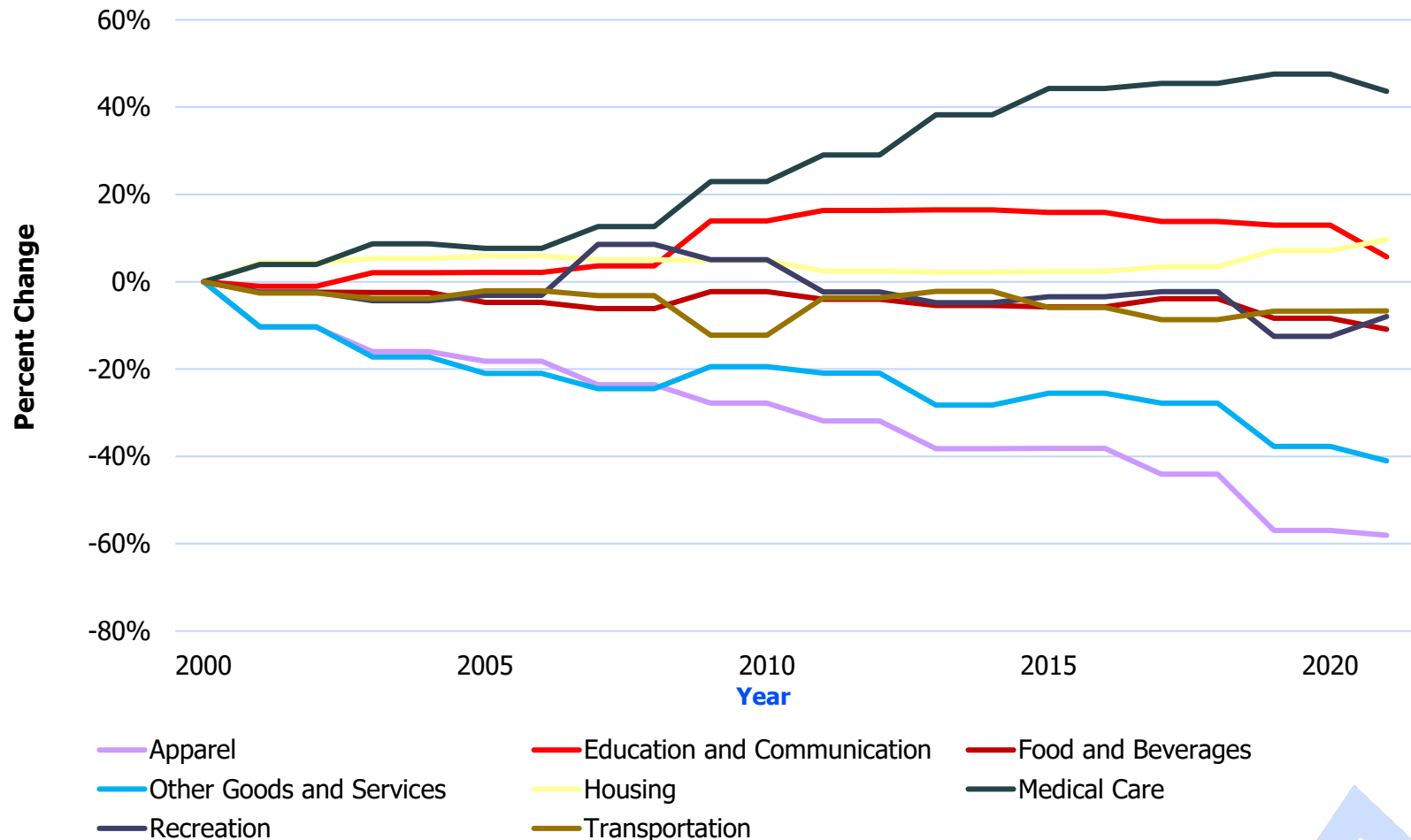


Future research



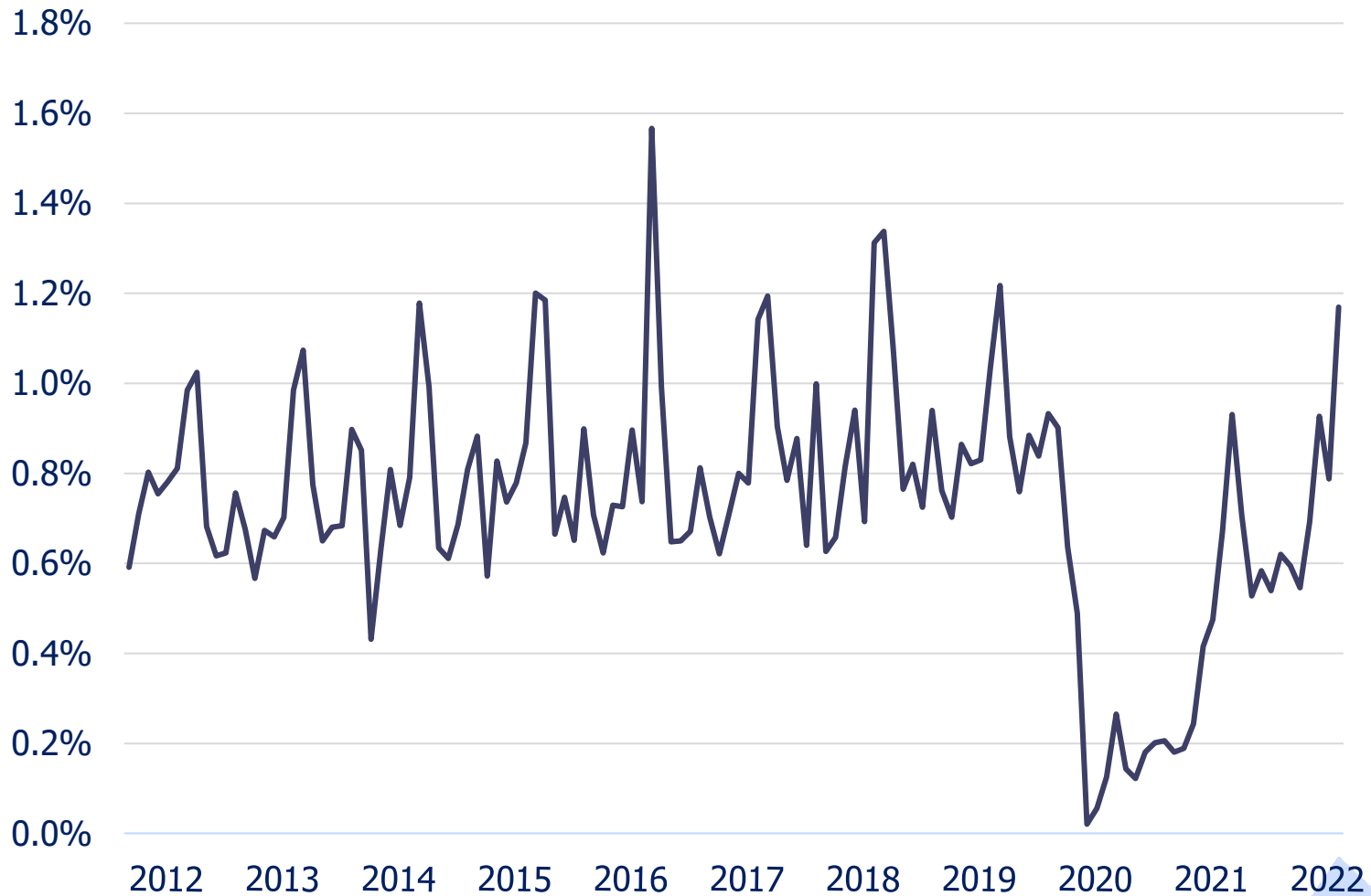
# Weight changes over time

Cumulative percentage change in annual spending shares

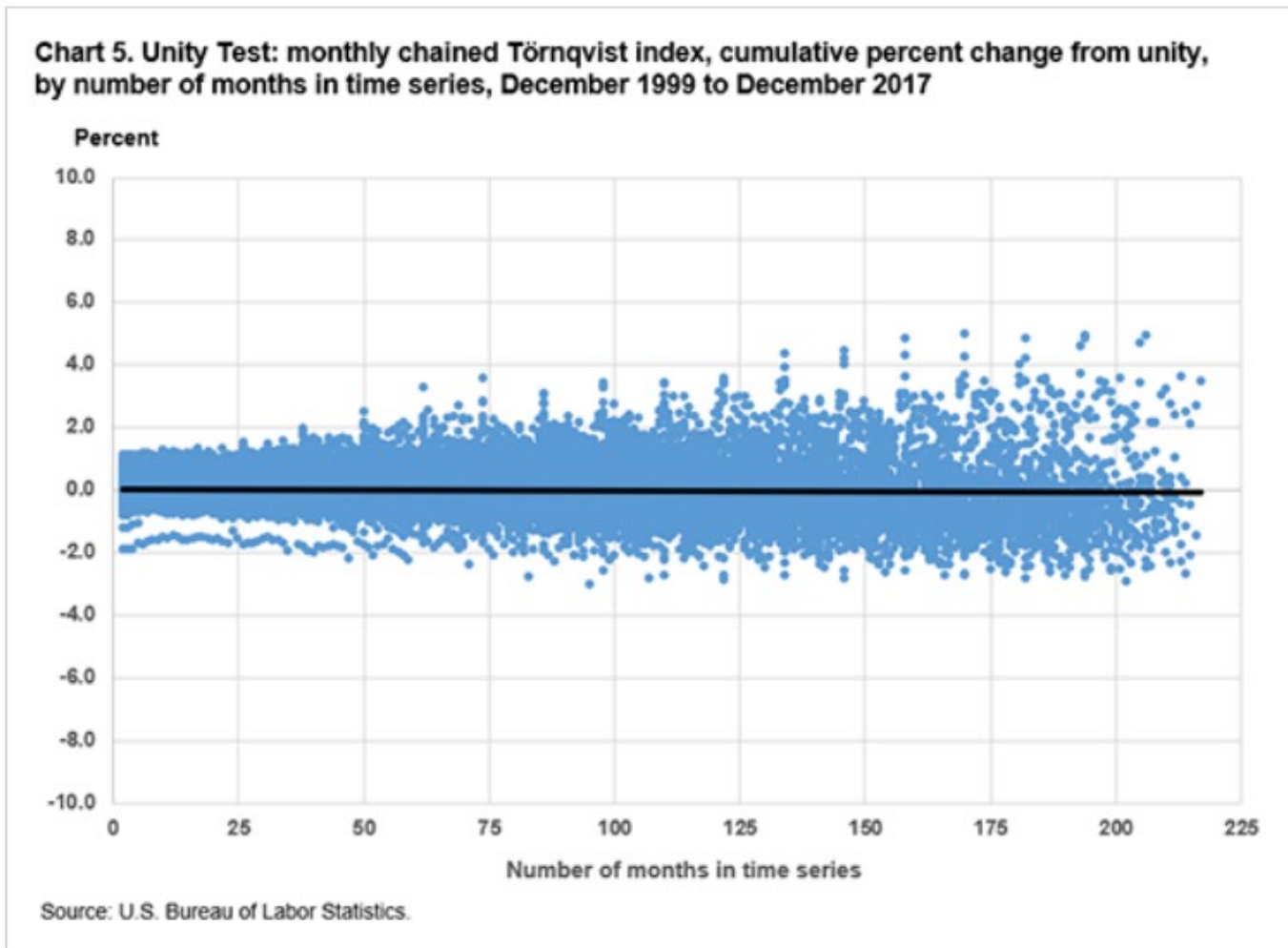


