

Impact of Weight Timeliness on the US CPI

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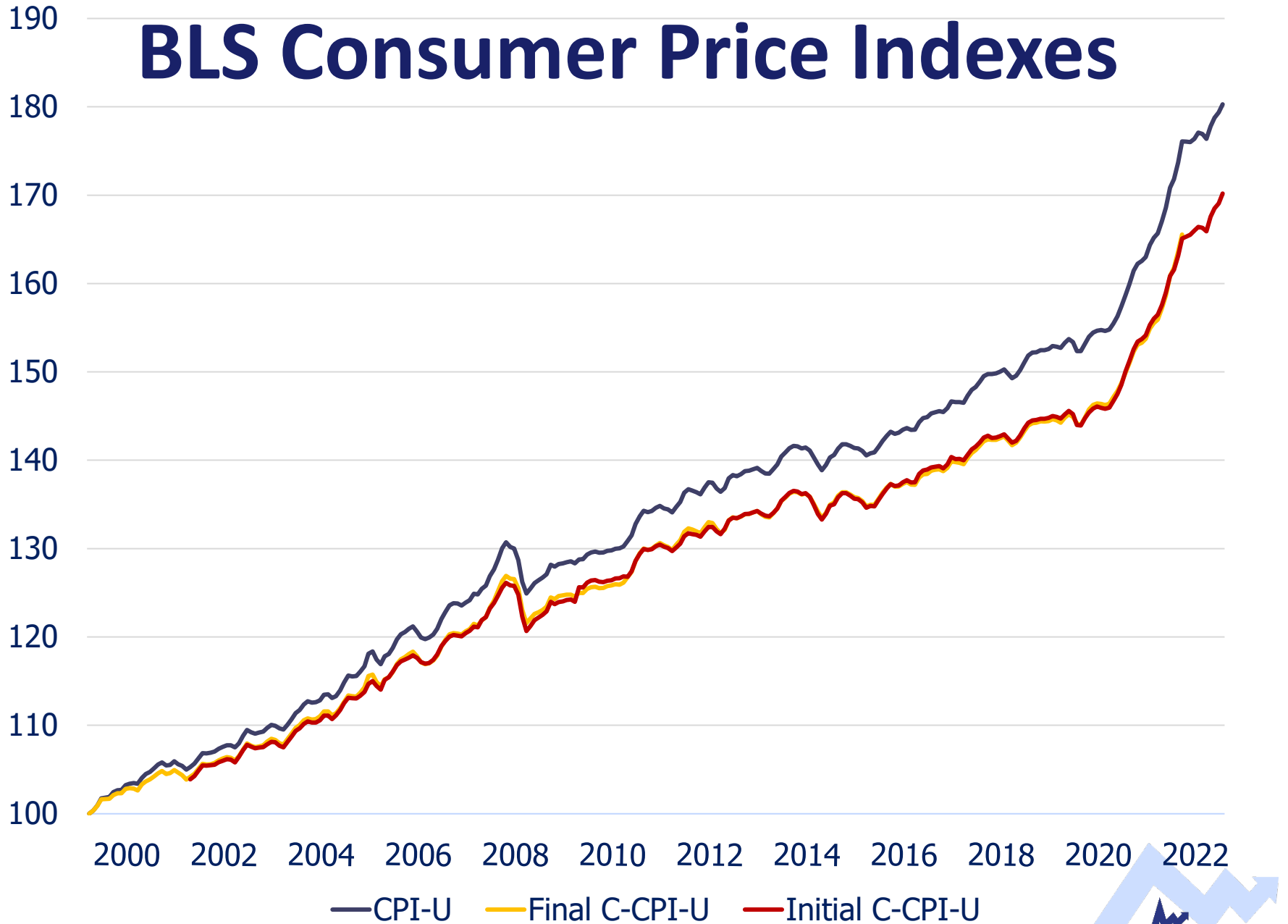
Bureau of Labor Statistics

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	2-4 years 2 years	Reduce weight lag
Final Chained CPI-U	9-12 months	None	Reduce release lag Increase visibility
Initial Chained CPI-U	~10 days	2-4 years 2 years	Reduce revision size Increase visibility



