

Creating a Distribution of Consumption: A Research Measure

Thesia I. Garner

with Brett Matsumoto and Jake Schild (DPINR) and
support of Adam Safir and Scott Curtin (CE Program)

**CNSTAT Public Seminar: *Creating an Integrated System of Data and Statistics on
Household Income, Consumption, and Wealth***
December 10, 2024

Disclaimer: This presentation provides a summary of research results. The information is being released for statistical purposes, to information interested parties, and to encourage discussion of work in progress.

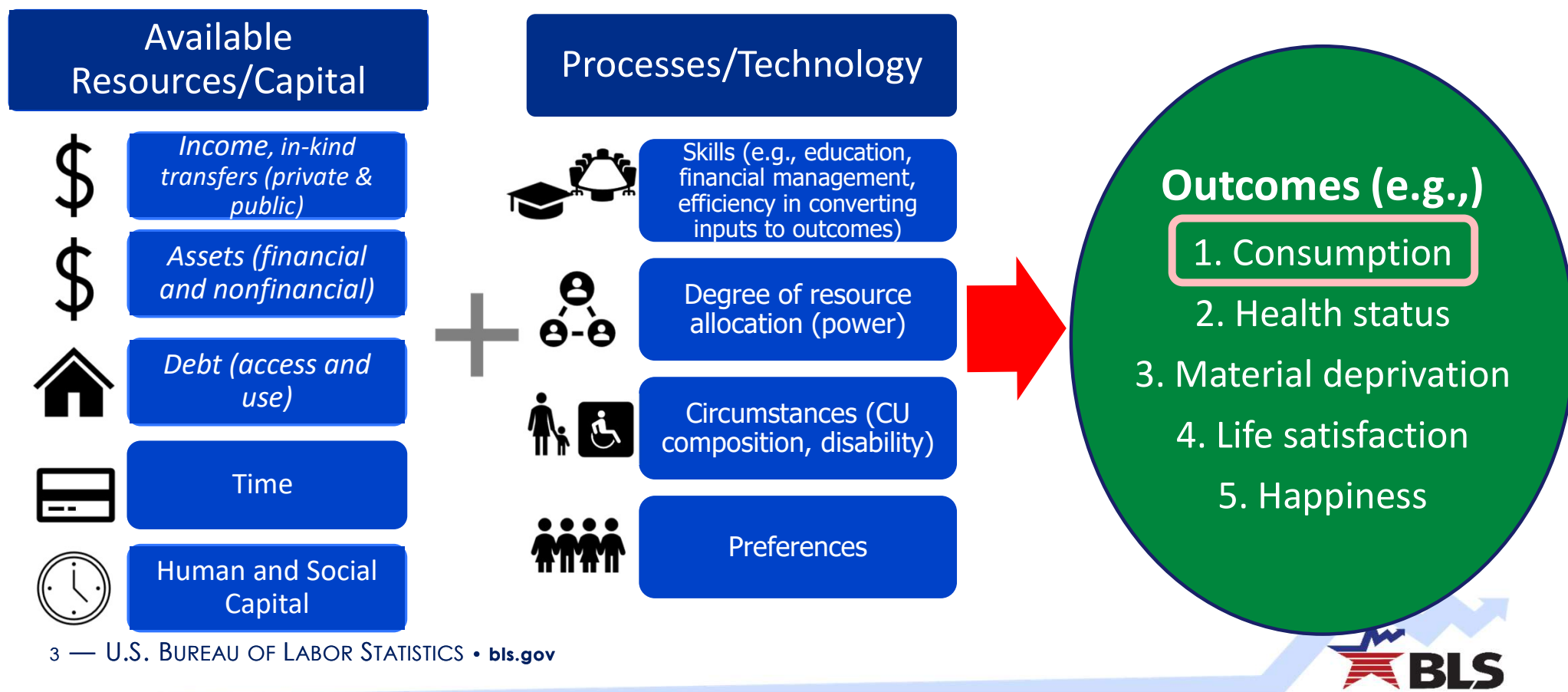


View from the Bureau of Labor Statistics

- What is consumption?
- BLS initiative – a micro (household) perspective
- Current consumption measure used for inequality research
- Comments on select conclusions and recommendations in CNSTAT 2024 report