# Airline Fares

## Monthly Expenditure Weights



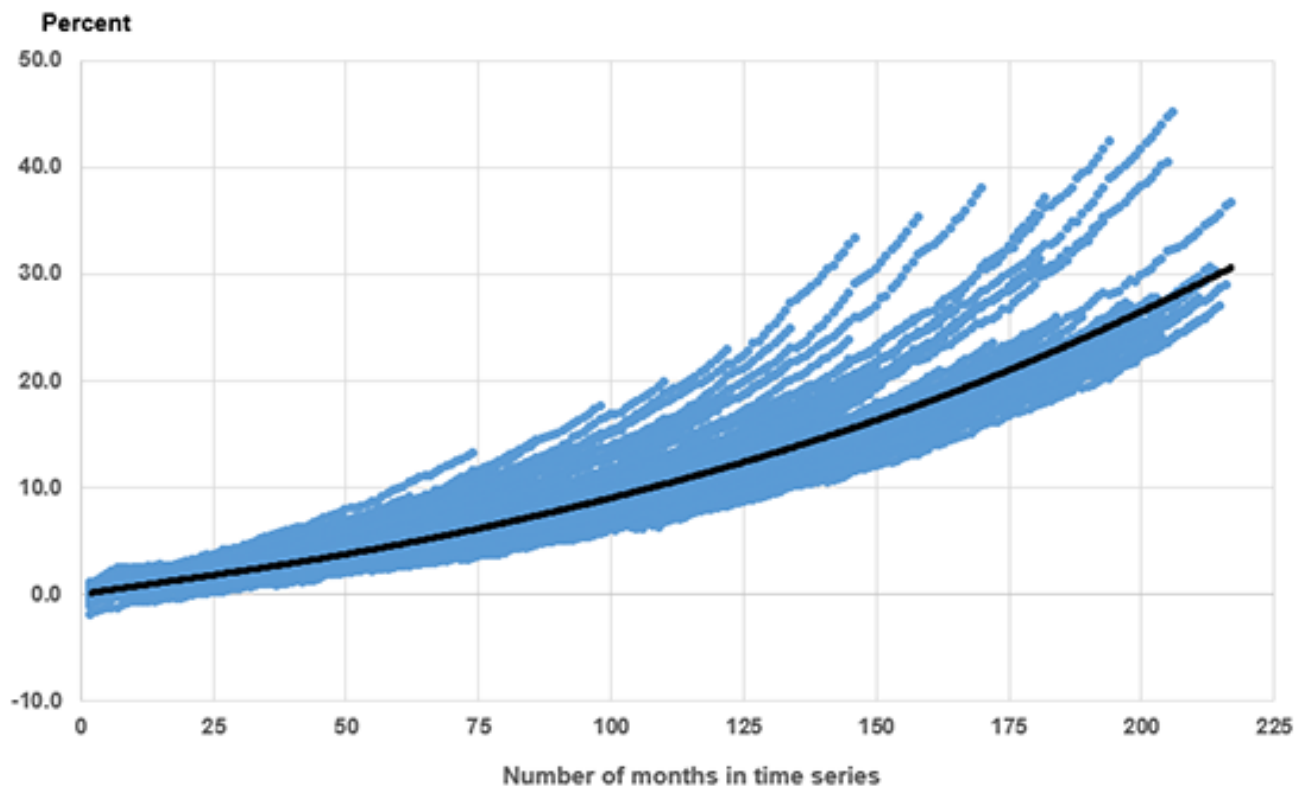
# Impact of chain drift - Tornqvist



[Cage, Williams, Church 2021 "Chain Drift in the Chained Consumer Price Index: 1999-2017"](#)

# Impact of chain drift – monthly chained Laspyeres

Chart 4. Unity test: monthly chained Laspeyres index, cumulative percent change from unity, by number of months in time series, December 1999 to December 2017

