

Household Cost Indexes: Prototype Methods and Results

Robert Martin, Joshua Klick, William Johnson, Paul
Liegey

Division of Price and Index Number Research
Bureau of Labor Statistics

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CPI Family of Indexes

Official Indexes

CPI-U

Chained
CPI-U

CPI-W

Research Indexes-<https://www.bls.gov/cpi/research-series/>

R-CPI-U-RS

R-HICP
R-COICOP

Household Cost
Index?

R-CPI-E

R-CPI-Income
R-C-CPI-Income

New Tenant Rent
Index?

HCI overview

- As costs change over time, the HCIs measure the average change in cash outflows required for households to access goods and services.
- Two key elements:
 - „ Household-weighted aggregation (“democratic”)
 - „ Payments approach: focus on explicit outlays
- See [BLS Working Paper 604](#) – “Household Cost Indexes: Prototype Methods and Results”



Motivation

- Interest in a household-based complement to more “macro”-focused CPI
- Similar products in other countries
 - „ U.K. “Household Cost Indices”
 - „ New Zealand “Household Living-Costs Price Indices”
 - „ Australia “Selected Living Costs Indices”
- Facilitate interesting subpopulation comparisons, though this presentation focuses on all urban households



Methods: household-weighted aggregation

- Goal is equal (in population sense) weight for each household
- Create household-level expenditure shares
 - „ Consumer Expenditure Surveys (CE) Diary and Interview sample different households
 - „ Eligible expenditures from the Diary survey imputed to the Interview sample using a matching procedure based on Hobijn, et. al. (2009)
- Aggregate across items/areas first for each household using Lowe formula with lagged expenditure weights
- Then average indexes equally across households

Methods: Owner-occupied housing

Payments Approach (HCI)	Rental Equivalence (CPI)
<ul style="list-style-type: none">• Intended to reflect actual homeownership expenses• Includes property taxes, mortgage interest, full value of regular maintenance, etc.• Usually excludes mortgage principal, major renovations	<ul style="list-style-type: none">• Intended to capture implicit consumption of housing services• Rent as a proxy (OER)• Excludes investment• For some groups, may differ substantially from actual spending (e.g., owners w/o mortgages)

■ Future research: apply to other durable goods (automobiles)

Methods: payments approach overview

■ Mortgage interest costs

- „ Product of a debt index (based on FHFA house prices) and an interest rate index (based on 30-year fixed data from Freddie Mac PMMS)
- „ Rolling average based on loan-age and debt-age weights from CE