Consumption as a Well-being Outcome: Function of Resources and Processes



BLS Consumption Initiative

- Bureau of Labor Statistics (BLS) has long term interest in producing measures of household economic well-being
 - ▶ Beginning with focus on family living conditions with first survey 1888-1891
 - ▶ Continues through today with the U.S. Consumer Expenditure Survey (CE)
- Period of COVID-19 showed us that
 - ▶ More goods and services are produced by household members
 - ▶ Consumption of these missing in current measures of economic well-being at the household level
- In spring 2021, BLS kicked off a major research initiative to produce a measure of consumption that would fill a data gap regarding household economic well-being



Goals and Activities to Support BLS Initiative

Goals

- To conduct research on the production of a consumption measure using CE and ATUS
- To produce components of consumption at the micro level to allow for alternative measures depending on purpose
- To release tables/data to public – research series
 - ▶ Consistent with CNSTAT Panel's recommendations
 - Distributions and demographics
 - Trends
 - ▶ Planned release for 2022 and provisional 2023: January 2025

Activities

- Received input from public via Consumption Symposium fall 2021
- Awarded contract to value home production for own consumption, Levy Institute report 2024
- Conduct in-house research, 2022 to present



Consumption Expenditures vs Consumption

Consumption Expenditures=

- What is spent or obligated for consumption

Consumption=

- The value of what is consumed by household members

Implications for...

- Owned shelter
- Durables
- In-kind transfers
- Household production
- Gifts and barter of goods and services received/given
- Challenging categories
 - ▶ Education (tuition as investment, childcare as work-related expense)
 - ▶ Health (higher expenditures do not mean greater well-being)
- Allocations to pensions, savings, life insurance – deferred consumption

Starting Point for BLS Consumption Measure

Expenditures

- Food
- Apparel
- Rent and associated expenses
- Shelter content insurance*
- Utilities (*issue- renewables*)
- Health insurance premiums
- Non-vehicle transportation and recreational
- Other entertainment
- Diary only categories*

Flow of Services or Outlays

- Owner's equivalent rent
 - ▶ Primary residence
 - ▶ Second and vacation homes
- Flow of services from stock of cars and trucks owned
- Outlays*
 - ▶ Other transport vehicles (e.g., motorcycles, bicycles, airplanes)
 - ▶ Recreational motorized and non-motorized vehicles (e.g., RVs, boats)