Outline



Motivation



Impact of weight timeliness



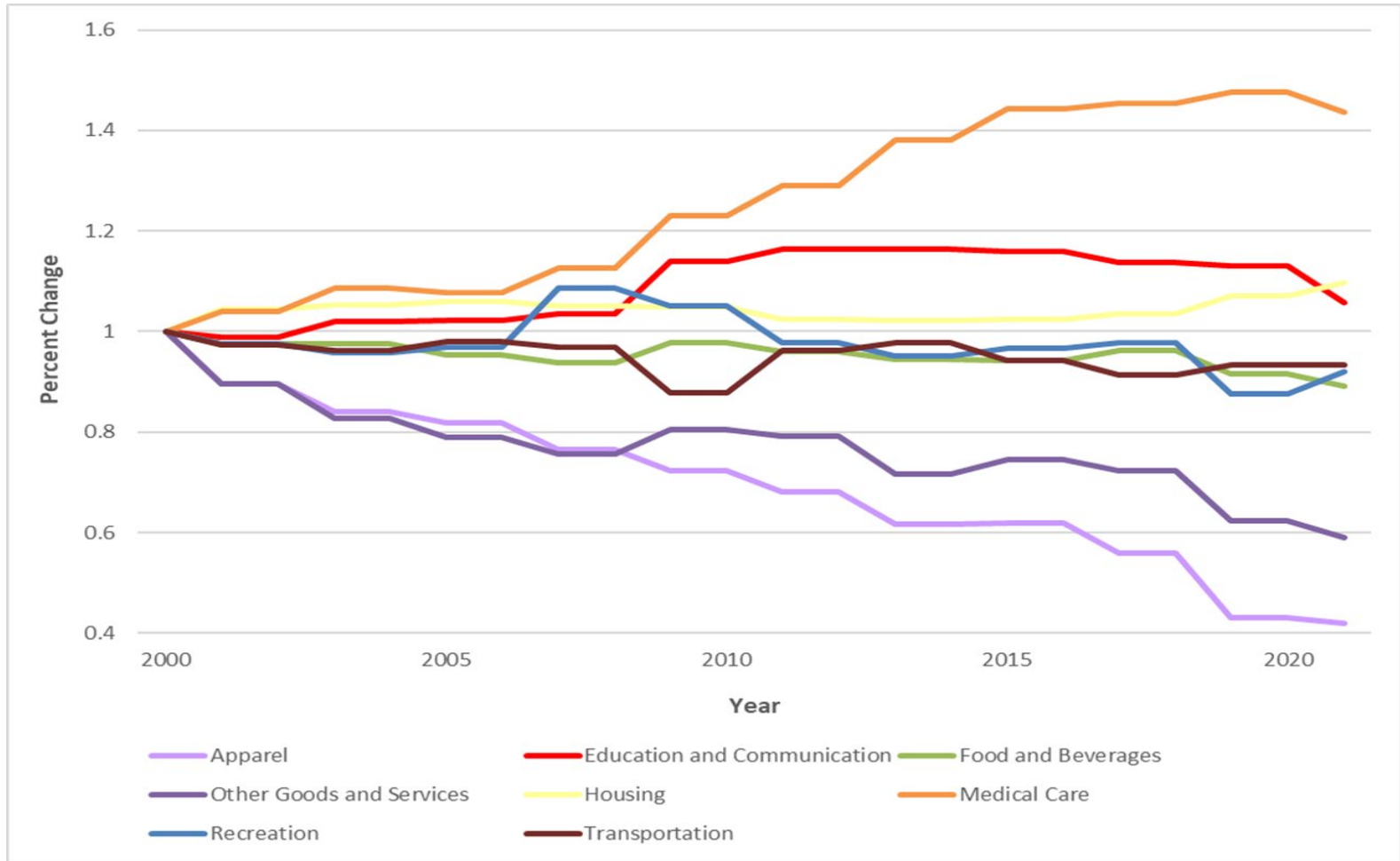
Reducing weight lag in CPI-U



Future research