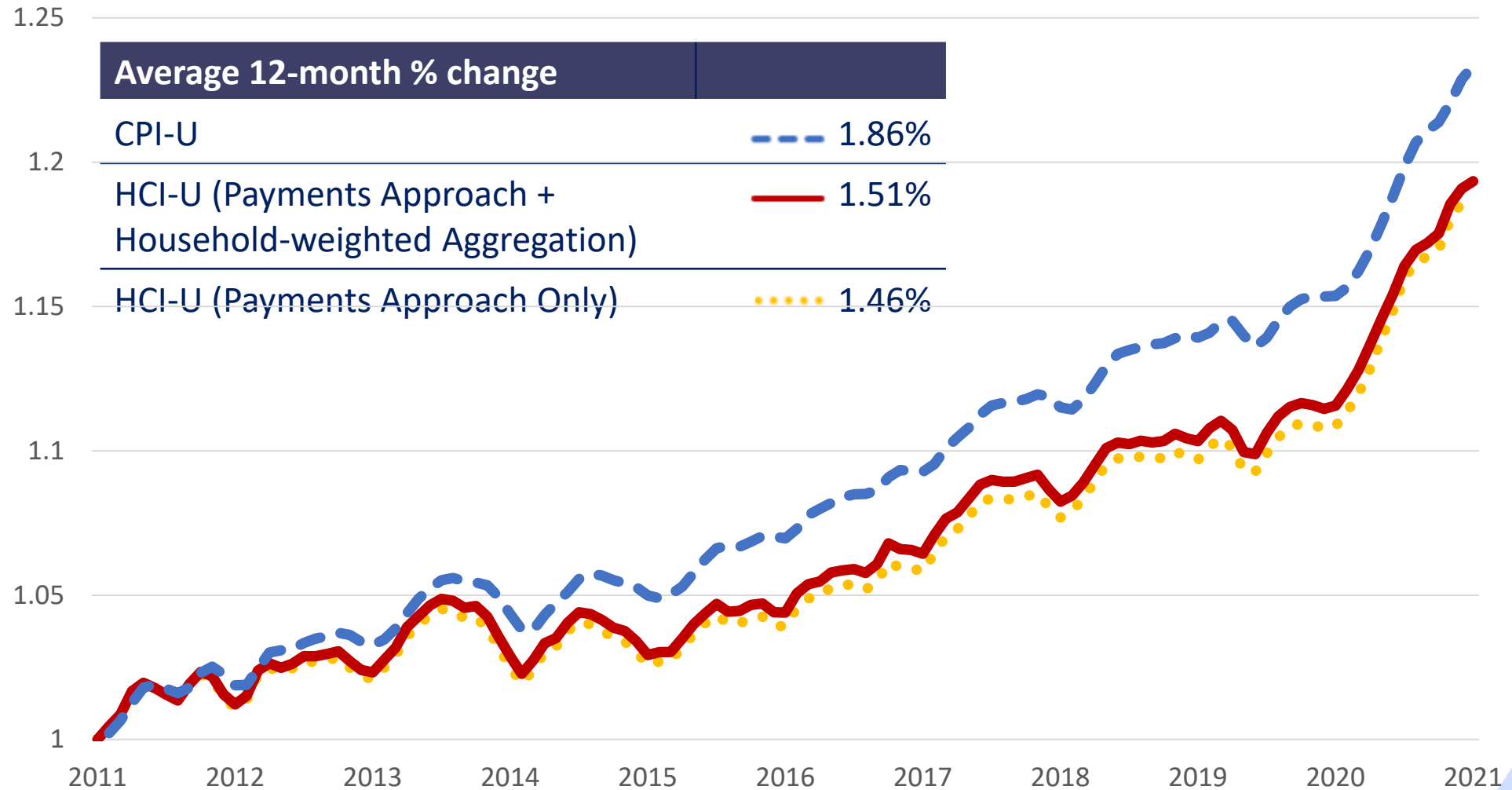
■ Property taxes

- „ Target average payments over time for a fixed dwelling stock
- „ Use CE data to get implicit tax rate (aggregate tax payments / aggregate value) multiplied by constant quality house price index from FHFA