*introduced since April 2023

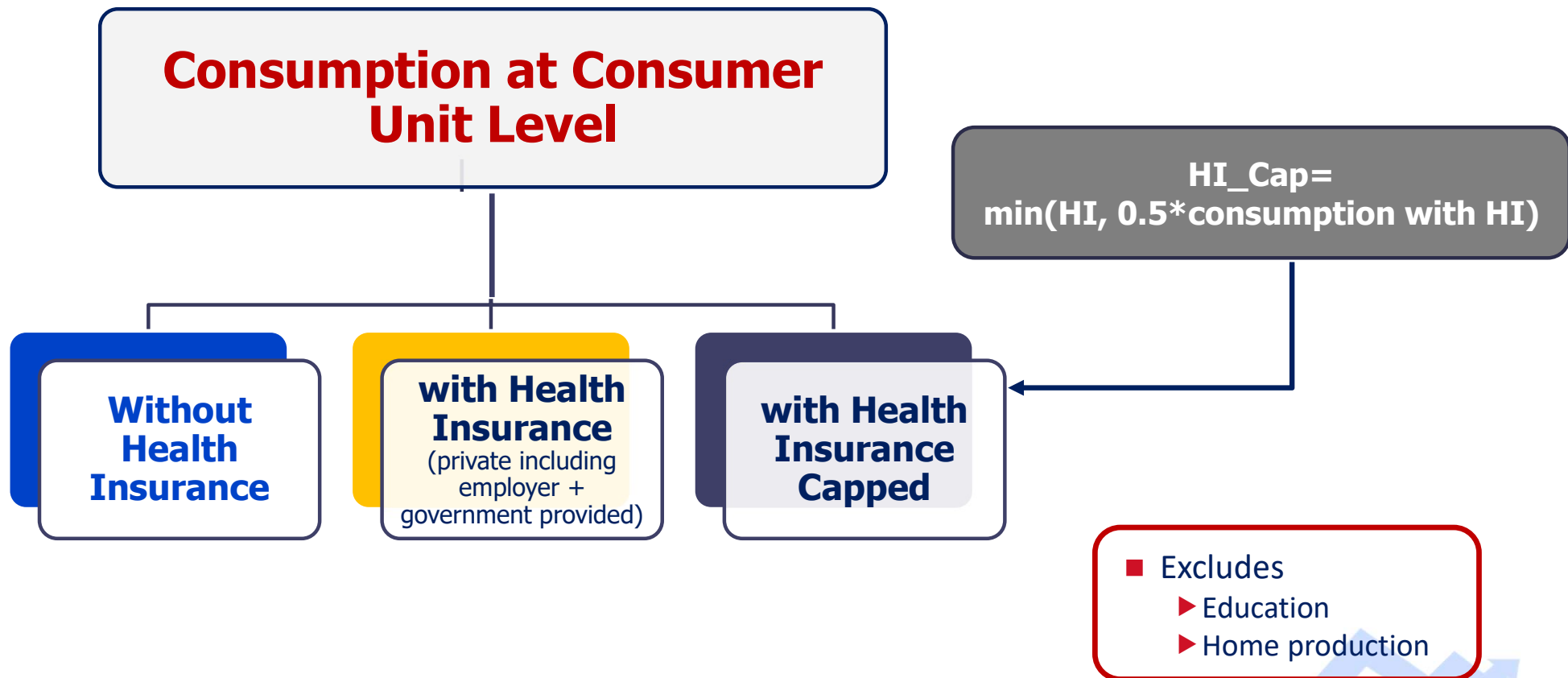


Data

- U.S. Consumer Expenditure Survey Interview, 2019 through 2023
 - ▶ Expenditures, rental equivalence of owned shelter, imputed rental subsidies
 - ▶ Impute flow of services from owned cars and trucks (depreciation and opportunity costs)
- Imputations
 - ▶ In-kind benefits using CPS-ASEC & USDA administrative data
 - LIHEAP, NSLP, WIC (if EBT NSLP or WIC, \$0 monthly, but add infant formula)
 - ▶ Health insurance using MEPS Insurance Component & CMS National Health Expenditure Database
 - Add to OOP health insurance premiums, value of private and public health insurance
 - ▶ College room and board using data from National Center for Education Statistics
 - ▶ Adjustment to produce shelter content insurance for owners as share of total using data from National Association of Insurance Commissioners