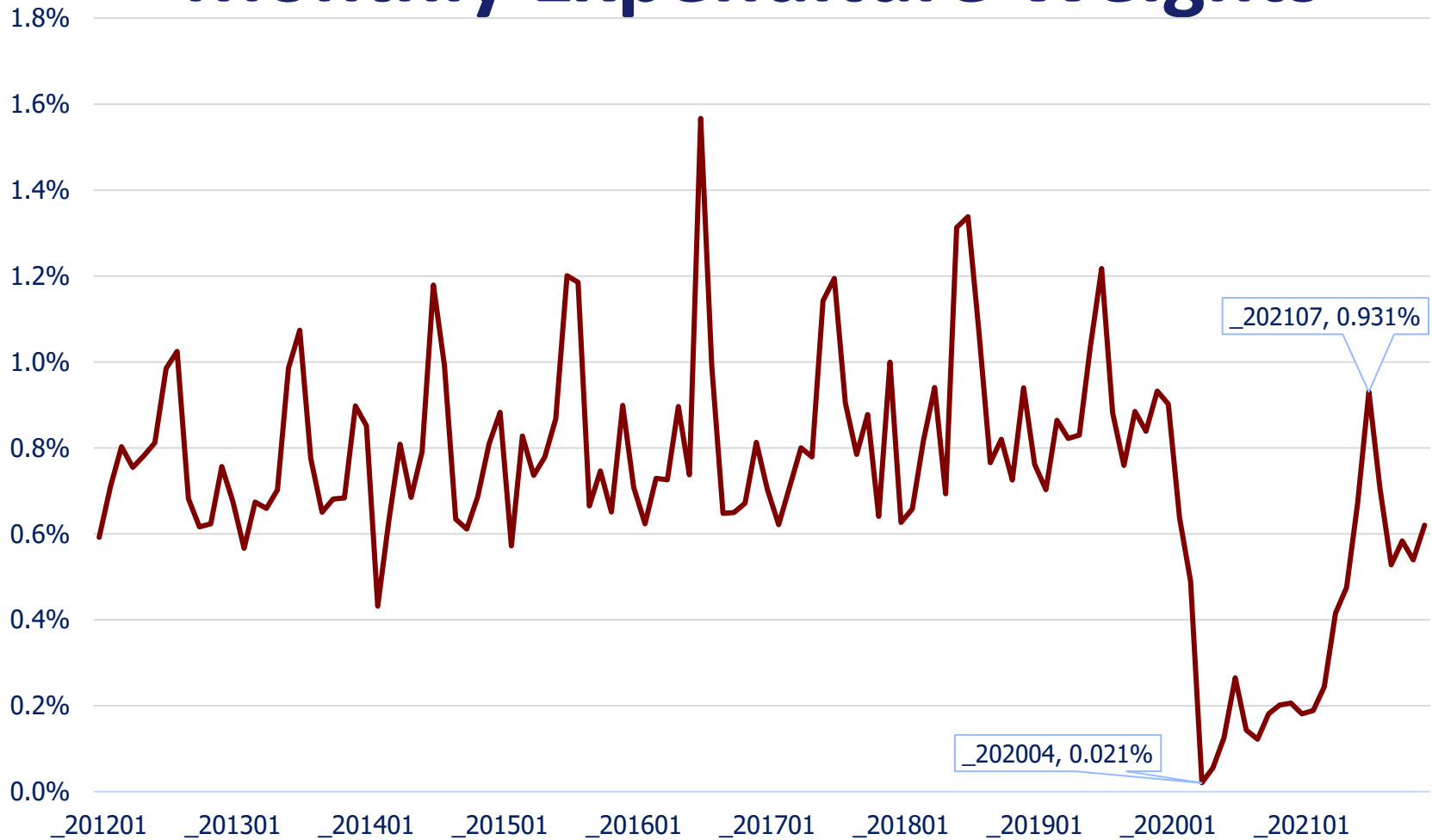


Annual Weight Changes



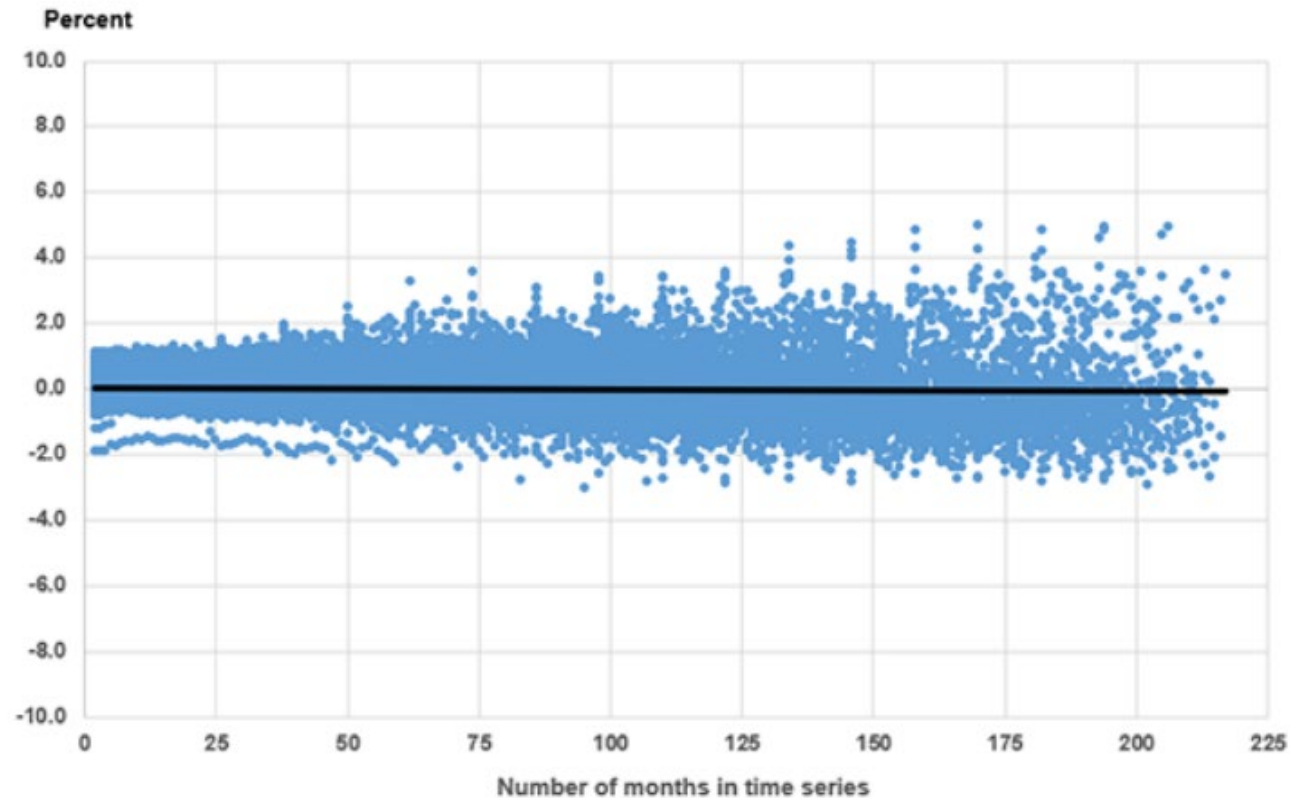
Airline Fares

Monthly Expenditure Weights



