

United States Inflation Experience across the Income Distribution

Bureau of Labor Statistics:
Consumer Price Index

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Presentation for the Federal Committee on
Statistical Methods
October 26, 2022



CPI Family of Indexes a.

CPI-U

- Timely, Broad-Based



CPI Family of Indexes b.

CPI-U

- Timely, Broad-Based

Chained CPI-U

- Best measure of cost-of-living index

CPI Family of Indexes c.

CPI-U

- Timely, Broad-Based

Chained CPI-U

- Best measure of cost-of-living index

CPI-W, R-CPI-E

- Disaggregated by household characteristics

CPI Family of Indexes d.

CPI-U

- Timely, Broad-Based

Chained CPI-U

- Best measure of cost-of-living index

CPI-W, R-CPI-E

- Disaggregated by household characteristics

R-CPI-Income &
R-Chained CPI-Income

- Disaggregated statistics by household income

Outline

1. Household income subpopulations:
 - A. Methodology
 - B. Demographics
 - C. Expenditures
 - D. Quality of elementary cell coverage
2. R-CPI-Income and R-Chained CPI-Income
3. Analysis
4. Conclusion and next steps



Household income subpopulations

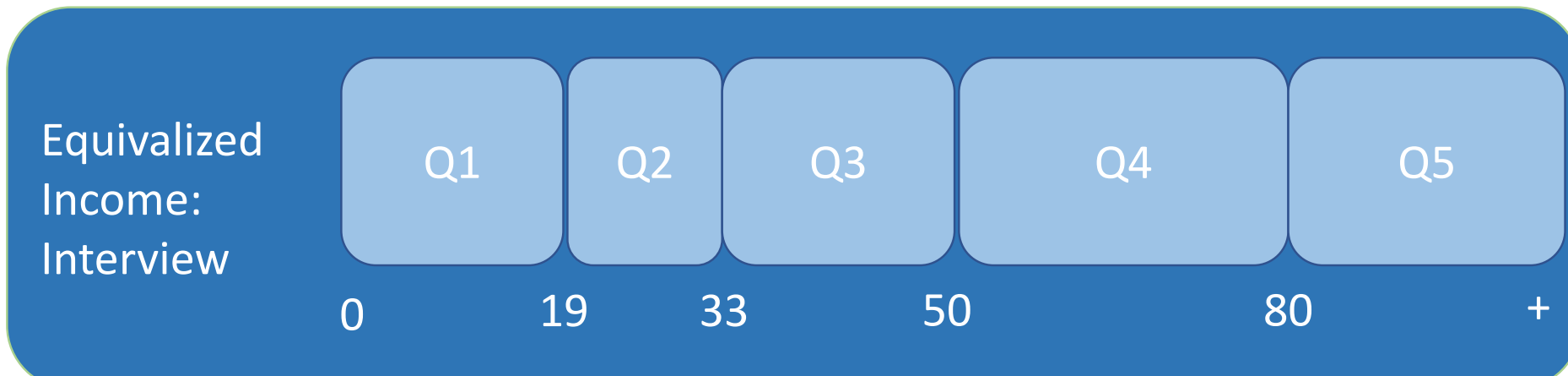
Methodology-1

- Baseline: Working Paper 537-
 - ▶ Unweighted ranking of income quartiles
 - ▶ **Issue**-weights not evenly distributed
- Improvements:
 1. Household weighted ranking
 2. Income equivalized - square root of family size
 3. Weights smoothed

Household income subpopulations

Methodology-2a

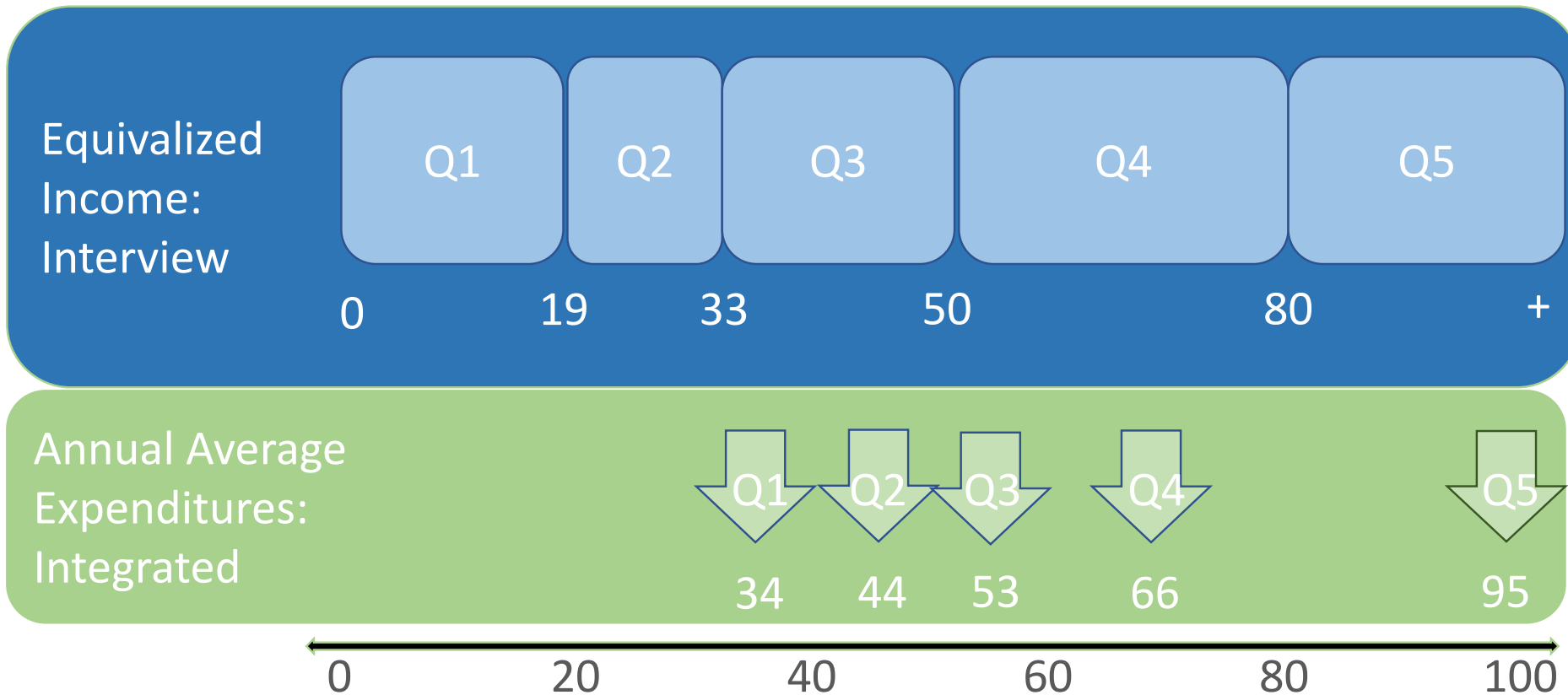
2020 income & expenditures (\$10,000s)