Results

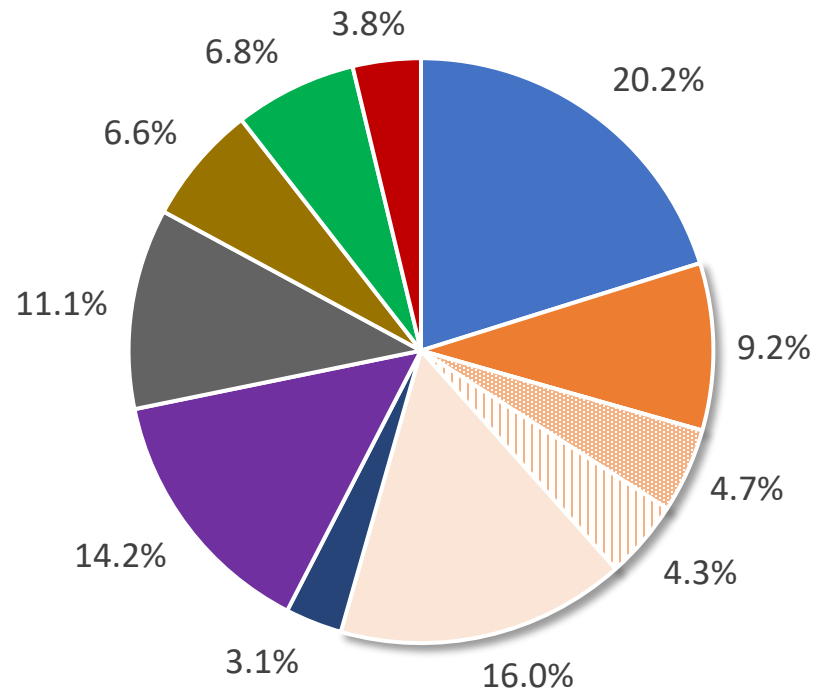


HCI-U and CPI-U index levels

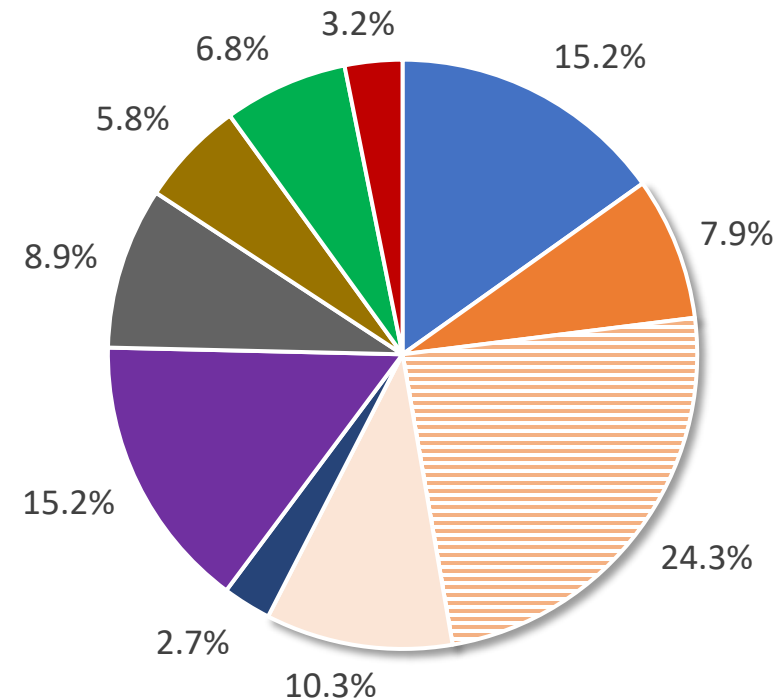


December 2020 relative importance

HCI-U (2019 weights)



CPI-U (2017-18 weights)



■ Food & Bev.