Impact of chain drift

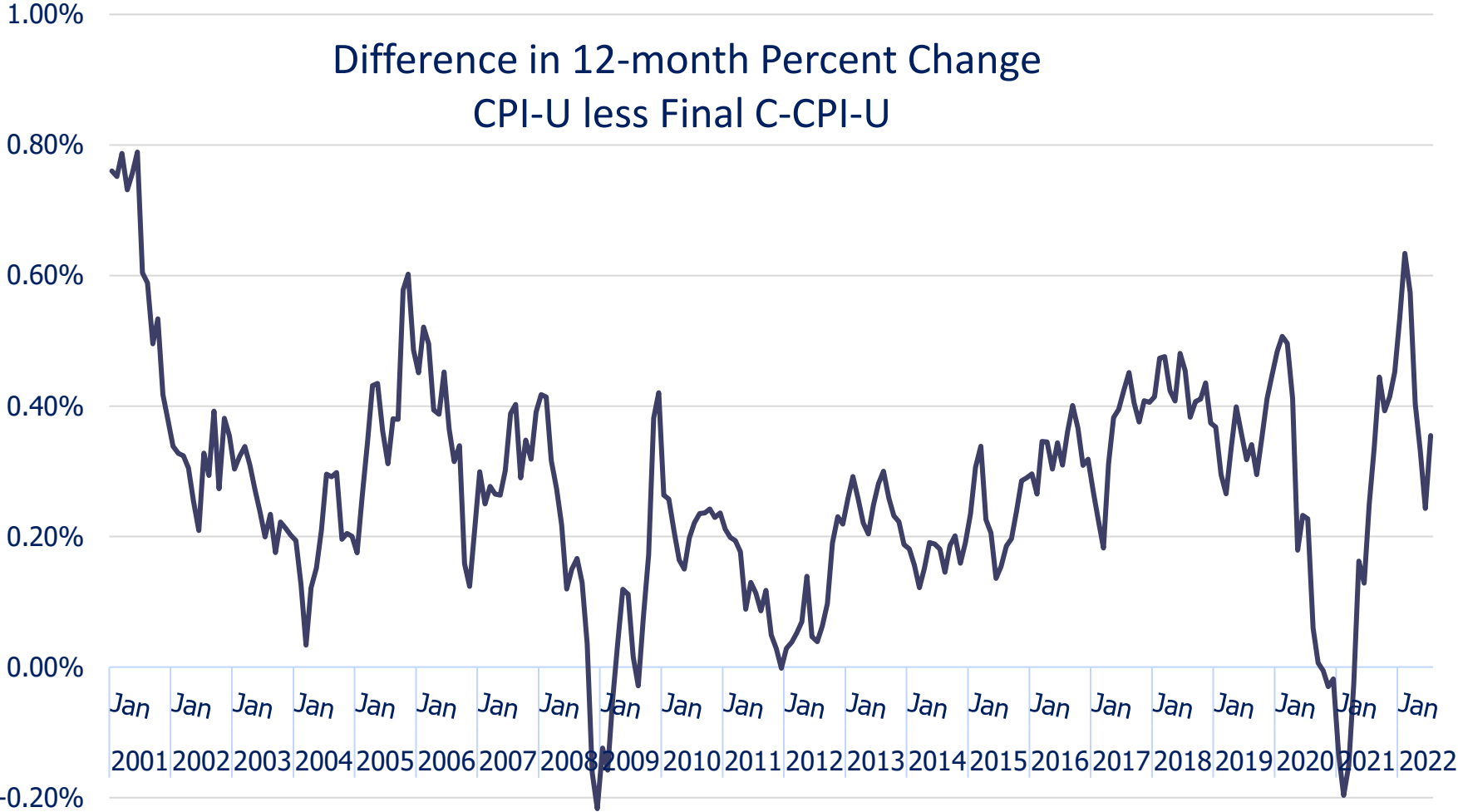
Chart 5. Unity Test: monthly chained Törnqvist index, cumulative percent change from unity, by