

Panel on “Price- and wage-setting in advanced economies”

Views from a reformed central banker & national statistician

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Agenda

- Intro: Central bankers and national statisticians
- Price index measurement challenges
- Improvement opportunities and challenges



Ronaldo confronts imperfect statistics.



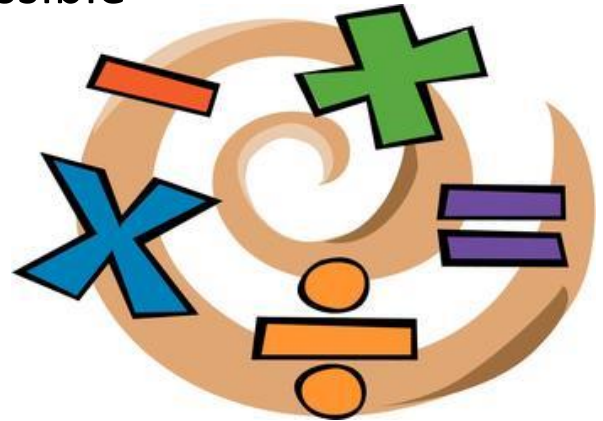
Central bankers and national statisticians

- Client and provider
- Professional peers
 - Value each other's expertise, independence and perspectives
- Compatible missions
 - Broadly, support national welfare
 - Distinct particular missions



National statistics in the trenches

- Goals
 - Best possible official statistics to guide decisions
 - Accurate, objective, relevant, timely, accessible
- Constraints on methodology
 - Resources
 - Production timeframe
 - Preserve respondent confidentiality
 - Avoid undue burden on respondents
 - Change only to improve accuracy certainly & significantly



Any economic phenomenon: Real or data artifact?

- Central bankers and researchers
 - New question
 - Demands attention and resources
- Stats agencies
 - Acknowledged limitation
 - Subject of ongoing improvements, research, and institutional memory
- Joining forces can be very productive

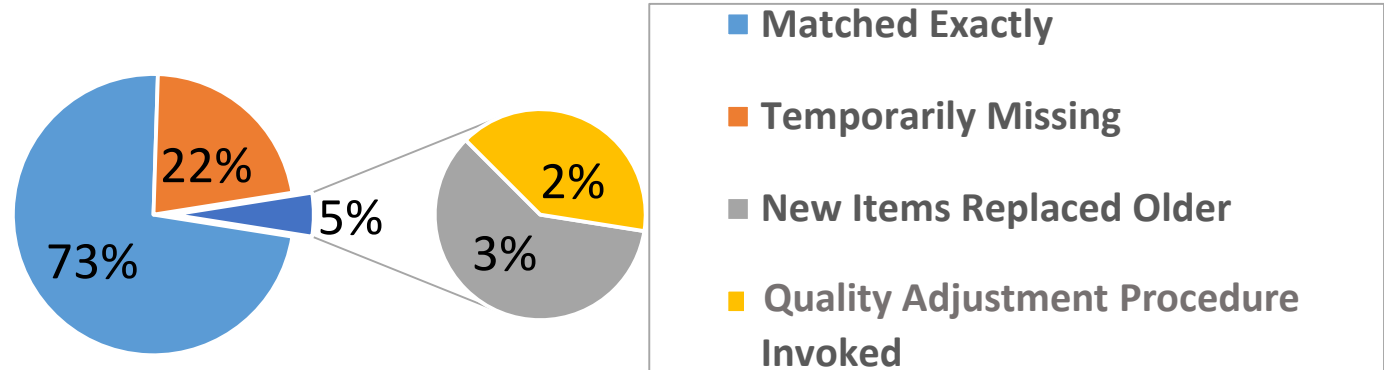


Price index measurement challenges



How BLS accounts for innovation in price indexes

- Issue as old as price indexes; innovation is old
- **Matched model** = cornerstone of price measurement
 - Compare prices for identical products over time
- As items disappear (5% of items), “replacement” identified
 - If very similar (3% of items), new item replaces older
 - For remaining 2% of items, quality adjustment procedure invoked