■ Housing: Rent

▨ Housing: OER

▨ Housing: Prop. Tax

▨ Housing: Mortgage

■ Housing: Other

■ Apparel

■ Transportation

■ Medical

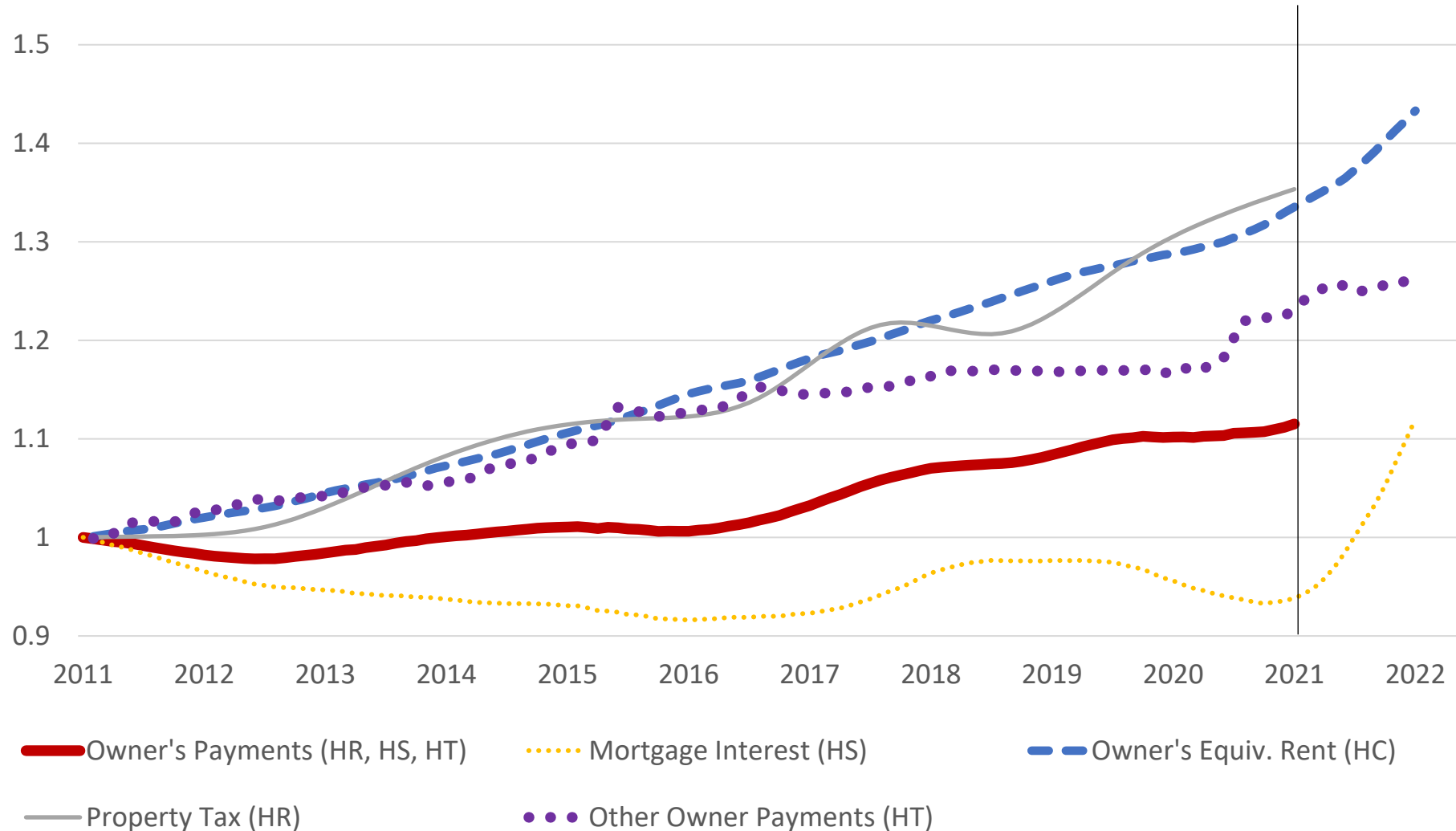
■ Recreation

■ Educ. & Comm.

■ Other



HCI-U housing component detail



Limitations

- Household-weighted aggregation
 - „ No lower-level heterogeneity in weights or prices
 - „ Infrequent purchases (challenge with high frequency weights like C-CPI-U)
 - „ Worth the effort given small impact?



Limitations (2)

■ Payments approach

- „ Timeliness of property tax data
- „ Investigate a microdata approach to mortgage interest index
- „ Investigate including mortgage principal



Potential HCI uses

■ Indicator of household inflation experiences based on outlays

„ Is this enough?

■ Escalator for pensions, wages, etc.?

„ Pro: payments are more reflective of household budget

- Astin, J., & Leyland, J. (2023). Measuring Inflation as Households See It: Next Steps for the Household Costs Indices. Royal Statistical Society. Retrieved from https://rss.org.uk/RSS/media/File-library/Policy/2023/Measuring_inflation_as_households_see_it_January_2023.pdf?ext=.pdf

„ Con: payments do not equal consumption

- National Academies of Sciences, Engineering, and Medicine (Eds. Sichel, D. and Mackie, C.). (2022). Modernizing the Consumer Price Index for the 21st Century. Washington, DC: The National Academies Press. doi:<https://doi.org/10.17226/26485/>

Next steps

- Seeking feedback from experts and stakeholders on
 - „ Basic concept
 - „ Methods
 - „ Use
- Investigating lower-level heterogeneity



Thank you!

Robert Martin

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martin.robert@bls.gov