Concepts of Consumption Currently Considered

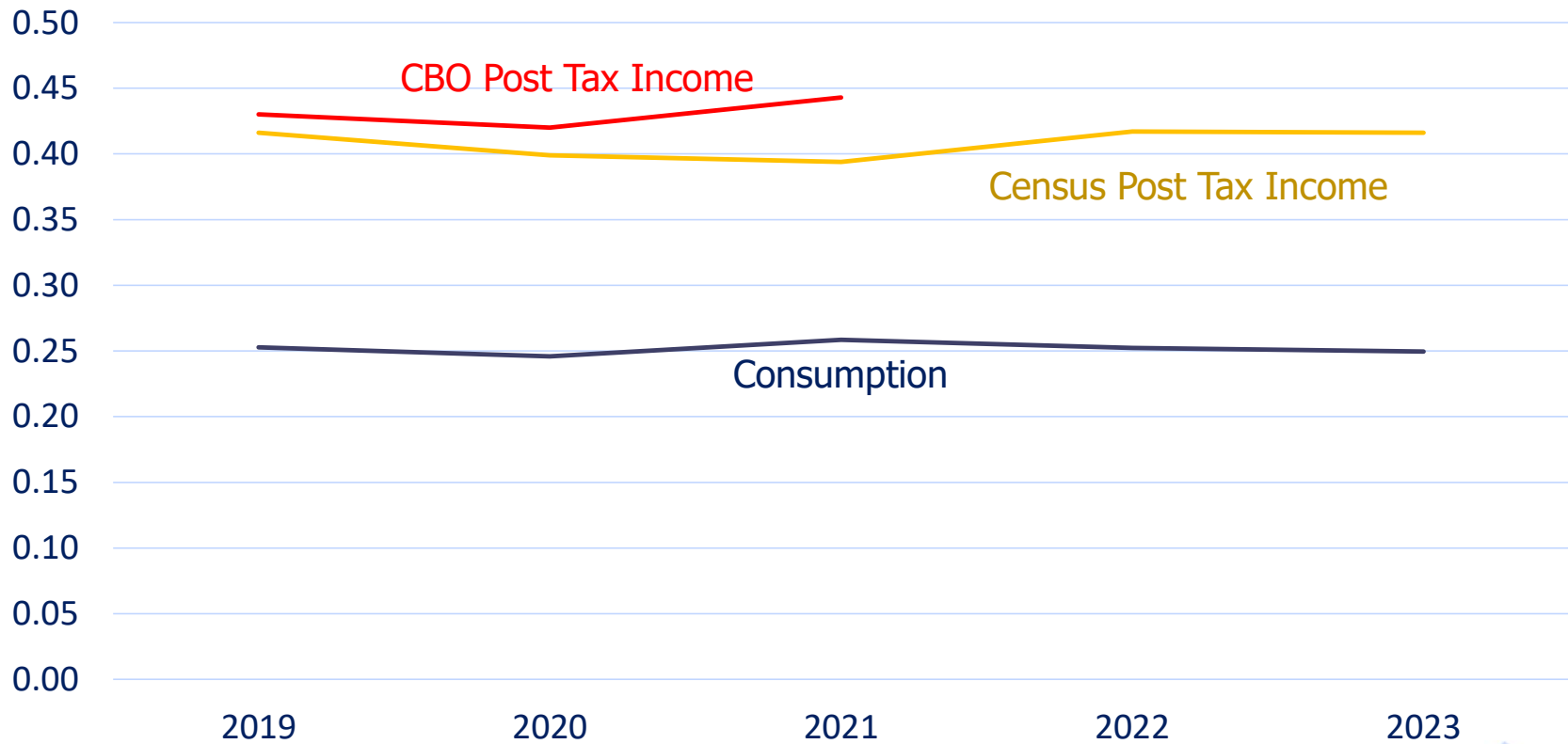


Inequality in Consumption with Health Insurance Capped

Measure	2019	2020	2021	2022	2023
Gini	0.253	0.246	0.259	0.252	0.250
Theil	0.111	0.108	0.127	0.111	0.108
Mean log deviation	0.107	0.103	0.114	0.106	0.105
90/10	3.080	2.956	3.050	3.075	3.046
90/50	1.761	1.708	1.727	1.746	1.738
50/10	1.749	1.730	1.765	1.761	1.753

- Major component contributors to reduction due to expenditure pattern shifts in shelter on trips, food away from home, transportation other than owned vehicles, entertainment fees and tickets – categories with consumption among top of the distribution
- By demographics, within group inequality larger contributor to reduction than between group inequality (e.g., education of reference person/spouse, presence and ages of children)