number of months in time series, December 1999 to December 2017



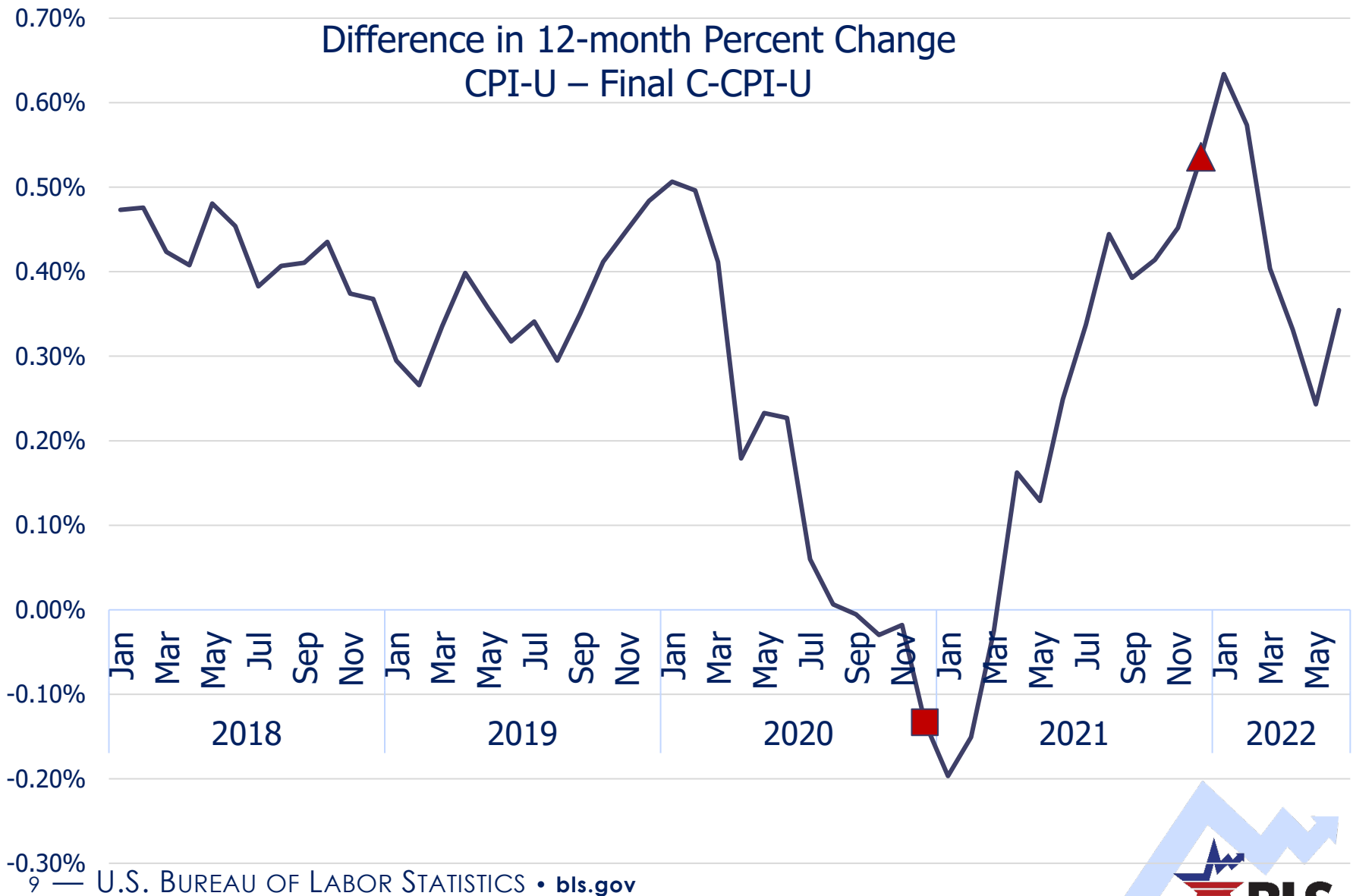
Source: U.S. Bureau of Labor Statistics.