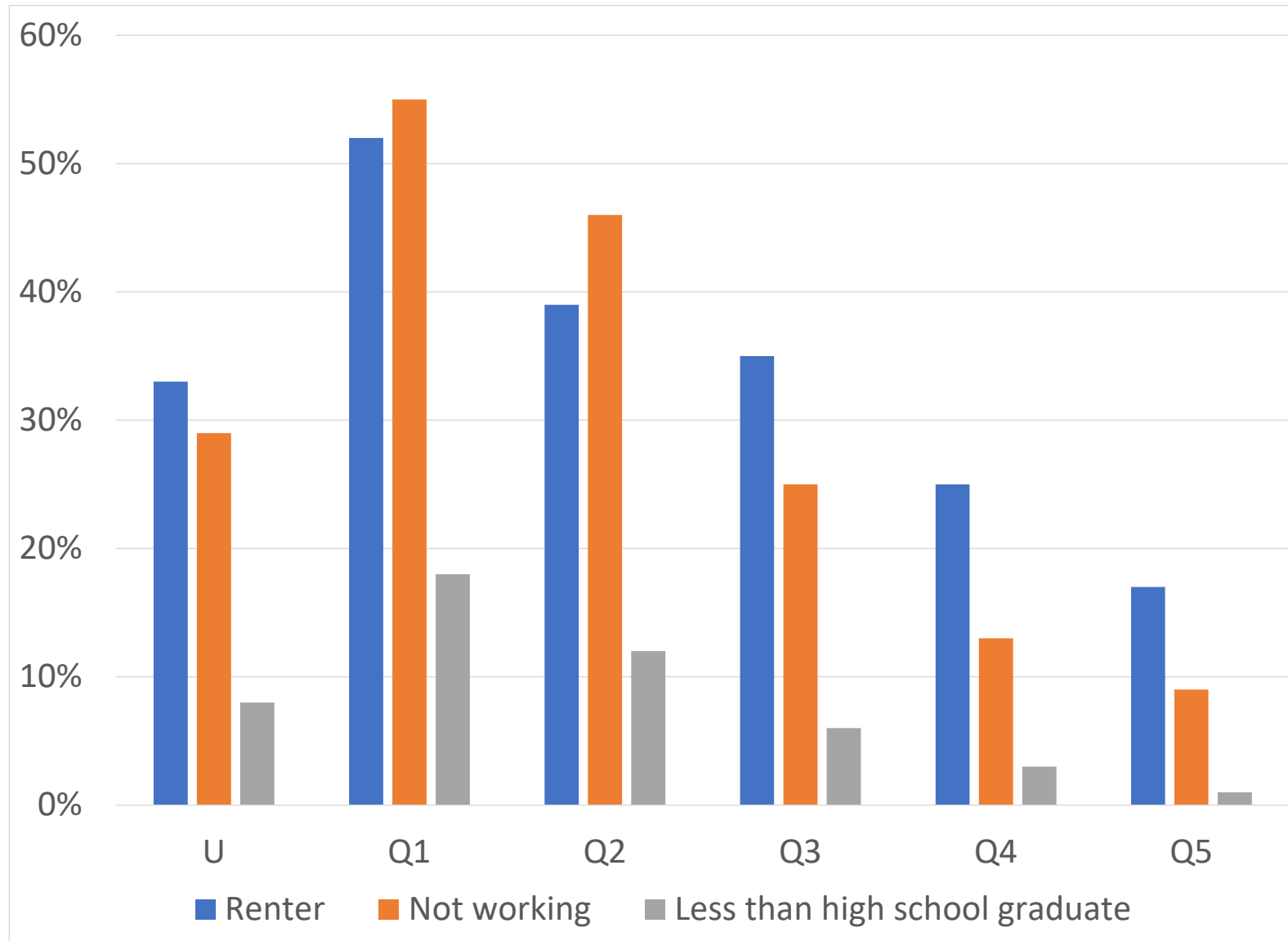
Household income subpopulations

Methodology-2b