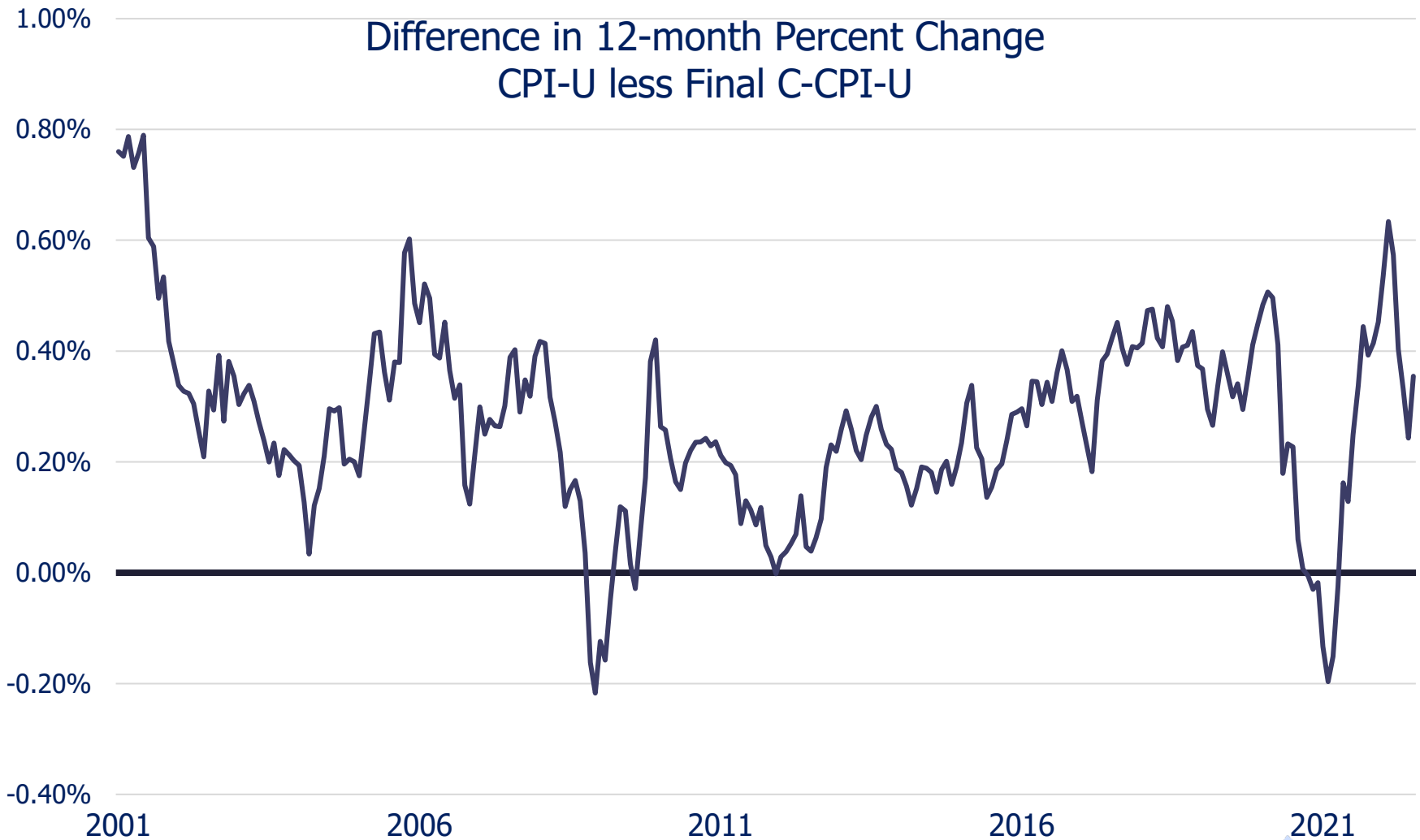


Source: U.S. Bureau of Labor Statistics.