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

Historical Impact of Timely Weights

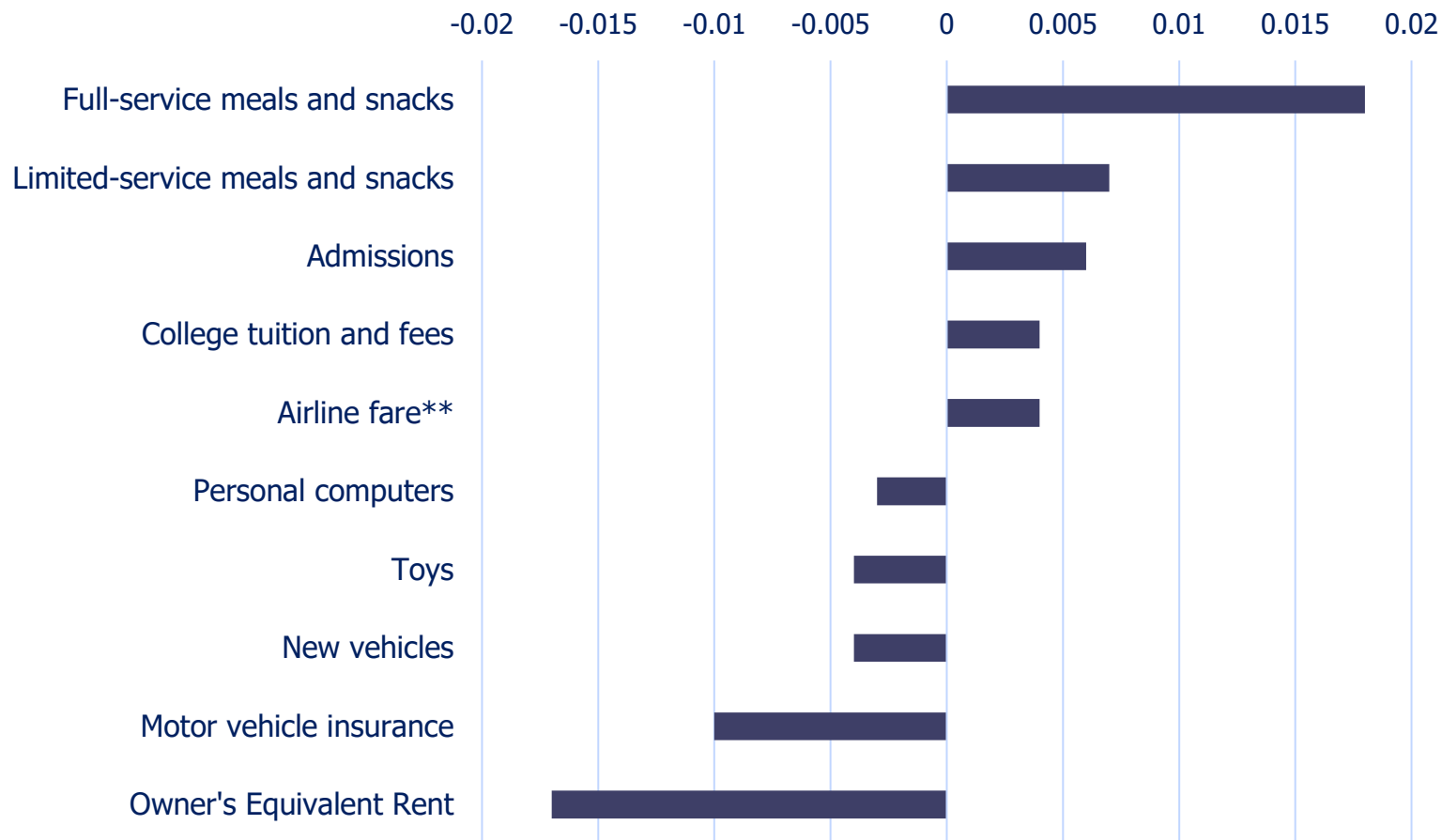


Recent Impact of Timely Weights

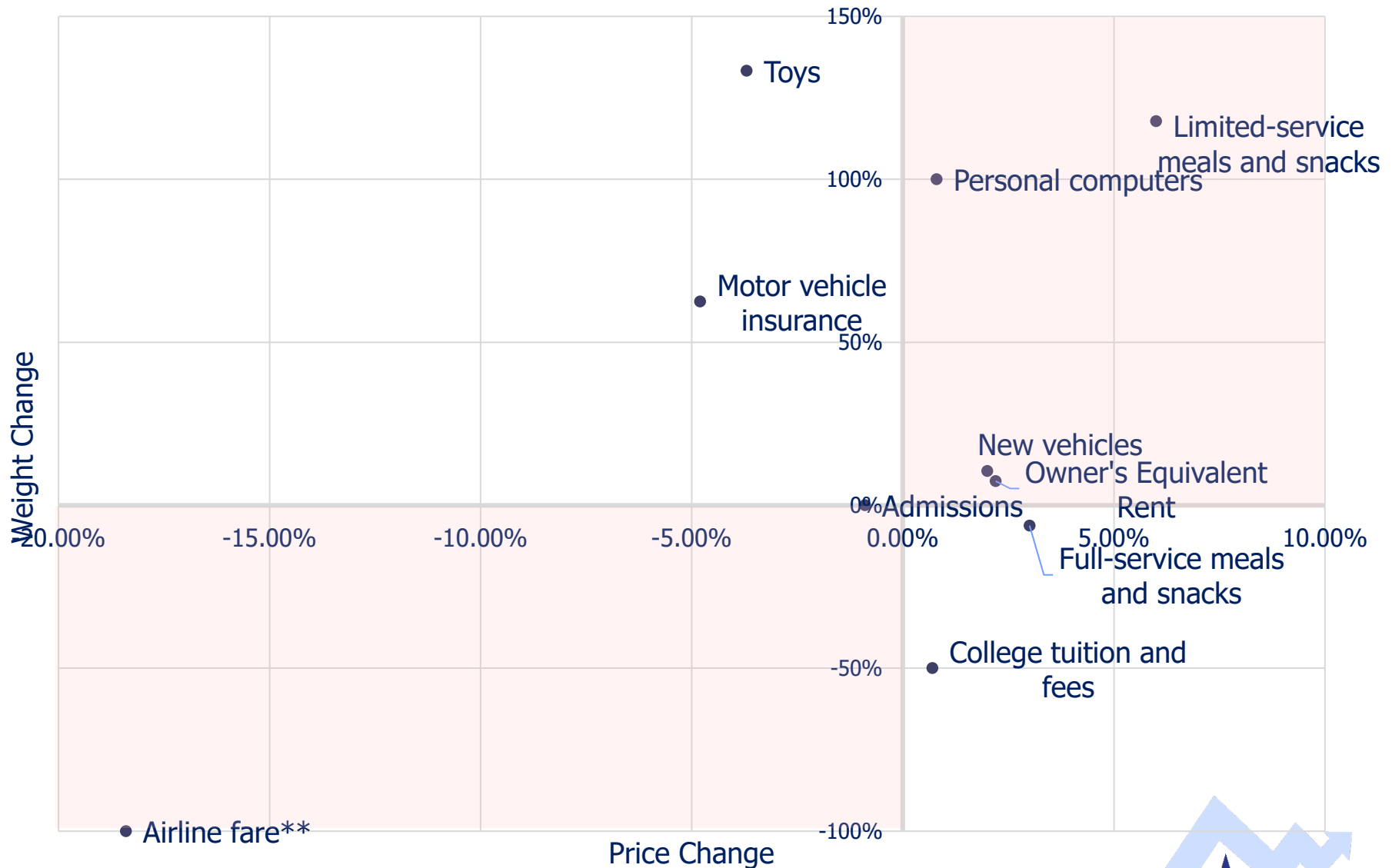


Snapshot #1: December 2020

Upper-Level Substitution Bias Contribution - December 2021 (-0.13%)