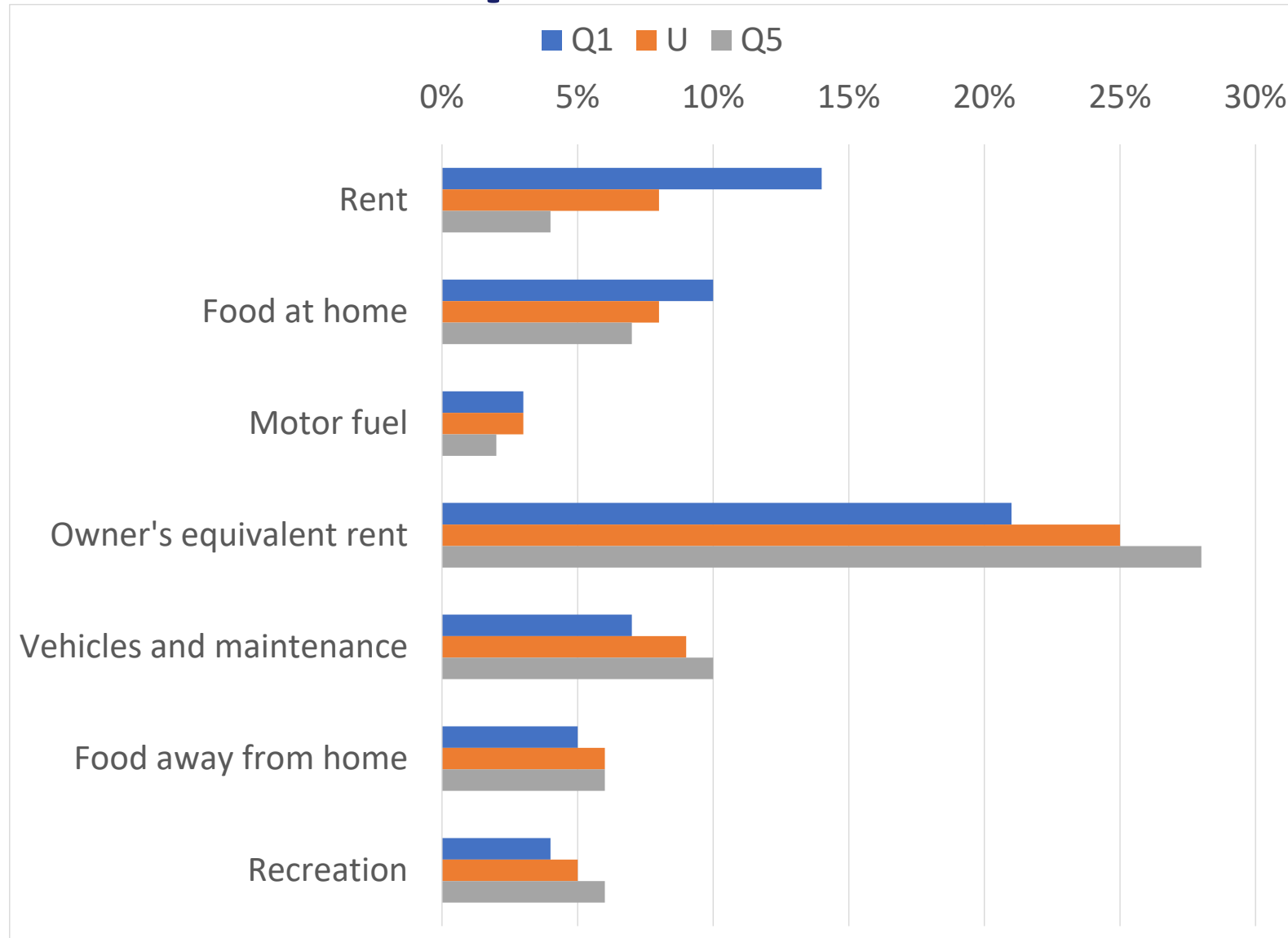
2020 income & expenditures (\$10,000s)