Consumption and Post-tax Income Gini



CNSTAT Report Conclusions

- **Conclusion 2-1: Conceptual definitions of household income, consumption, and wealth are most useful when they are constructed to satisfy the budget identity, $C = I - S$.** The components of income (I) and saving (S) should be consistent with a sources-and-uses framework for consumption (C).
 - ▶ **Response - necessity for consistently define measures**
 - Income - include net implicit rental income, in-kind health insurance (withdrawals from retirement plans)
 - Wealth – treatment of withdrawals from retirement plans, borrowing against assets, use of debt
- **Conclusion 2-3: Multiple definitions of household income, consumption, and wealth (ICW) are needed to examine different policy and research questions** ranging from the impacts of fiscal policies to distributional analyses. To aid users of ICW statistics in selecting appropriate measurement constructs, each definition requires specification of accompanying purpose(s) and a transparent guide to its construction.
 - ▶ **Response - agreed, need to go beyond National Accounts framework**



CNSTAT Report Recommendations

- **Recommendation 3-1:** In the next 3 to 5 years, ...BLS, in cooperation with other economic statistical agencies, should expand and accelerate its program to publish annual estimates of household consumption that are definitionally consistent with previous recommendations.
- **Recommendation 3-2:** Relevant statistical agencies should collaboratively publish a major report every 3 years ...compares levels and trends among household ICW & identify the factors, including differences in definitions that contribute to differences in estimates
- **RECOMMENDATION 5-1:** The Chief Statistician and the National Secure Data Service should work together to create a coordinating entity to solve administrative, legal, and technical challenges to integrate data from multiple federal entities, private entities.....
- **Response**
 - ▶ Who will coordinate across the agencies?
 - ▶ Who will fund the implementation of recommendations?
 - ▶ Applaud Panel's recommendation to solve legal and other challenges to integrate



Contact Information

Thesia I. Garner, Ph.D.

Division of Price and Index Number Research, Office of Prices and
Living Conditions

[DPINR Home Page](#)

[Consumer Expenditure Surveys Consumption Research Page](#)

PINRinfo@bls.gov & garner.thesia@bls.gov



EXTRA SLIDES



Why Produce a Consumption Measure?

- Alternative measure of well-being based on outcomes allows us to go beyond traditional measures (Stiglitz-Sen-Fitoussi 2009)
 - ▶ Consumption allows for a focus on how people live, not just how they could live
- Supports work and recommendations
 - ▶ OECD Expert Groups on joint distributions of income, consumption, and wealth (macro and micro)
 - ▶ CNSTAT Panel on Creating an Integrated System of Data and Statistics on Household Income, Consumption, and Wealth (2024)
 - ▶ CNSTAT Panel on An Updated Measure of Poverty (2023) focus on consumption needs as does the proposed Principal Poverty Measure
 - ▶ Interagency Technical Working Group (ITWG) on Evaluating Alternative Measures of Poverty (2020)
 - ▶ International cross-country measure for Luxembourg Consumption Study (LCS) – in progress

Challenges of Health and Education

■ Health

- ▶ Recommendation to exclude expenditures
 - Health more of an outcome as opposed to part of consumption
 - Greater health expenditures do not equal to greater well-being
- ▶ What to include?
 - Full value of health insurance provision (we use same measure as CE-PCE work with the addition of administrative costs of government provided health insurance)

■ Education

- ▶ Recommendation to exclude expenditures as they are more like investment in human capital
- ▶ What to include?
 - Fees for use of school & university facilities like those for recreation, internet, etc.