Source: BLS, CPI from 12/2013 to 11/2014



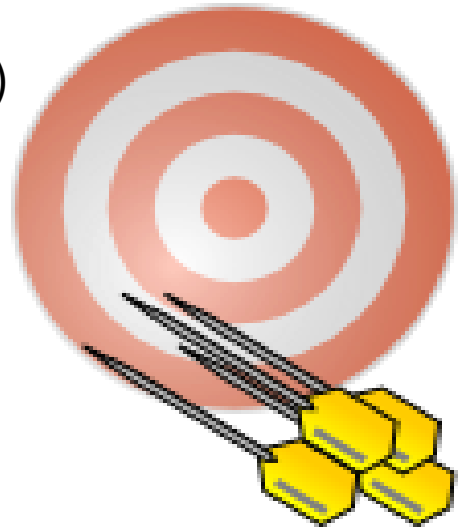
Three BLS quality adjustment approaches for price indexes

- Producer-provided quality adjustment
 - PPI and MXP
- Input from other surveys
- Hedonic adjustments
 - CPI—33%, incl. housing
 - PPI and MXP for computers



Some quality adjustment and new goods bias remains

- GDP impact on PCE + PFI: **-0.4 percentage point**
 - Reduction in measured real GDP growth from biases (2015)
 - Little change over time
 - Mostly about health care
 - Looms larger when growth is slow
- BLS & BEA perspective
 - Not alarmed, nor satisfied
 - Helps focus improvement efforts



Source: Groshen, Moyer, Aizcorbe, Bradley & Friedman. “How Government Statistics Adjust for Potential Biases from Quality Change and New Goods in an Age of Digital Technologies: A View from the Trenches”, *JEP* April 2017



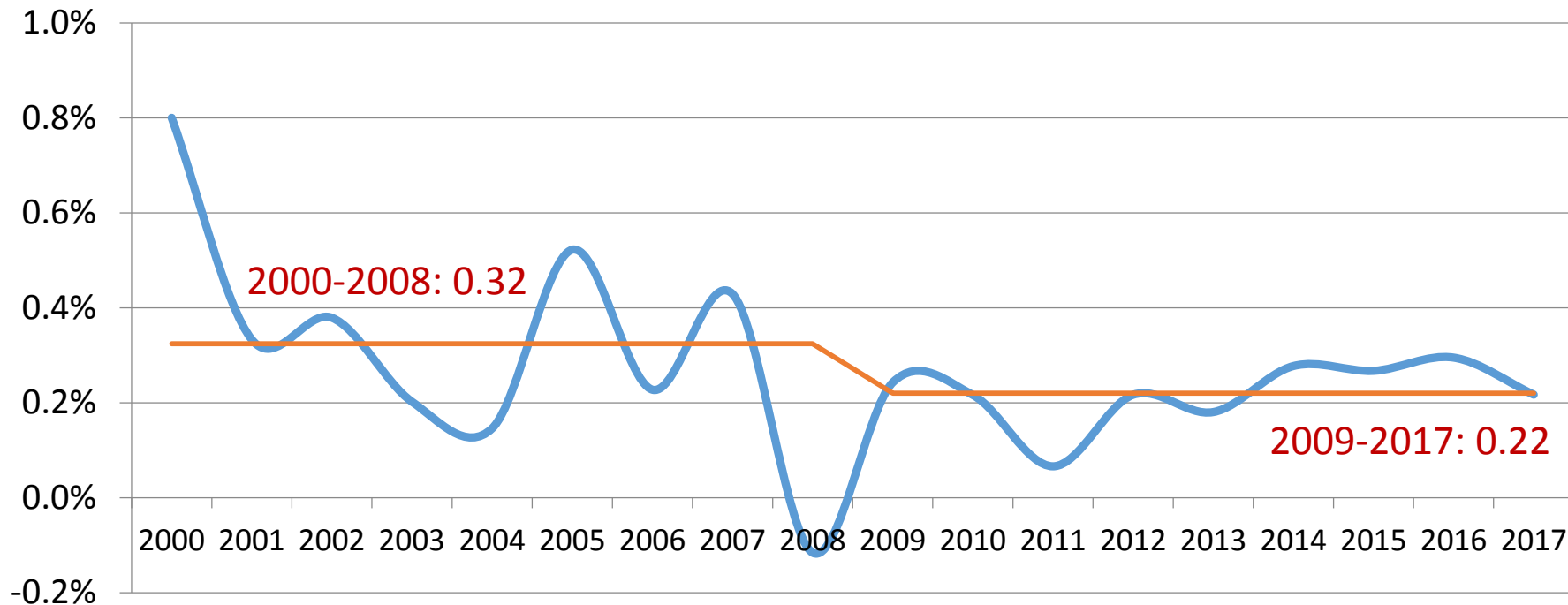
Substitution bias

- Longtime concern
 - On average, causes overestimation of cost-of-living increases
- Ongoing improvements reduce bias in CPI
 - Biennial adjustment of market basket
 - Formulas allows substitution within expenditure categories
 - Redesign of Consumer Expenditure Survey & TPOPS
- Chained CPI
 - Monthly adjustment of market basket
 - Formula allows substitution between expenditure categories



Substitution bias modest and not increasing

Percentage point diff. between CPI and Chained CPI, Dec. to Dec.