Demographics 2020



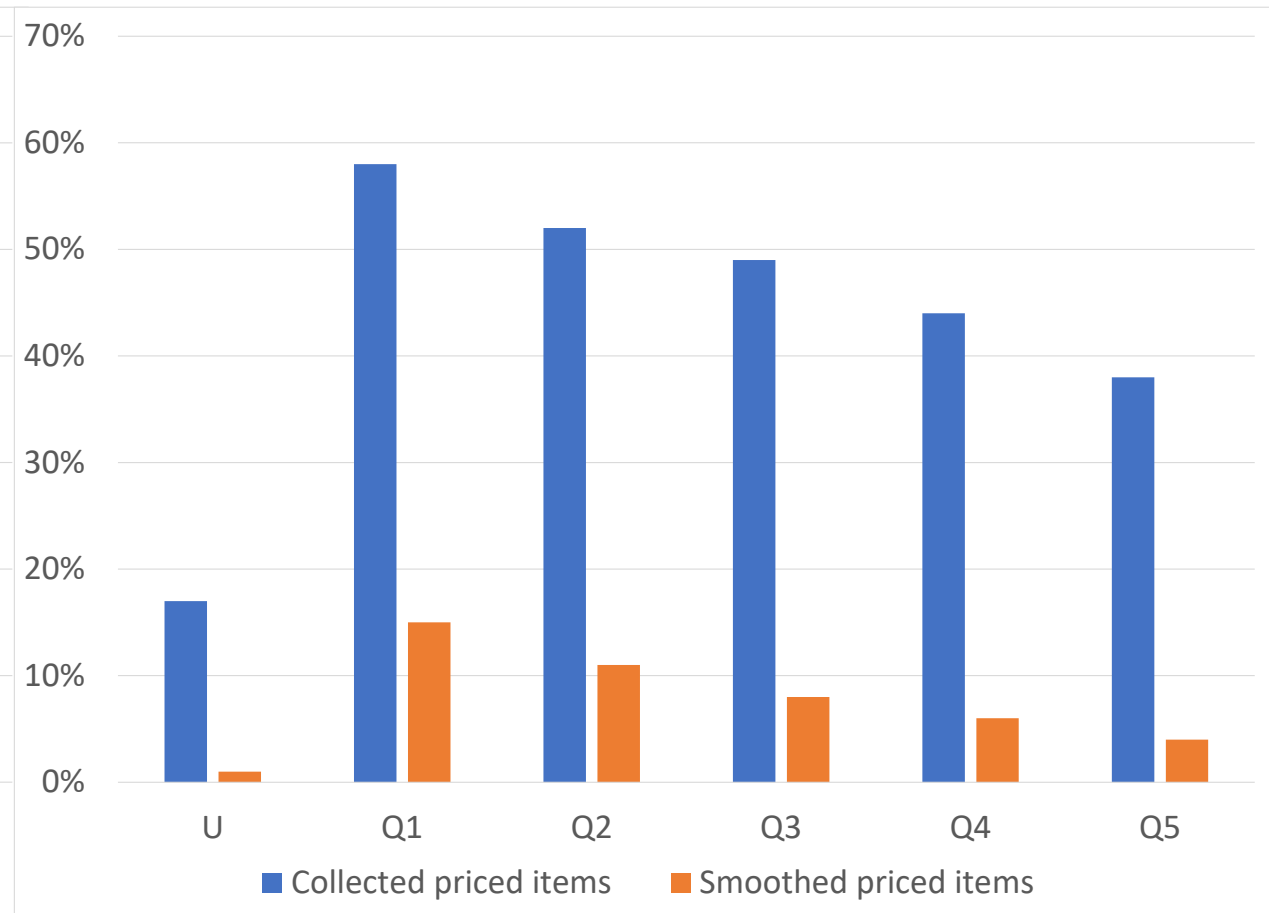
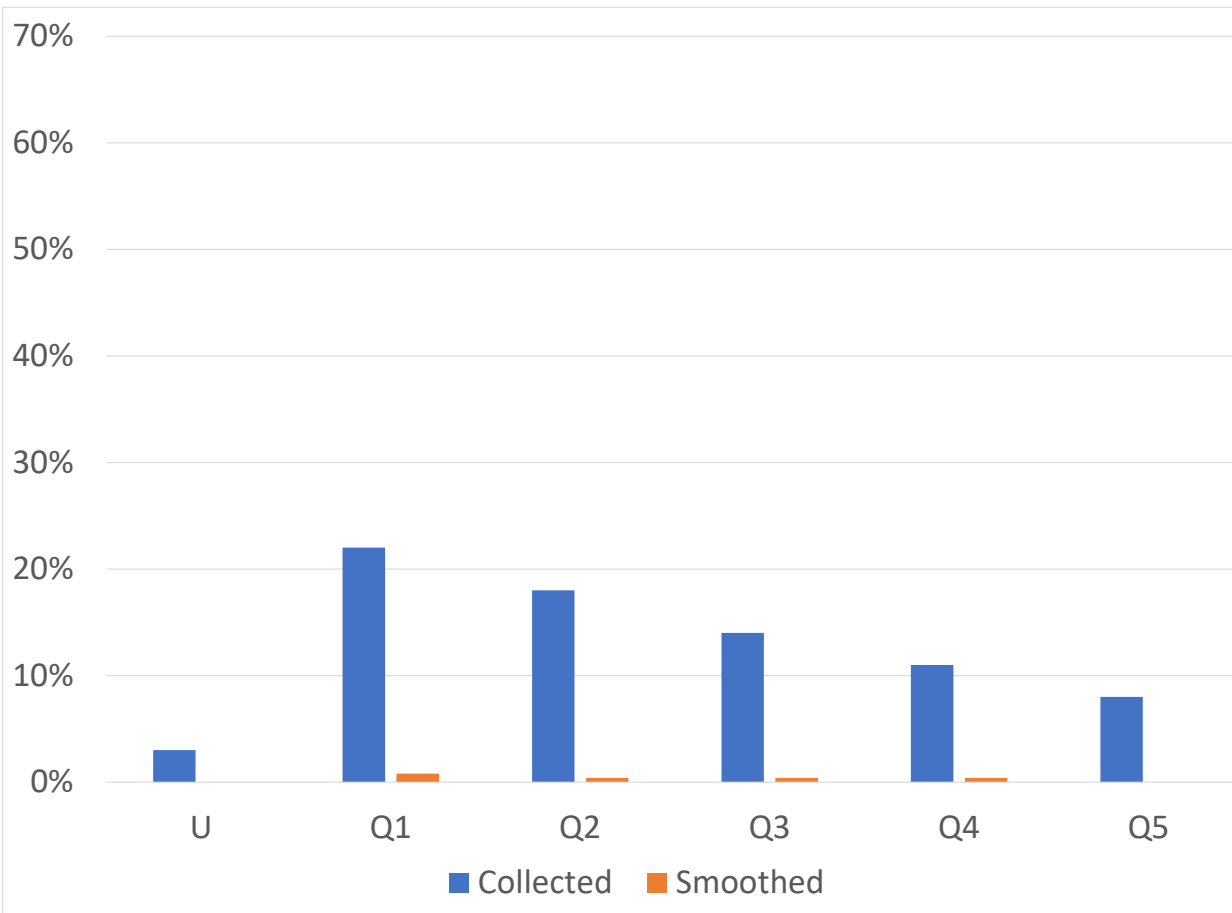
Relative Importance 2019-2020



