

The Effect of Declining Response Rates on CPS and LAUS Estimates

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Impact on the Current Population Survey (CPS) Program

Questions for FESAC

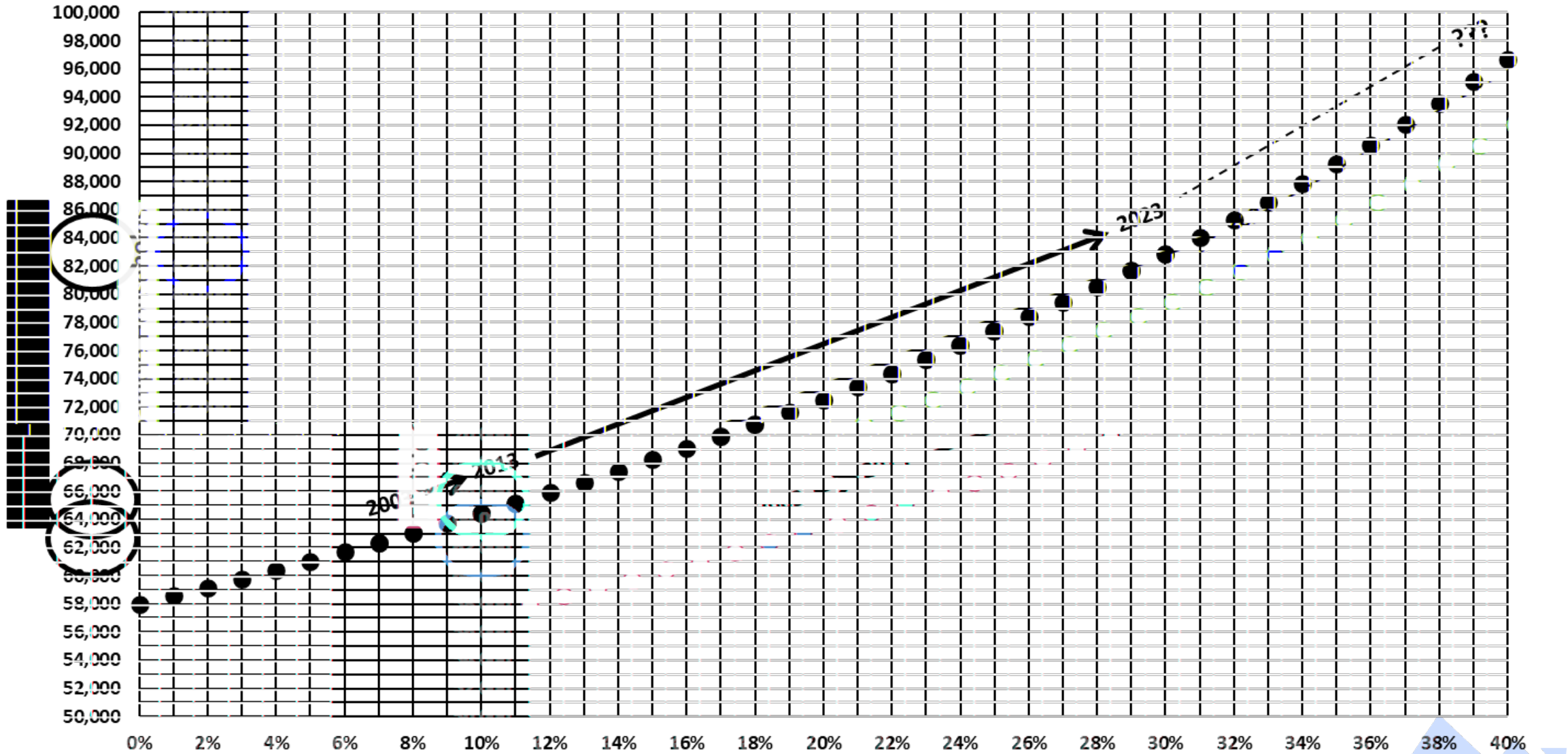
- a. The CPS can no longer reliably identify significant changes of 0.20% in the monthly Unemployment Rate*. At what significant change % are the monthly rates less economically useful?
- b. What bias (or other data quality / statistical) research should we be conducting that would be helpful to data users?