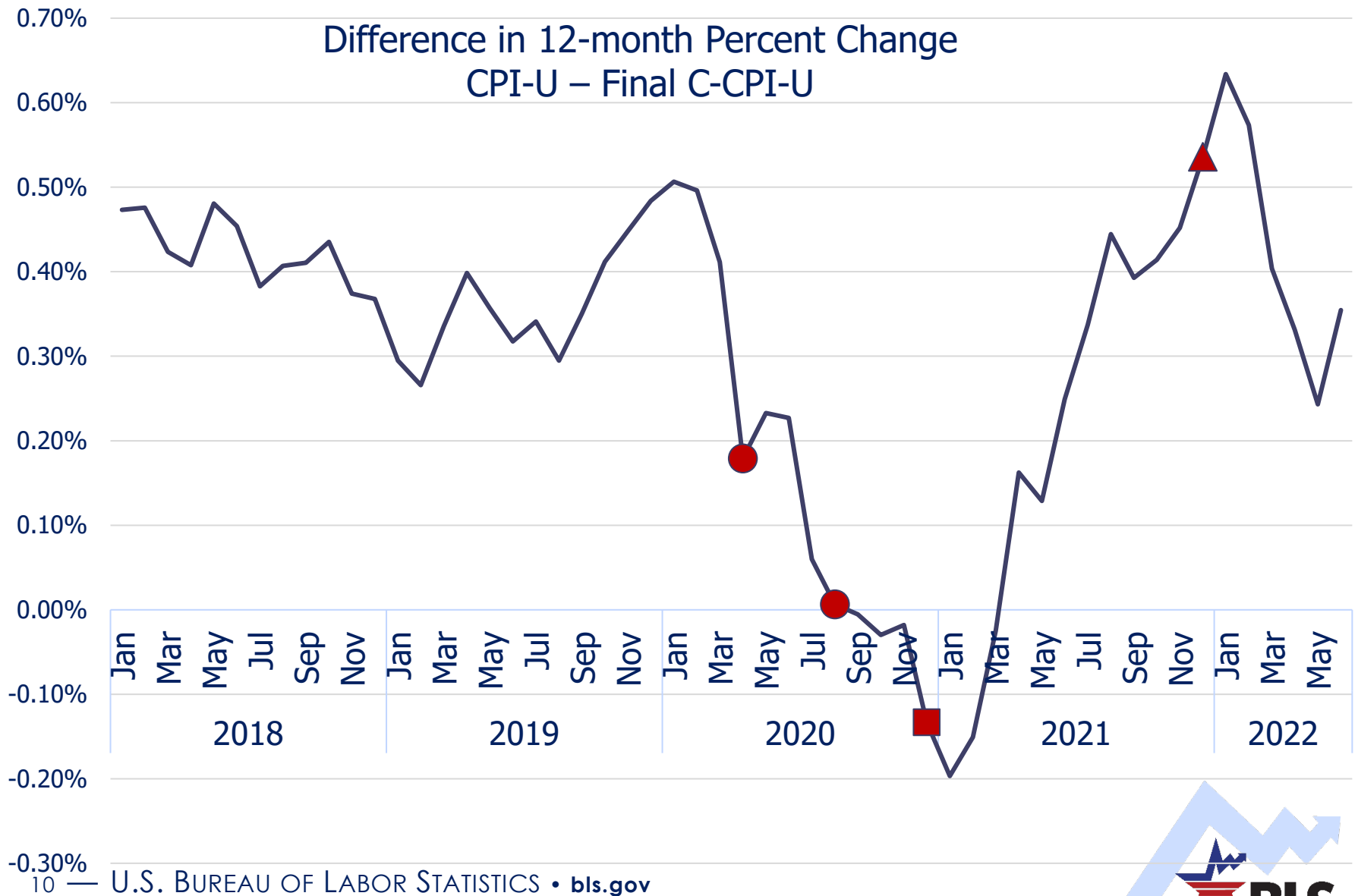




# Historical Impact of Timely Weights

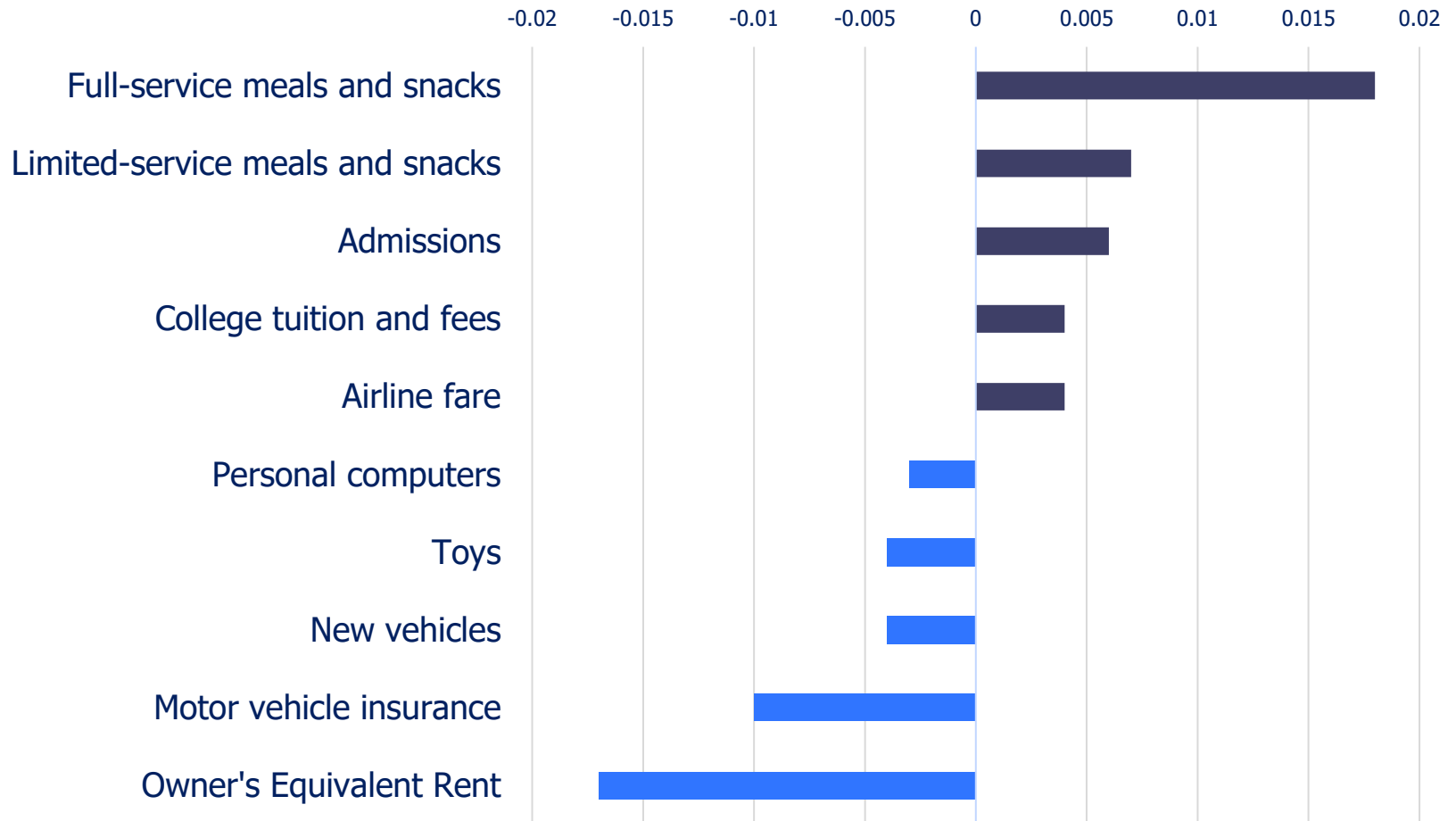


# Recent Impact of Timely Weights

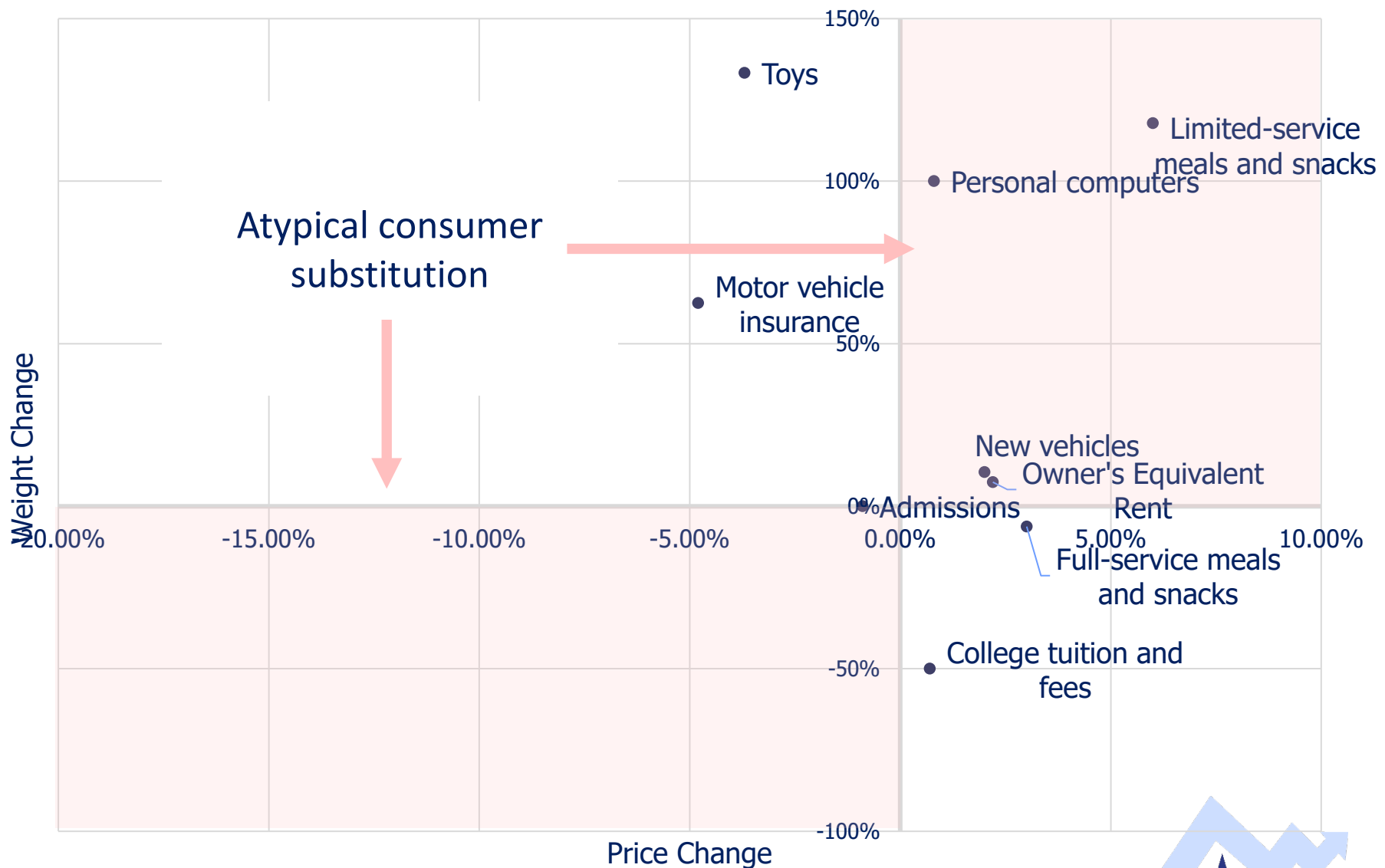


# Items contributing to negative substitution bias

Upper-Level Substitution Bias Contribution - December 2021