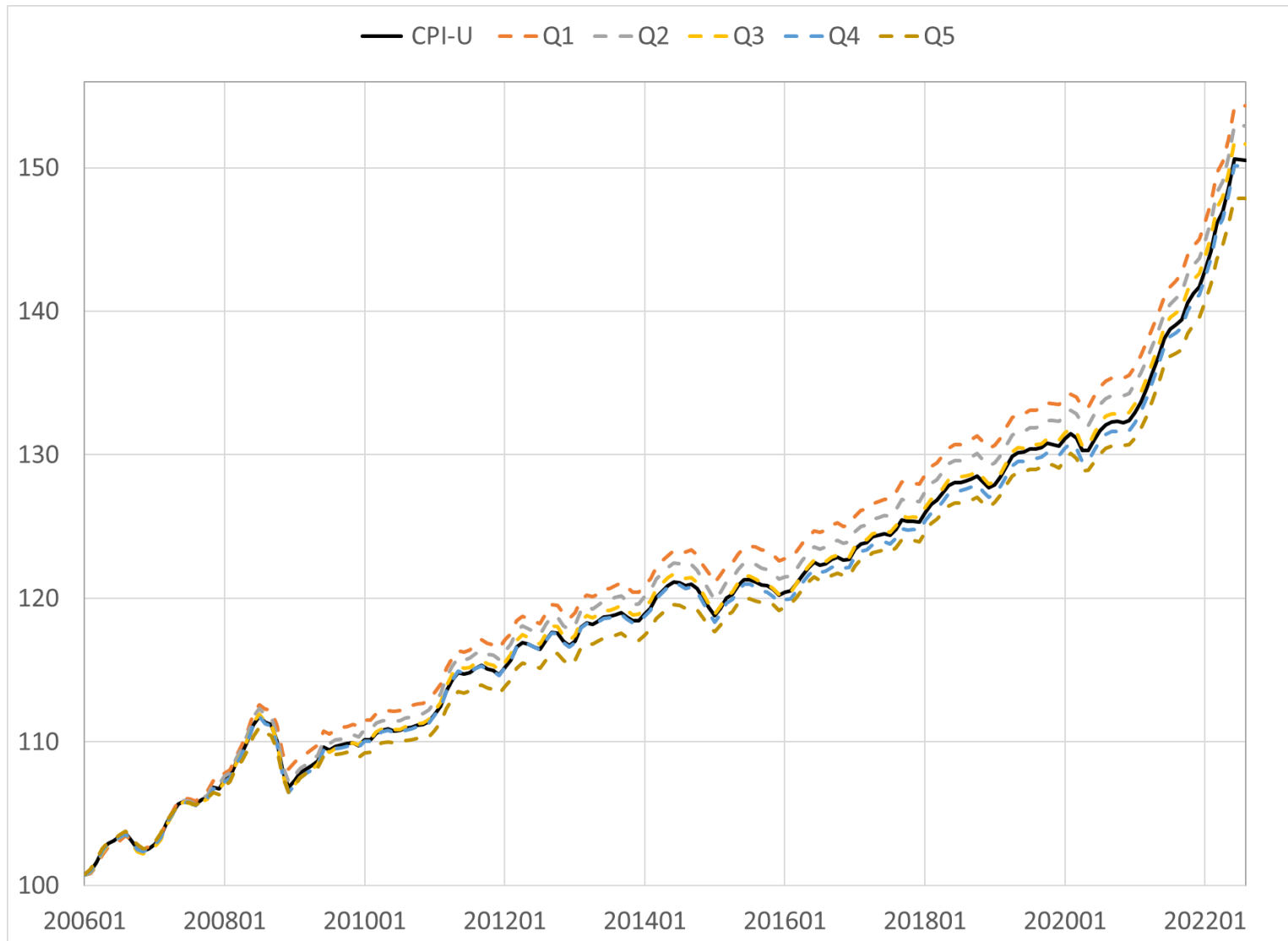
Elementary cell coverage as proportion missing