Goals of BLS Initiative

- To conduct research on the production of a consumption measure using
 - ▶ Available CE data
 - ▶ Augment with data from the American Time Use Survey (ATUS)
- To produce components of consumption at the micro level
 - ▶ Allows for alternative consumption measures depending on purpose
 - ▶ Supports national and international endeavors and recommendations
- To release consumption data to the public
 - ▶ Publication of tables including average consumption by consumer units
 - ▶ Release public use microdata that are similar in format to the CE PUMD



To Support BLS Initiative

- Sought input from the public, including experts in the field through the organization of a virtual **Consumption Symposium** fall 2021
<https://www.bls.gov/cex/consumption-symposium.htm>
- **Awarded a contract** to Levy Institute to conduct research on how to create a measure of consumption based on activities related to home production, report released 2024 <https://www.bls.gov/cex/consumption/research-on-consumption-related-to-home-production-activities.htm>
- **In-house research** to develop a consumption measure and use in study of inequality and poverty (conferences, BLS Working Papers, *Monthly Labor Review* articles)



BLS Initiative: Comprehensive Consumption Target

- Expenditures for *own* consumption



- In-kind benefits public and private



- Flow of services¹



- Home production



- Health²
- Education³



¹ To reflect all durables owned

² Valued as private and public health insurance (unlike Table 2-1B)

³ Education expenditures that are non-investment (unlike Table 2-1B)

Current Measure

- Expenditures for *own* consumption



- In-kind benefits public and private



- Flow of services: cars & trucks, owned housing



- Health insurance
 - ▶ Measure with
 - ▶ Measure without



- Currently excludes education



* Flow of services for other durables like transportation and recreational vehicles proxied as "outlays"; major household appliances flow of services in OER

In-house Previous Work on BLS Consumption Measure

- Presented at professional meetings starting in 2022

- ▶ ASSA, CNSTAT, FCSM, FESAC, JSM, OECD, SEA, & SGE

- Publications

- ▶ Garner, Thesia I., Brett Matsumoto, Jake Schild, Scott Curtin, and Adam Safir, "Developing a consumption measure, with examples of use for poverty and inequality analysis: a new research product from BLS," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, April 2023, [Developing a consumption measure, with examples of use for poverty and inequality analysis - Monthly Labor Review](#)
 - ▶ Cho, Caleb, Brett Matsumoto, and Dominic Smith, "A consumption measure for automobiles," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, January 2024, [A consumption measure for automobiles - Monthly Labor Review](#)
 - ▶ Garner, Thesia I., Brett Matsumoto, Jake Schild Consumption Inequality During and After the COVID-19 Pandemic, BLS Working Paper 573 March 2024, [Consumption Inequality During and After the COVID-19 Pandemic - BLS Working Paper](#) – *today's results update*



Data

■ Data

- ▶ Base is U.S. Consumer Expenditure Survey Interview, 2019 through 2023
- ▶ Supplemented with data from CPS-ASEC, MEPS Insurance Component, CMS National Health Expenditure Database, USDA Administrative Data, National Center for Education Statistics

■ Additions to measure since April 2023 (MLR article)

- ▶ Imputations for expenditures only collected in the CE Diary Survey (e.g., postage, newsletters)
- ▶ Tenants' portion of homeowner's insurance
- ▶ Outlays for "other" and recreational vehicles (e.g., motorcycles and RVs)