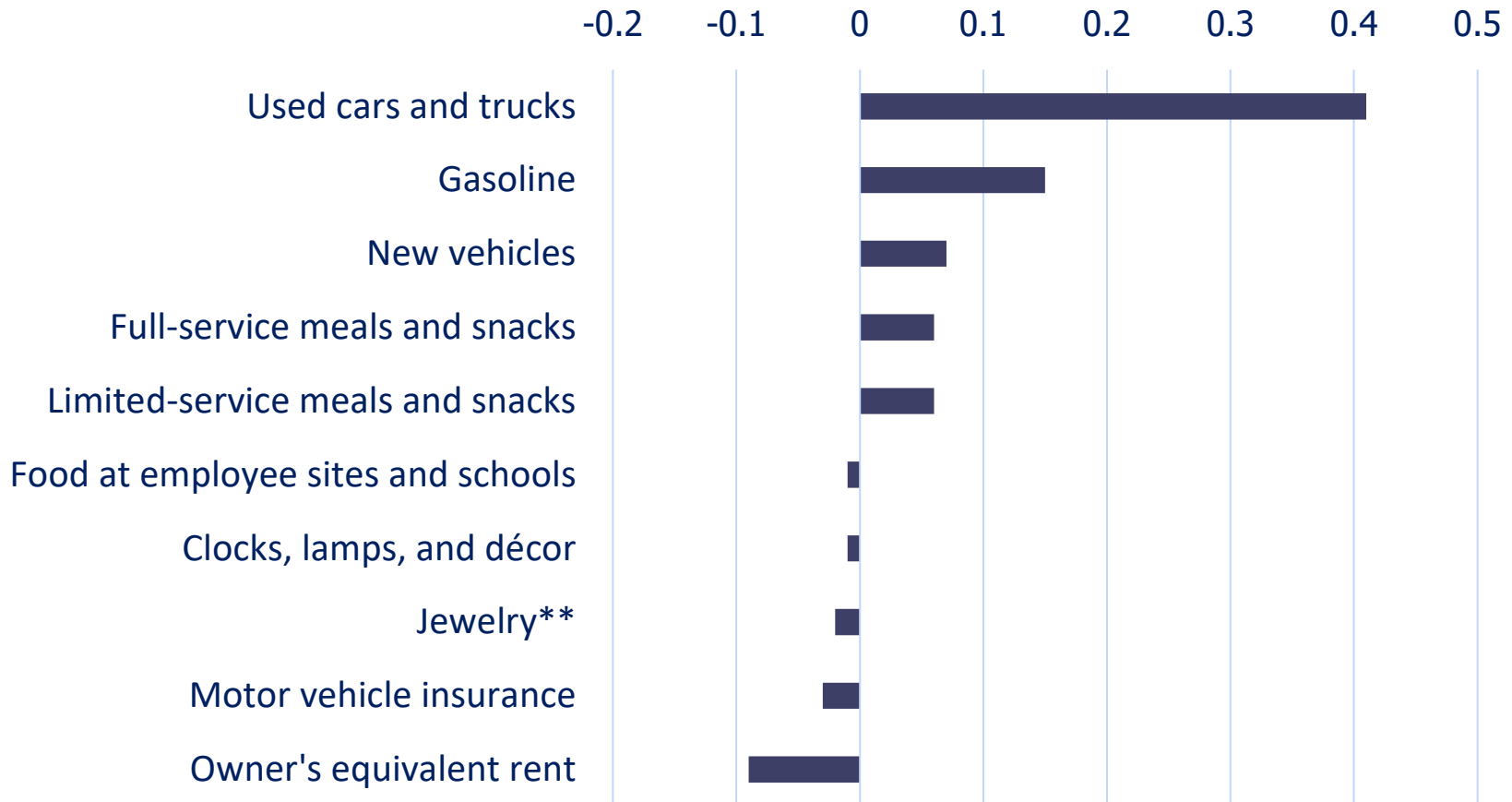


2020 Price and Weight Change

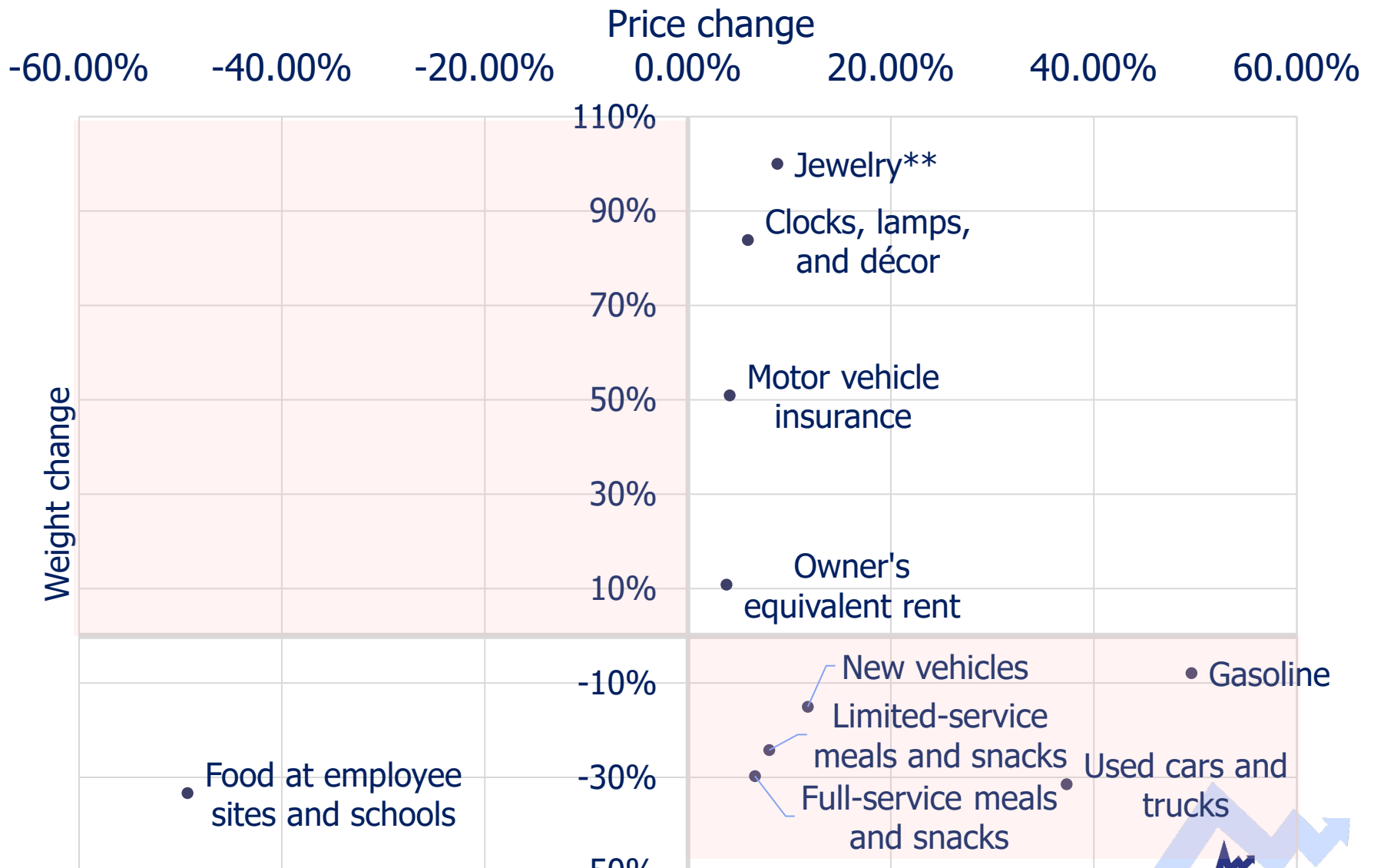


Snapshot #2: December 2021

Upper-Level Substitution Bias Contribution - December 2021 (0.54%)



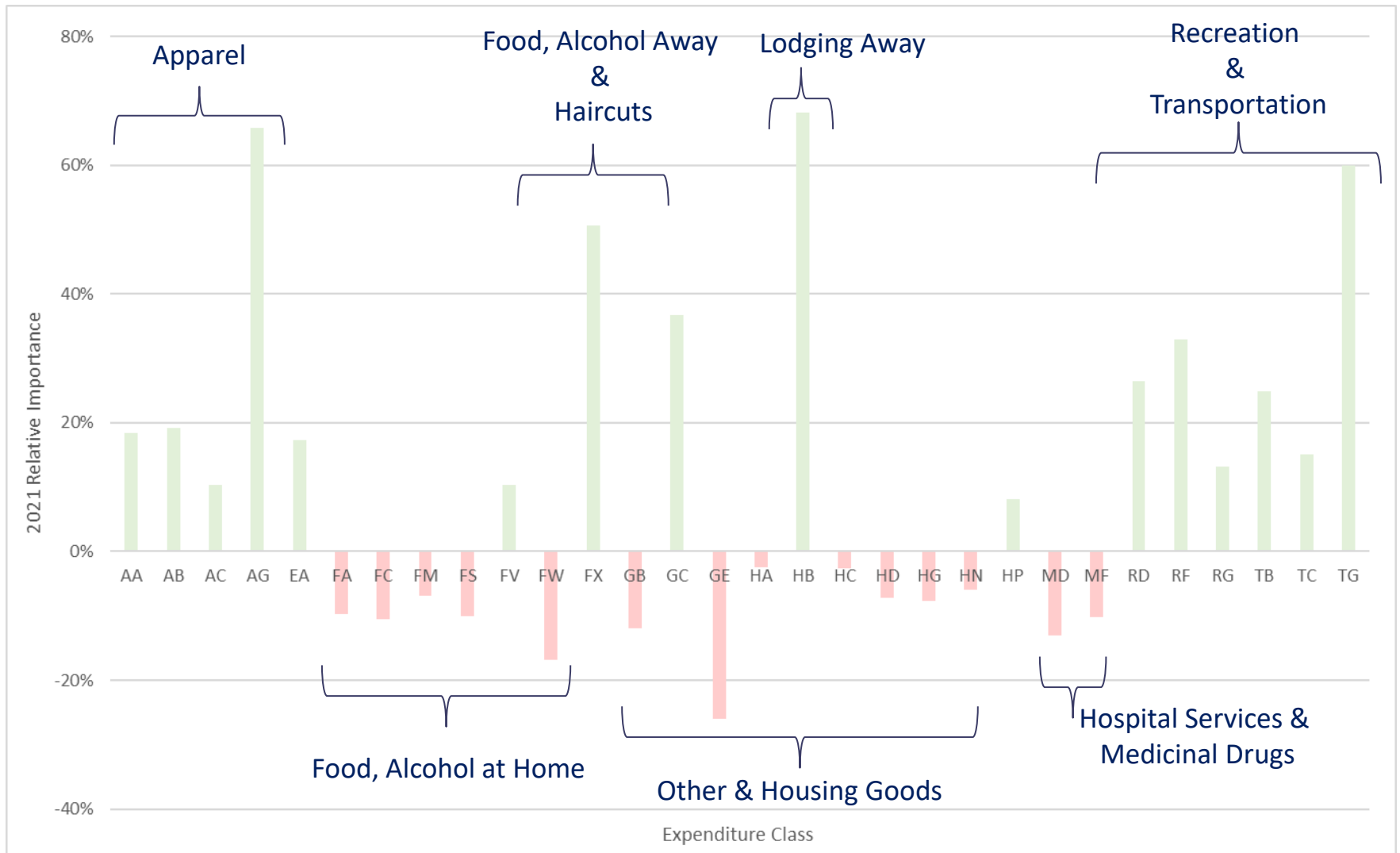
2021 Price and Weight Change



Improvements to Weight Timeliness

- Implemented annual weight updates with January 2023 indexes
 - ▶ Reduced historical upper-level substitution bias by 0.03 percentage points per year
 - ▶ 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 – quarterly weight updates?

- Reduces aggregate upper-level substitution bias
- Issues at sub-aggregate level
 - ▶ Chain drift
 - ▶ Outlier impact
- [Klick, Park 2022](#)

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	-

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

Contact Information

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