Biennial 2019-2020

Monthly average 2020



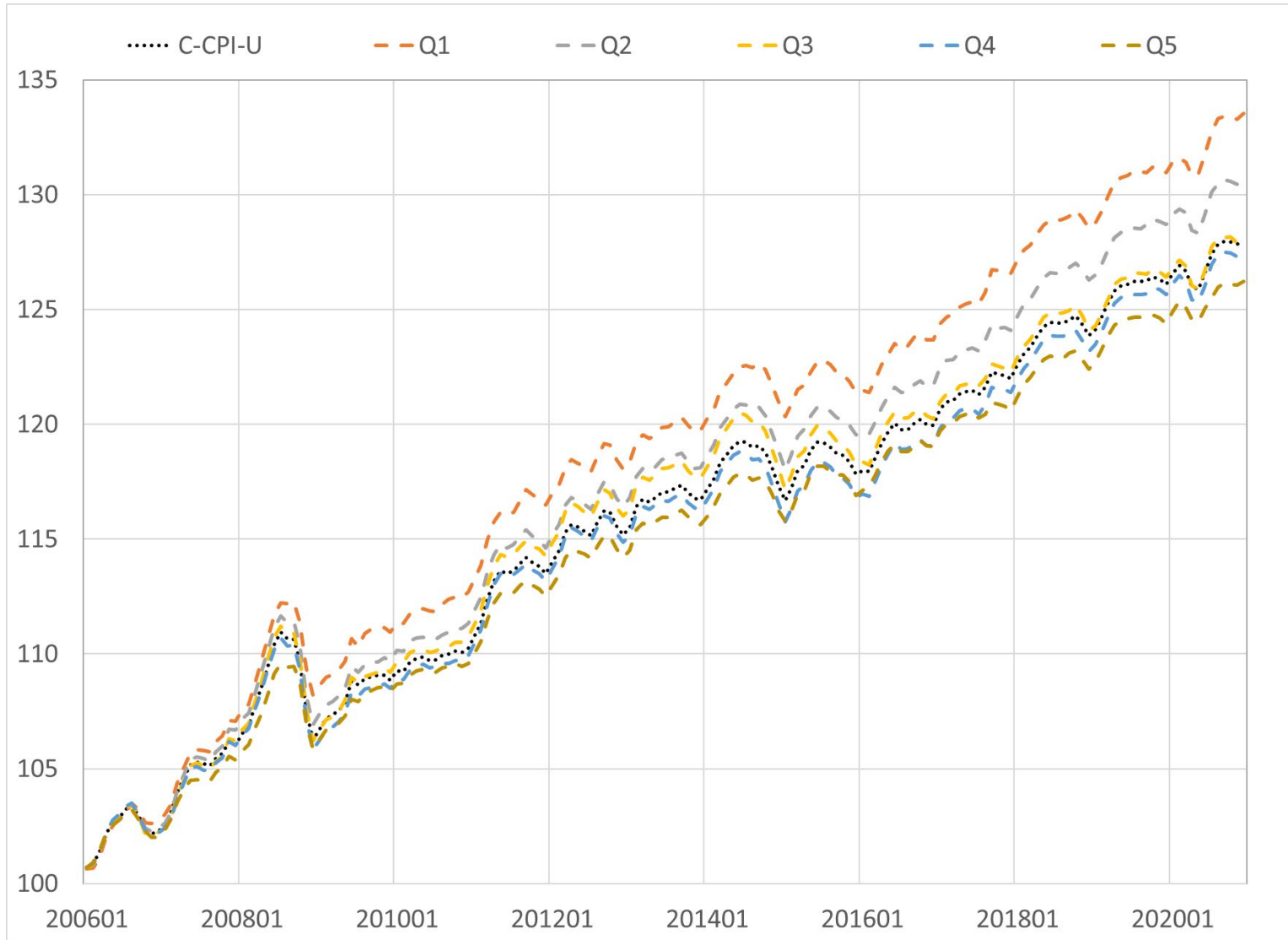
CPI-U & R-CPI-Income to August 2022



	Growth Rate
CPI-U	2.47%
Q1	2.62%
Q2	2.57%
Q3	2.52%
Q4	2.45%
Q5	2.36%



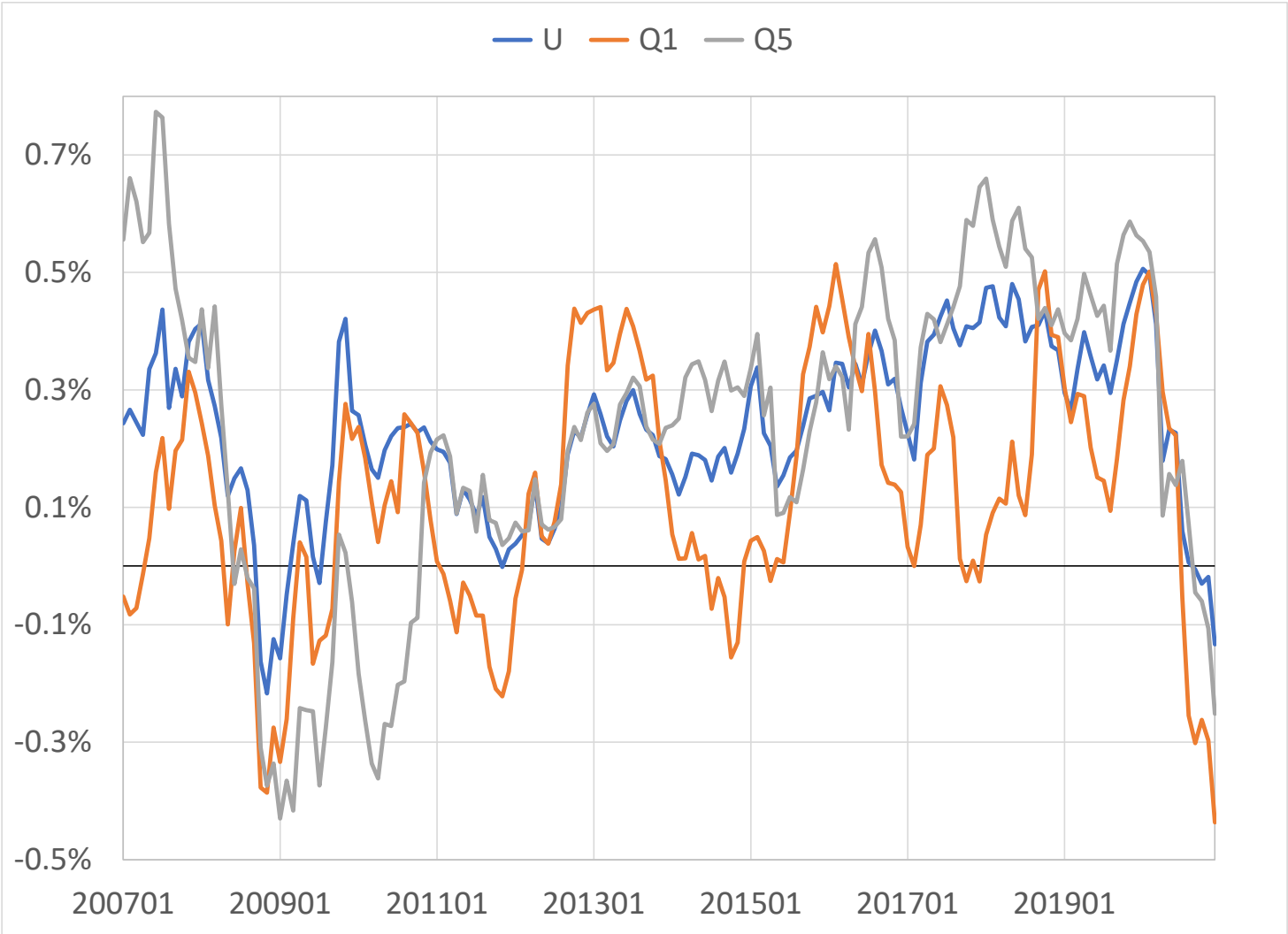
C-CPI-U & R-C-CPI-Income to 2020