**assuming an average 6% monthly Unemployment Rate*





(Approximate) Sample Size to detect 0.20% change in Unemployment Rate

Assumes 6% Unemployment Rate

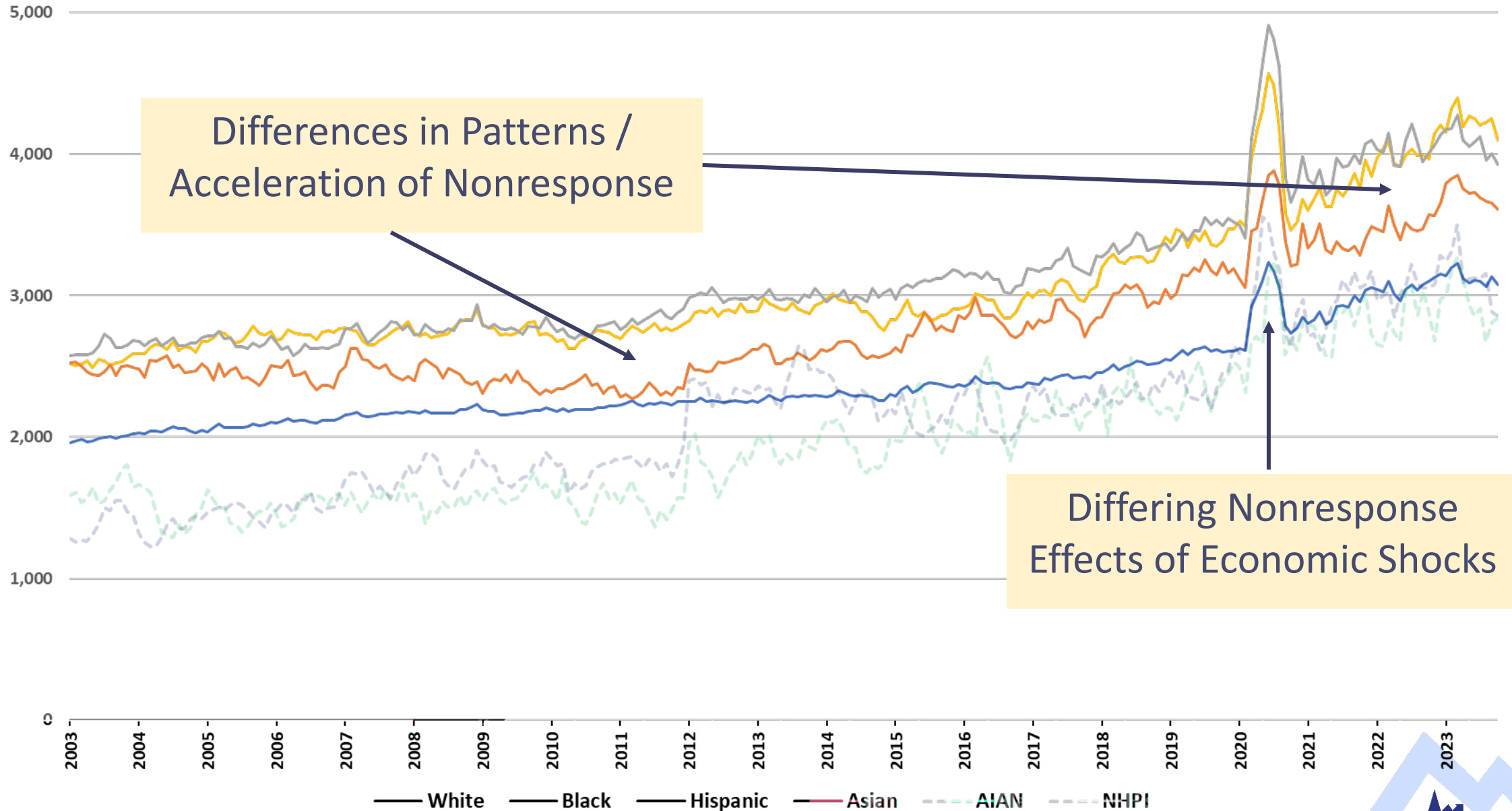


Presently 30%, but what if Nonresponse Rate increases to...

- 36%... 
 - ▶ **Two-month average** Unemployment Rate will have the precision of a *one-month estimate* from 2003
- 48%... 
 - ▶ **Three-month average** Unemployment Rate will have the precision of a *one-month estimate* from 2003
- Degrades the timeliness — one of CPS's core strengths