Improvement opportunities and challenges



Price index progress

- Disease-based price indexes for medical services
 - Outcome measures needed
- Hedonics
 - Microprocessors, PPI
 - Broadband services, PPI
 - Cell phones, CPI
 - Wireless telephone services, CPI
- Consumer Expenditure Survey redesign
- Scanner data



Opportunities

- Alternative (non-survey, organic) data sources
 - Government admin data
 - Corporate and transactional data
 - Scraped data
 - Satellite images
 - Not free, riskless or clean!
- Topics
 - Role of margins in inflation
 - PPI Trade Services
 - How work hours vary



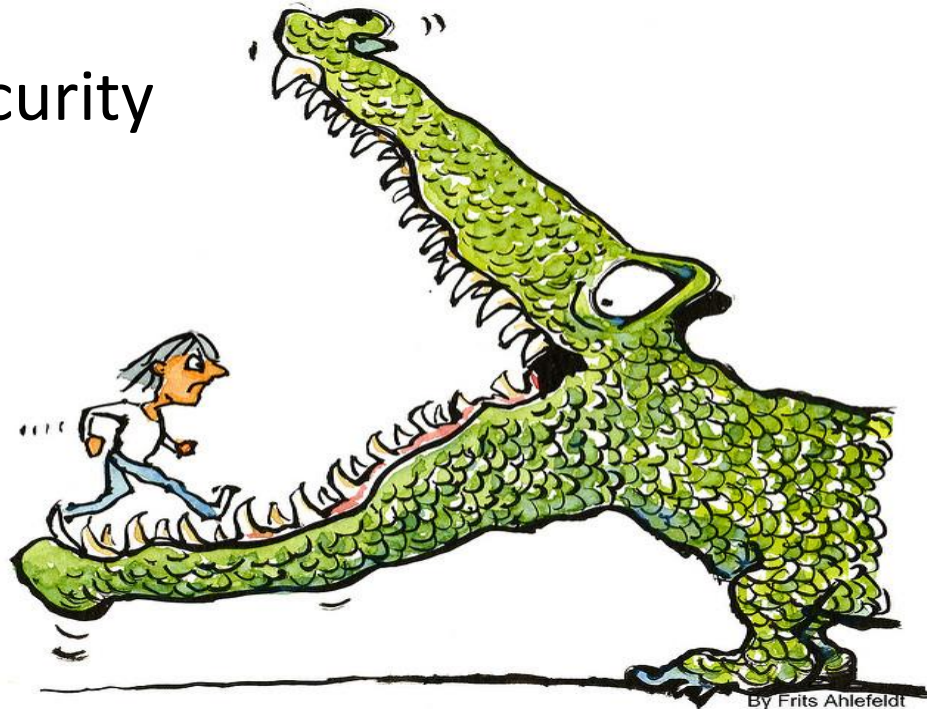
Wage indexes less studied—need development

- Understand inequality, pass-through, vulnerabilities
- Improve timeliness, detail, and response rates
- Take advantage of payroll processors, big data
- Address practical and conceptual challenges
 - Composition of workforce (ECI)
 - Hours
 - Non-wage compensation



Improvement challenges

- Privacy, confidentiality & security
- Response rates
- Attacks on integrity & independence
- Legal and bureaucratic constraints on data sharing
- Costs and funding



By Frits Ahlefeldt



Conclusion

- Price indexes → overstate cost-of-living increases
 - From innovation (mostly health care) and substitution
 - Modest and stable over time; bias looms larger now
- Official statistics
 - Imperfect, yet uniquely accurate, objective, relevant, timely and accessible
 - Biases addressed over time
 - Infrastructure supporting efficient markets, policy, and decisions
 - Need active support in today's environment



Comparing official stats and private big data

- Complements not competitors
- Rely on each other for out-of-scope imputation, benchmarking, validation, weighting, methodology, etc.

Official statistics	Private big data products
<ul style="list-style-type: none">• Transparent• Access to universal, sensitive admin and survey data• High survey response rates• Long documented history• Objective, designed for relevance	<ul style="list-style-type: none">• Proprietary methods• Access to high-volume transactional data• Speedy production• Quick innovation• Tailored to special needs