	Growth Rate
C-CPI-U	1.65%
Q1	1.94%
Q2	1.79%
Q3	1.65%
Q4	1.62%
Q5	1.56%



Analysis 1. 12 Month Change of CPI less C-CPI

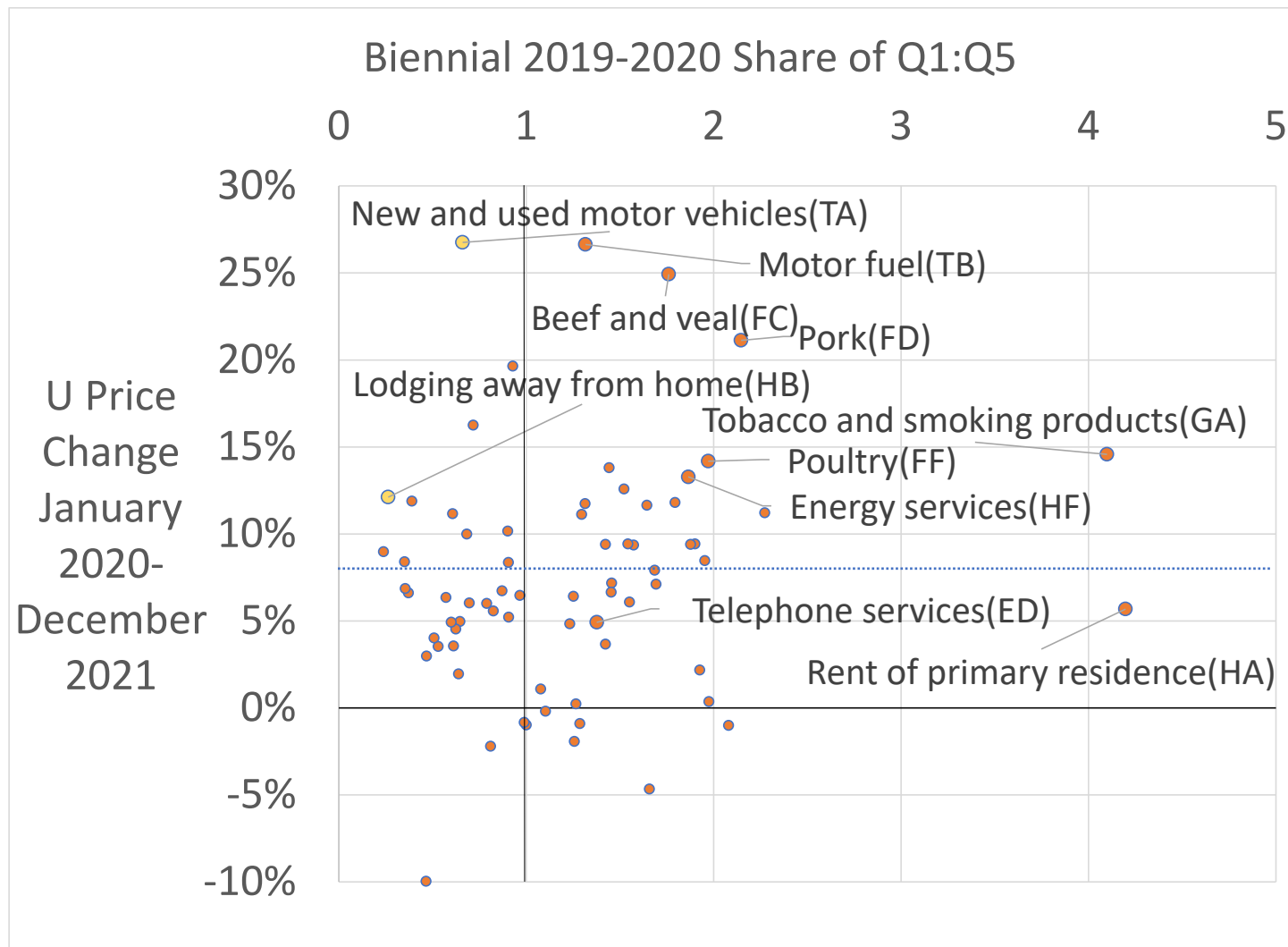


Analysis 2. 12 month change CPI less C-CPI 2005-2020 Annual Growth Rate (%)