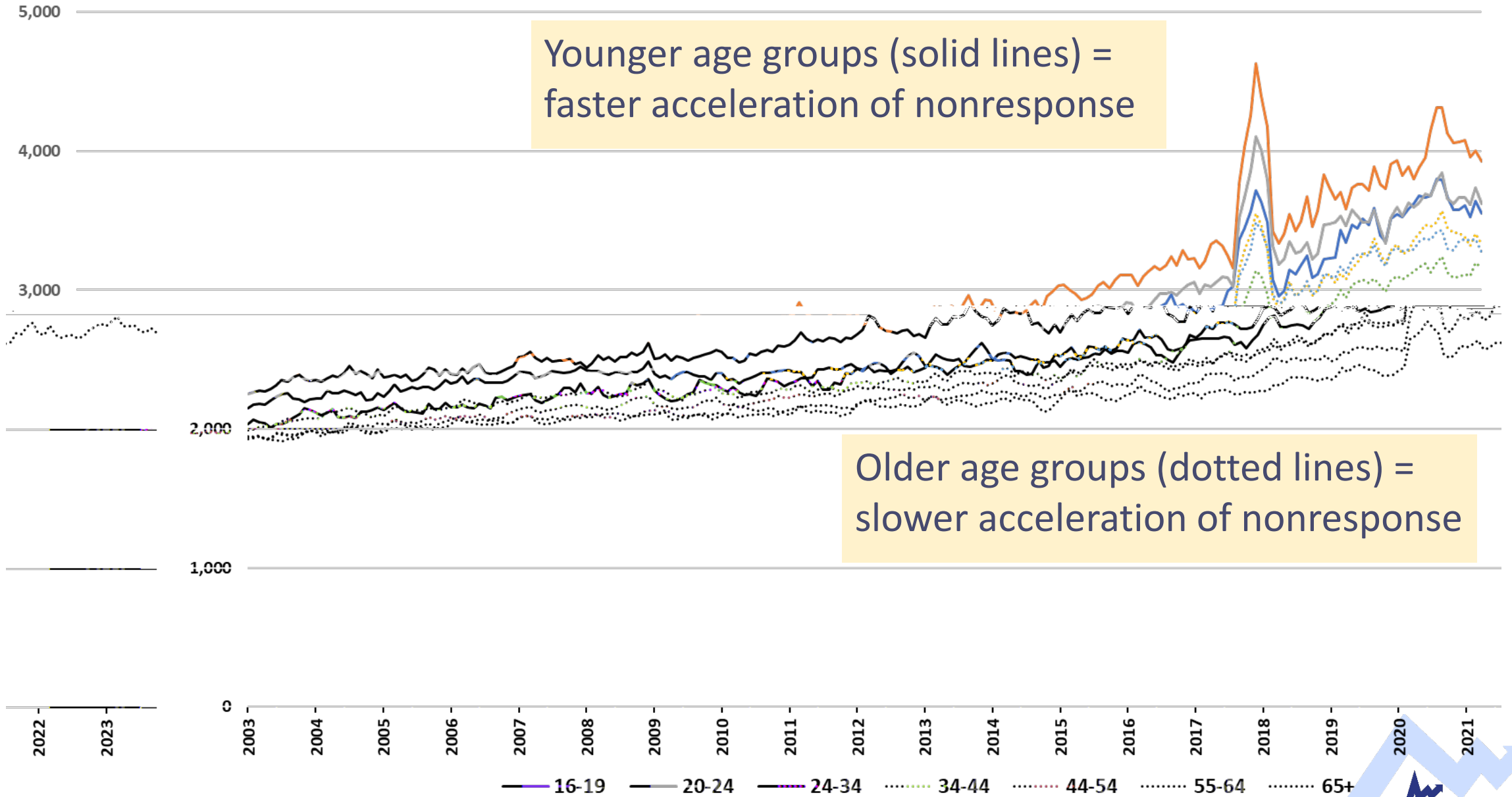
Average Weight of Respondents by Race / Ethnicity

