Improving Consumer Inflation Statistics in the Digital Age:
BLS Response to the CNSTAT Report

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prepared for
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BLS Response: Alternative data

- **Framework**
  - Measure price change more accurately
  - Improve BLS’ management of respondent burden
  - Expand item and geographic coverage and/or publish new products
  - Achieve cost savings / be budget neutral

- **Legal considerations**
  - CIPSEA
  - Terms of service / contractual agreements
  - Authority to Use / Authority to Operate

- **Data science**
  - Actively expanding skills and positions

- **Data lake pilot**
Features of a Data Lake Solution

(1) Large volumes of data
(can include potential NEW products; for example, based on quantity of sales)

(2) Better web scraping tools

(3) Predictive analysis/machine learning

“Traditional” data submitted by respondents/data collector

“as is” data
Notable reports on improving the CPI: Congressional Committees

Price Statistics Review Committee (1961)

✓ Adopt the cost-of-living-index concept as CPI measurement objective
✓ Expand population coverage to all households in urban areas
✓ Create permanent price index research division in BLS

George Stigler
1911-1991
Advisory Commission to Study the Consumer Price Index (1996)

- Quantified CPI biases at +1.1% (range of 0.8% to 1.6% per annum)
- Continuous, more frequent than decadal revisions of weights and samples
- Geometric formula at component level
- Adopt superlative aggregation at upper level
- Adopt flow of services approach for durables
- Adopt ex-ante measure for insurance
Notable reports on improving the CPI: NAS-CNSTAT


- 15 executive conclusions and recommendations
- **✓** Adopt *conditional* COLI as measurement objective
- **✓** Produce Chained CPI in real-time using C.E.S. formula
- **✓** Produce disease-based medical indexes
- **✓** Produce a PCE-weighted CPI
- ✗ Create a task force with CMS to construct a total medical care price index
- ✗ Establish an independent advisory council for hedonics
- ✗ Associate collected prices with household characteristics

Charles Schultze
Notable reports on improving the CPI: NAS-CNSTAT

Measuring What We Spend (2013)

- BLS adopted 9 of 12 recommendations
- Added data quality section to public website
- Online diary (July 2022)
- Streamlined interview questionnaire (starting in 2023)

- More info available at:
  https://www.bls.gov/cex/geminiproject.htm
Notable reports on improving the CPI: NAS-CNSTAT

Modernizing the CPI for the 21\textsuperscript{st} Century (2022)

- 37 recommendations
- 37 recommendations implemented within 5 years

Dan Sichel
CPI Strategic Plan

CPI Mission Statement
To produce timely, accurate, objective, and relevant measures of prices and price changes experienced by consumers.

CPI Vision Statement
Provide users with information they need when they need it by advancing the field of consumer price measurement.

We will do this within 5 years by:

- **Strategy 1** PRODUCTION producing accurate and timely statistics
- **Strategy 2** IMPROVEMENTS innovating new products and methodologies
- **Strategy 3** SOURCE DATA INNOVATION harnessing the power of data
- **Strategy 4** ORGANIZATIONAL EXCELLENCE changing the way we work
- **Strategy 5** CUSTOMERS AND OUTREACH disseminating information transparently and collaborating with the global statistical community

CNSTAT Recommendations
BLS Response: Potential of alternative data sources

Near term

- Prioritize identification and research of scanner data sources
- Develop an algorithmic approach to selecting substitute items
- Continue research and improvement of hedonic methods, notably for telecommunications and electronic items

Mid and longer term

- Expand web-scraping ability and use
BLS Response: Higher level aggregation

Near term
- Implement annual weights for CPI-U and CPI-W

Mid and longer term
- Improve efficiency of household expenditure data collection and processing
- Improve timeliness of Chained CPI-U
- Incorporate Tornqvist in headline CPI-U
BLS Response: Housing

Near term

- Control for structure type in OER samples
- Improve rental equivalence weight imputation
- Publish special aggregate indexes by tenant status

Mid and longer term

- Mitigate lag caused by biannual pricing scheme
- Incorporate payments approach for household cost indexes
Near term

- Incorporate medical claims data for hospital outpatient and physician services

Mid and longer term

- Continue to research to improve indirect pricing approach for medical insurance
- Initiate efforts to consider appropriateness of direct pricing of medical insurance
BLS Response: Subgroup indexes

Near term

- Continue researching methodologies for demographic cohorts

Mid and longer term

- Publish monthly research series by household income (notably low-income), possibly other demographic groups (e.g., renter vs. owner)
- Incorporate methods to control for price change heterogeneity at elementary level (outlets, unique goods, variation in transaction prices paid)
BLS Response: Organizational

Near term

- Continue collaboration with Statistics Canada and U.K. Office of National Statistics
- Participate in UN sponsored statistical and price index committees

Mid and longer term

- Develop plan for coordination of data ingestion priorities within BLS and across federal statistical agencies
Question & Answer