	U	Q1	Q5	Q1 less Q5	N1	N5	N1 less N5
CPI	1.88	2.04	1.79	0.25	2.08	1.78	0.30
C-CPI	1.65	1.94	1.56	0.38	1.98	1.56	0.42
Substitution Bias	0.23	0.10	0.23	X	0.10	0.22	X



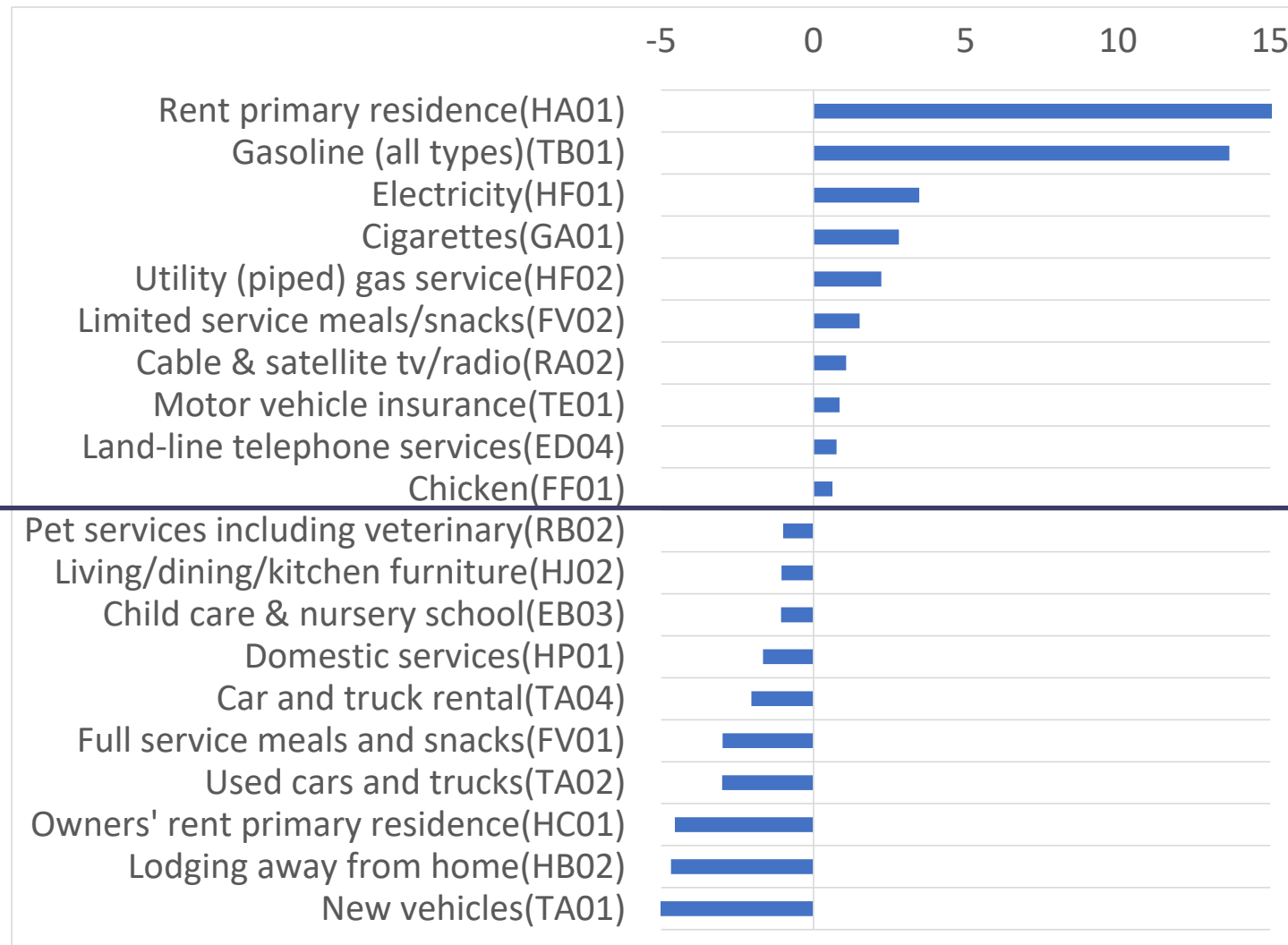
Analysis 3. CPI 2019-2020 Weight Ratio (Q1:Q5) vs. price change



Analysis 4. 2021 Year over year change

Q1 less Q5 CPI contribution & effects

	All Items
U	4.70%
Q1	4.72%
Q5	4.43%
Q1 Less Q5	0.29%
Σ Q1 > Q5	1.2%
Σ Q1 < Q5	-0.9%



Top 10
Items:

Q1 > Q5

Q1 < Q5

Conclusion and next steps

- R-CPI-Income and & R-Chained CPI-Income – as quintile subpopulations
- Income methods improved:
 - ▶ Household weighted ranking
 - ▶ Equivalized income
 - ▶ Weight smoothing comparable to production
- Request feedback before moving to BLS site as a research series.

Contact Information

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