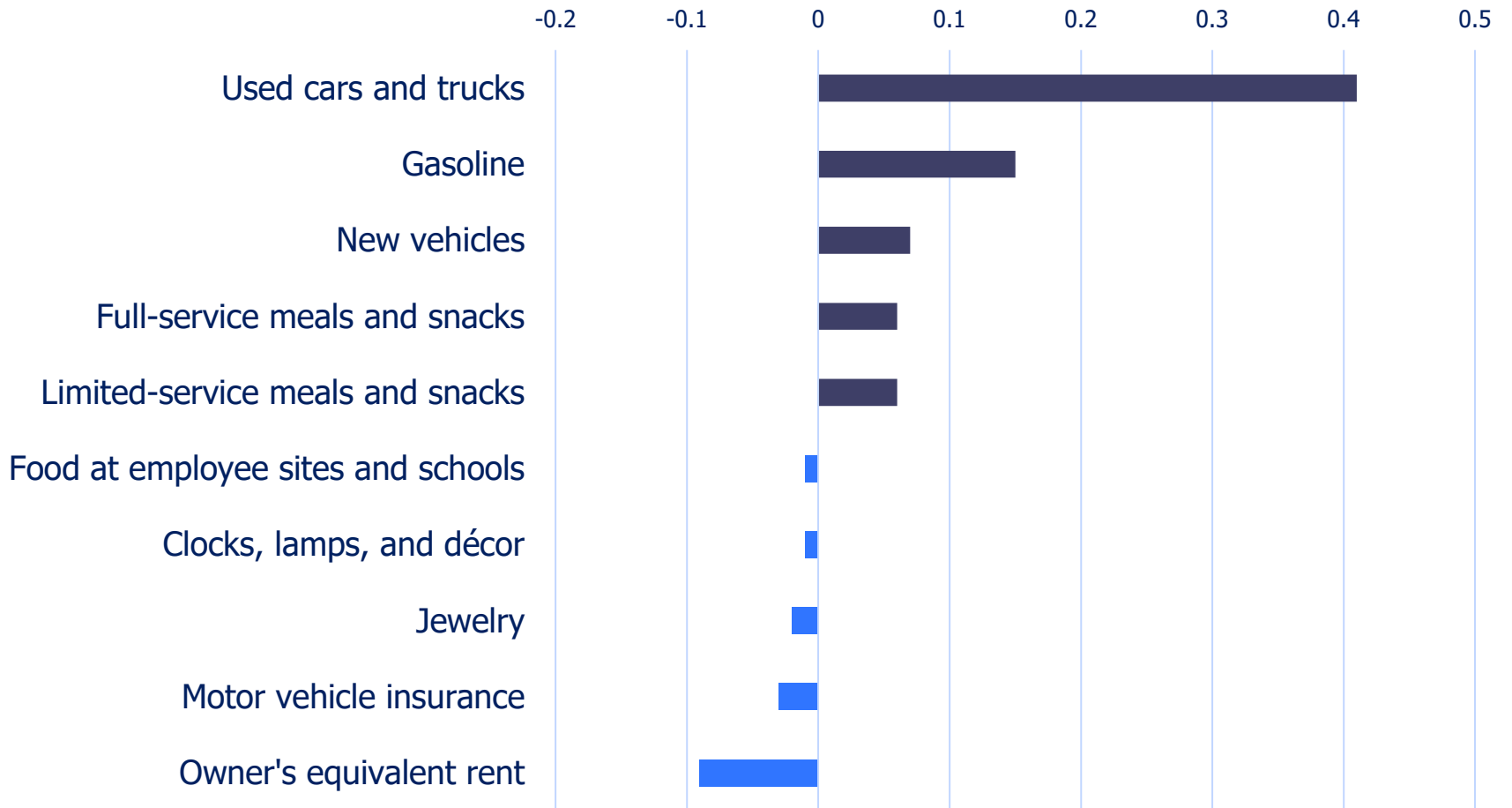


# Negative substitution bias: price and weight change

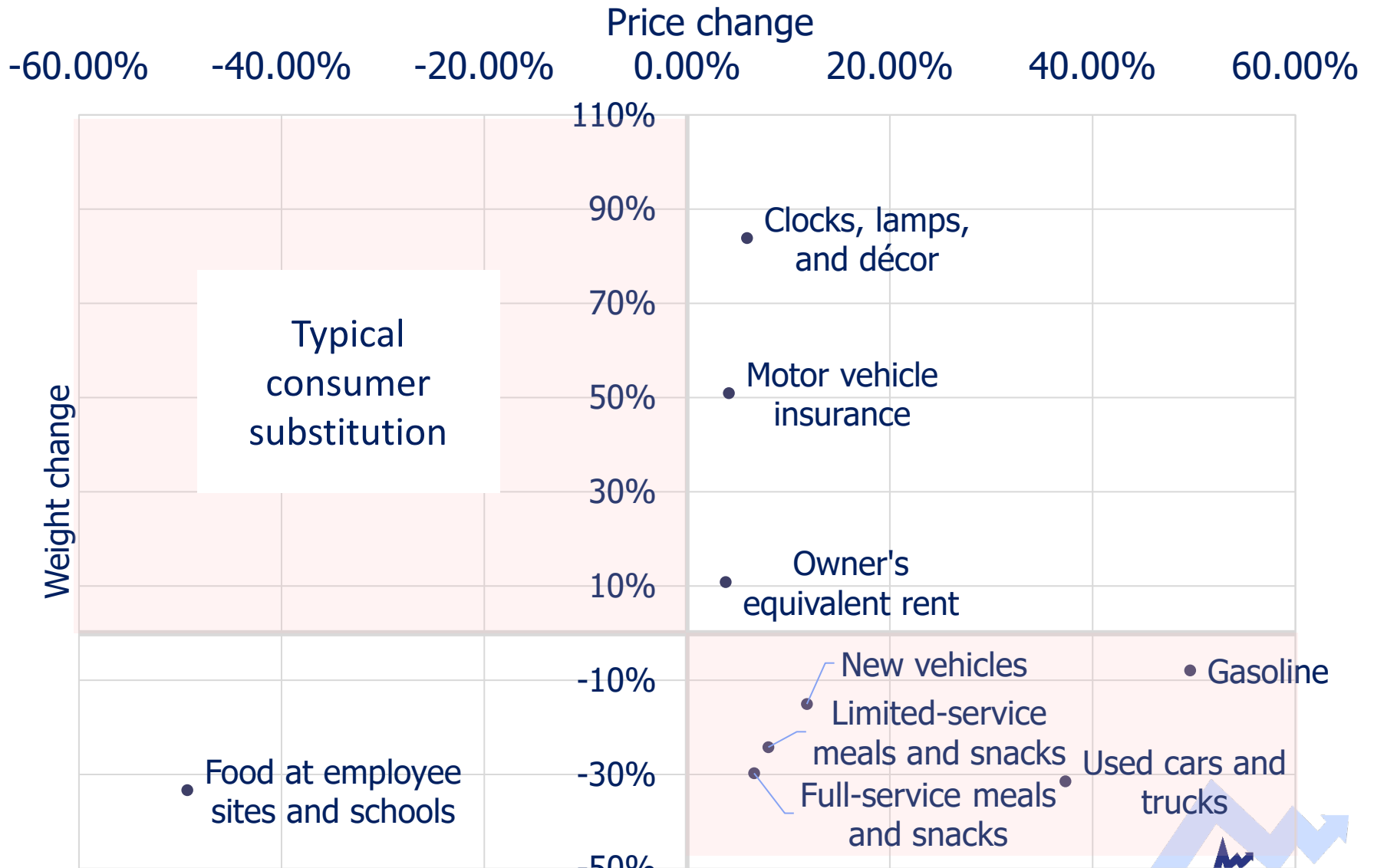


# Items contributing to positive substitution bias

Upper-Level Substitution Bias Contribution - December 2021



# Positive substitution bias: price and weight change



# Improvements to Weight Timeliness

Weight update frequency	Annualized 12-month percent change (2002-2020)	Upper-level substitution bias
Biennial	2.06	0.24
Annual	2.03	0.21
Quarterly	1.95	0.13
Tornqvist (monthly)	1.82	-