Data and Methods

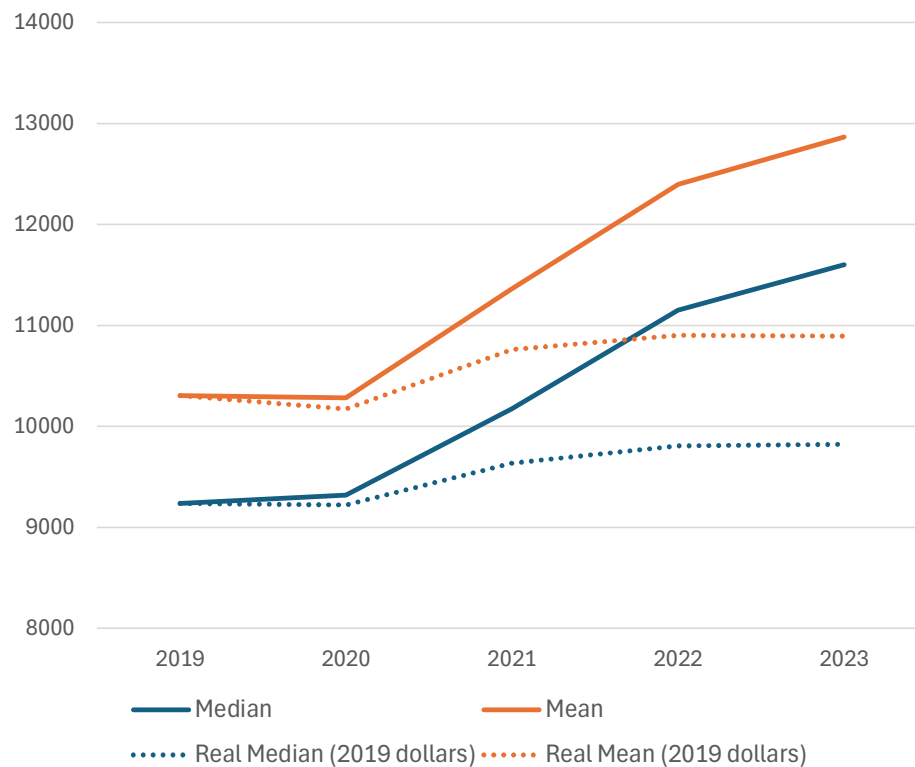
■ Data

- ▶ Base is U.S. Consumer Expenditure Survey Interview, 2019 through 2023
- ▶ Supplemented with data from CPS-ASEC, MEPS Insurance Component, CMS National Health Expenditure Database, USDA Administrative Data, National Center for Education Statistics

■ Additions to measure since April 2023 (MLR article)

- ▶ Imputations for expenditures only collected in the CE Diary Survey (e.g., postage, newsletters)
- ▶ Tenants' portion of homeowner's insurance
- ▶ Outlays for "other" and recreational vehicles (e.g., motorcycles and RVs)

Over Time: Quarterly Equivalized Means and Medians: Consumption with Health Insurance Capped



- Small declines in real mean and median consumption in 2020.
- Large impact of inflation on 2021-2023 nominal values.

Distributional Analysis

- Previously produced results using consumption expenditures, and consumption with and without health insurance
- Recent work on the impact of COVID 19 on consumption inequality
 - ▶ Consumption with health insurance capped
 - ▶ Focus on COVID 19 period since the pandemic greatly impacted the economy
 - Sudden shutdown in March 2020;
 - unprecedented fiscal response
 - ▶ Household response
 - Shift in types of expenditures
 - Some types of spending was more affected than others



Decomposition of Inequality by Consumption Category

- Gini decomposition by type of consumption (Lerman and Yitzhaki 1985):

$$G = \sum_g G_g R_g S_g$$

- ▶ G_g : Within category Gini
- ▶ R_g : Correlation with rank of overall consumption
- ▶ S_g : Share of overall consumption
- ▶ $G_g R_g S_g$: the contribution of g to overall inequality



Drivers of Change in Gini Contribution by Category

- Decomposition by type of consumption (Lerman and Yitzhaki 1985)

$$G = \sum_g G_g R_g S_g$$

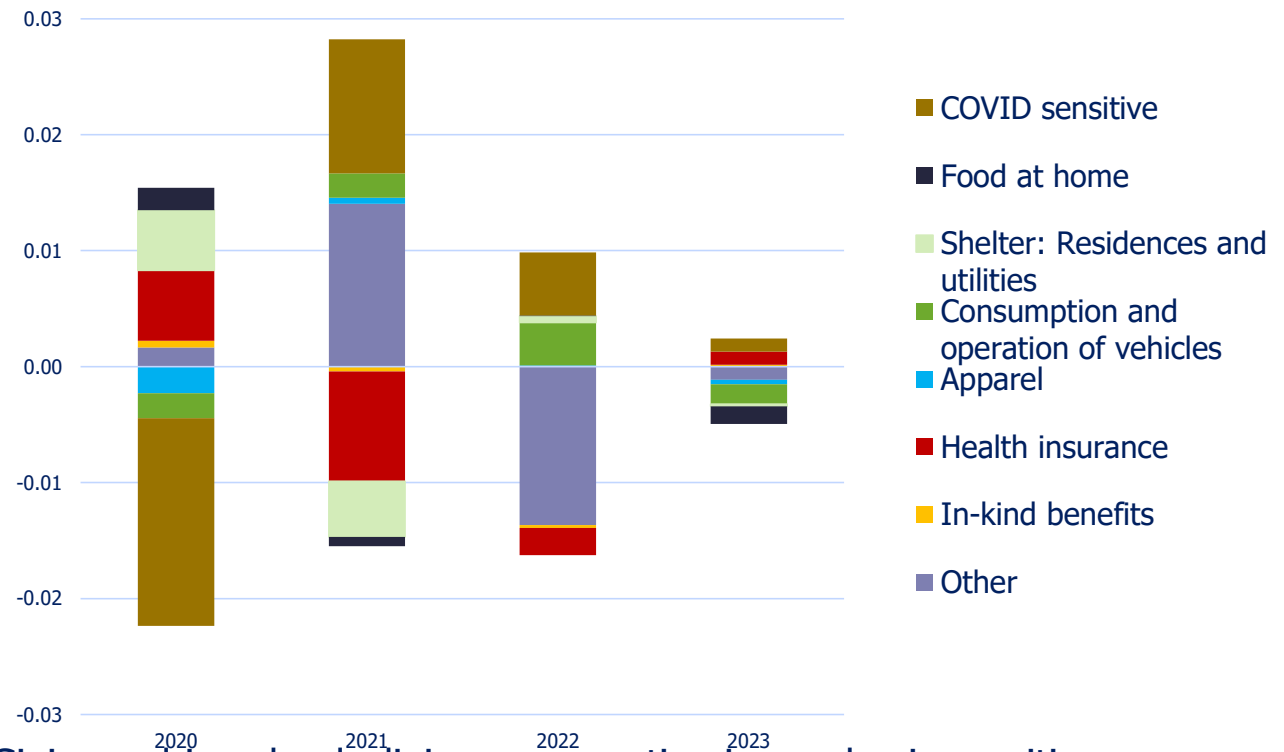
- Covid sensitive categories tend to have high within category Gini and high rank correlation
 - ▶ Shelter on trips, food away from home, transportation other than owned vehicles, entertainment fees and tickets
- From 2019 to 2020 inequality fell; returned to 2019 levels in 2022 & 2023
 - ▶ Shift in consumption patterns led to lower overall inequality
 - ▶ Decline driven by declining consumption in pandemic sensitive categories of consumption among those at the top of the distribution.
 - ▶ Shares declined in covid sensitive categories offset by increases in other categories
 - ▶ Within Gini's are relatively stable



Contributions to the 1-Year Change in Gini

Decomposition by type of consumption (Lerman and Yitzhaki 1985)

More COVID Sensitive
Shelter on trips
Food away from home
Transportation (other than related to owned vehicles)
Entertainment fees and tickets



From 2019 to 2020, decline in Gini was driven by declining consumption in pandemic sensitive categories of consumption among those at the top of the distribution.

Conclusions: Inflation & Showing Result

- **Conclusion 3-5:** Statistical agencies' estimates of household income, consumption, expenditures, and wealth would be more helpful to users if **presented in both inflation-adjusted and nominal term**
 - ▶ **Response** - nominal currently; inflation-adjusted future
- **Conclusion 3-6:** To summarize levels and trends in **household economic wellbeing**, agencies that publish improved estimates of household income, consumption, expenditures, and wealth. **Display entire distribution and by socio-demographic groups.**
 - ▶ **Response** - tables with means forthcoming January 2025; continue research