## ■ Chain drift

- ▶ None at aggregate levels for annual or quarterly
- ▶ Issue for lower-level quarterly

## ■ Research papers

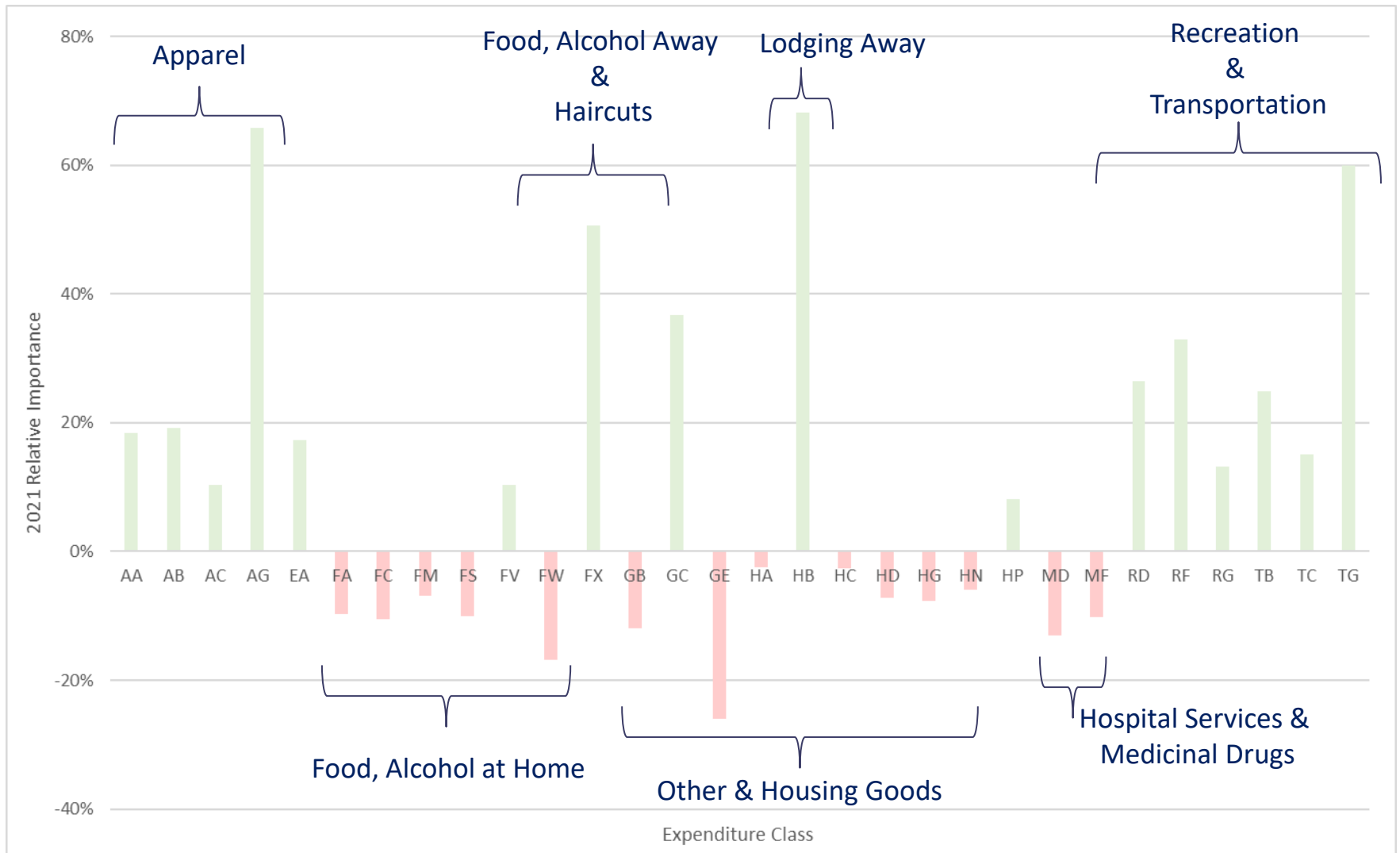
- ▶ Annual: [Klick 2021](#)
- ▶ Quarterly: [Klick, Park 2022](#)

# Implement annual weight update

- Implemented annual weight updates with January 2023 indexes
  - ▶ More relevant weights (replace 2019/2020 with 2021 expenditure data)
  - ▶ See website for more information on [2022](#) and [2023](#) weight updates



# Weight changes in 2023



# What's next – improve timeliness of the C-CPI?

- Medium-term: 6-month lag to publish final C-CPI
  - ▶ Survey protocol (placement dates)
  - ▶ Processing efficiencies (auto-coding, monthly processing, streamlined outlier review)
  - ▶ Design changes (survey recall length)
- Long-term: real-time capture of expenditure information
  - ▶ Funding for pilot test included in FY24 President's budget request

# Additional References

- Greenlees, John and Williams, Elliot (2009). Reconsideration of weighting and updating procedures in the US CPI. [BLS working paper 431](#).
- Kurtzon, Greg (2018). How much does formula vs. chaining matter for a cost-of-living index? The CPI-U vs. the C-CPI-U. [BLS working paper 498](#).
- Klick, Josh (2021). Measuring price change during economic downturns. [Beyond the Numbers Vol. 10 No. 13](#).
- Matsumoto, Brett (2022). The impact of changing consumer expenditure patterns at the onset of the COVID-19 pandemic on measures of consumer inflation. [Monthly Labor Review](#).



# Contact Information

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