"second-stage" (benchmarked) weights



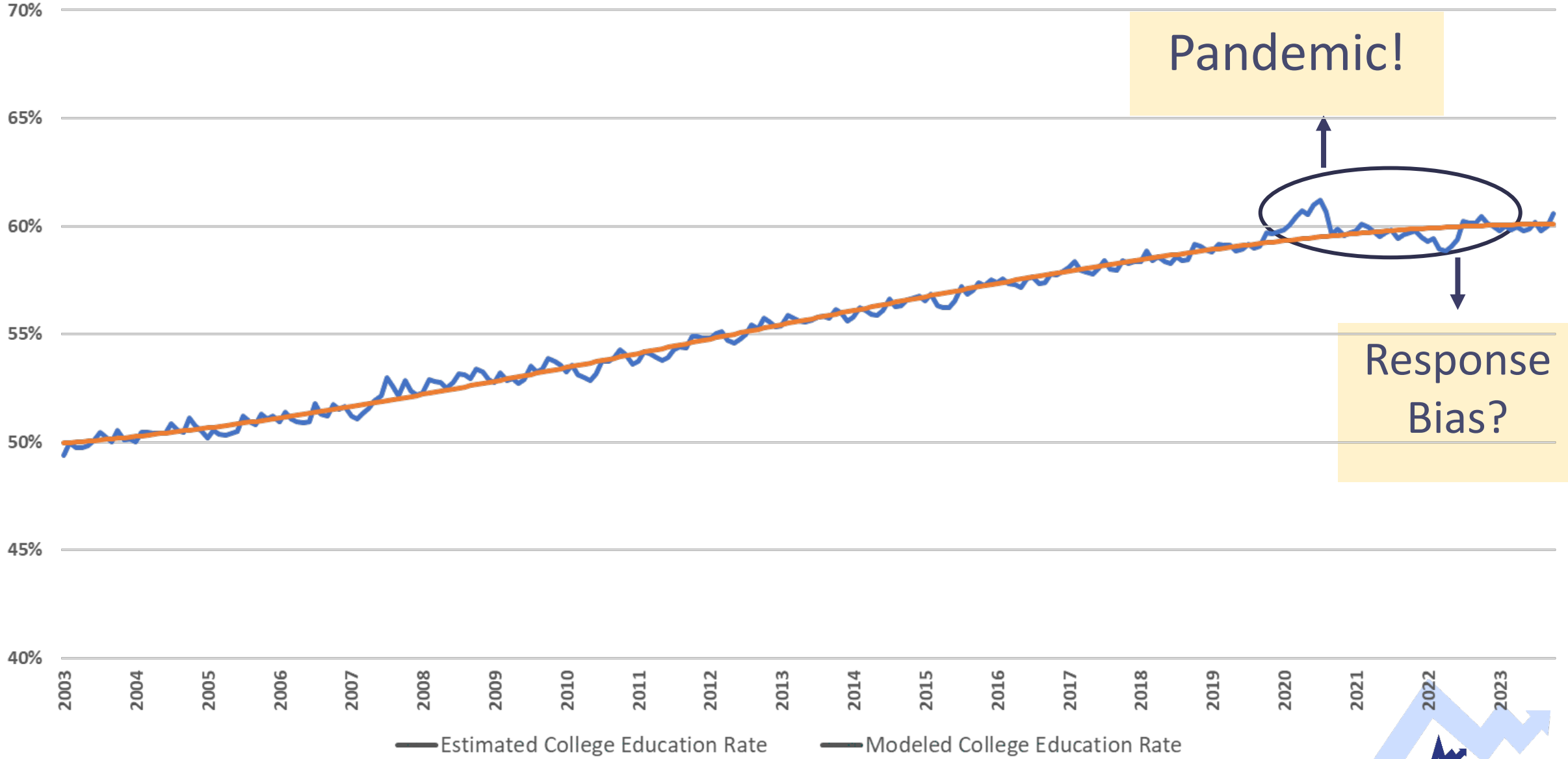
Average Weight of Respondents by Age Group

"second-stage" (benchmarked) weights



CPS Estimates of College Education Rates

includes "some college" and higher



Bottom Line for CPS Impact



Increasing nonresponse = increasing margins of error



No major (identified) bias problems...yet!



CPS timeliness at risk if nonresponse worsens

Economists / policymakers would have to rely on multiple-month averages to obtain the precision of past decades



Other data sources \neq statistical silver bullet

CPS already uses other data extensively to reduce bias / variance (e.g., population controls in weighting / benchmarking)

Impact on Local Area Unemployment Statistics (LAUS) Program

Questions for FESAC

- a. How do we inform LAUS data users about the risks of increasing volatility in state unemployment rate estimates?
- b. How do we balance the risks of real-time outlier detection and intervention against the risks from taking suspected extreme observations as given for LAUS state model estimation?



LAUS Estimation

- For its state estimation, the LAUS program uses signal-plus-noise models that are fit to the trends of the CPS subsamples
 - ▶ Total nonfarm employment from CES helps to mitigate volatility in CPS employed
 - ▶ Counts of unemployment insurance (UI) claimants without earnings from the state workforce agencies help to mitigate volatility in CPS unemployed
- Monthly modeling of topside data for states is only possible because of the CPS's state-based sample design
- The model-based data for states serve as controls for LAUS substate areas
 - ▶ Over 7,500 unique substate areas are produced cooperatively with state labor market information (LMI) offices

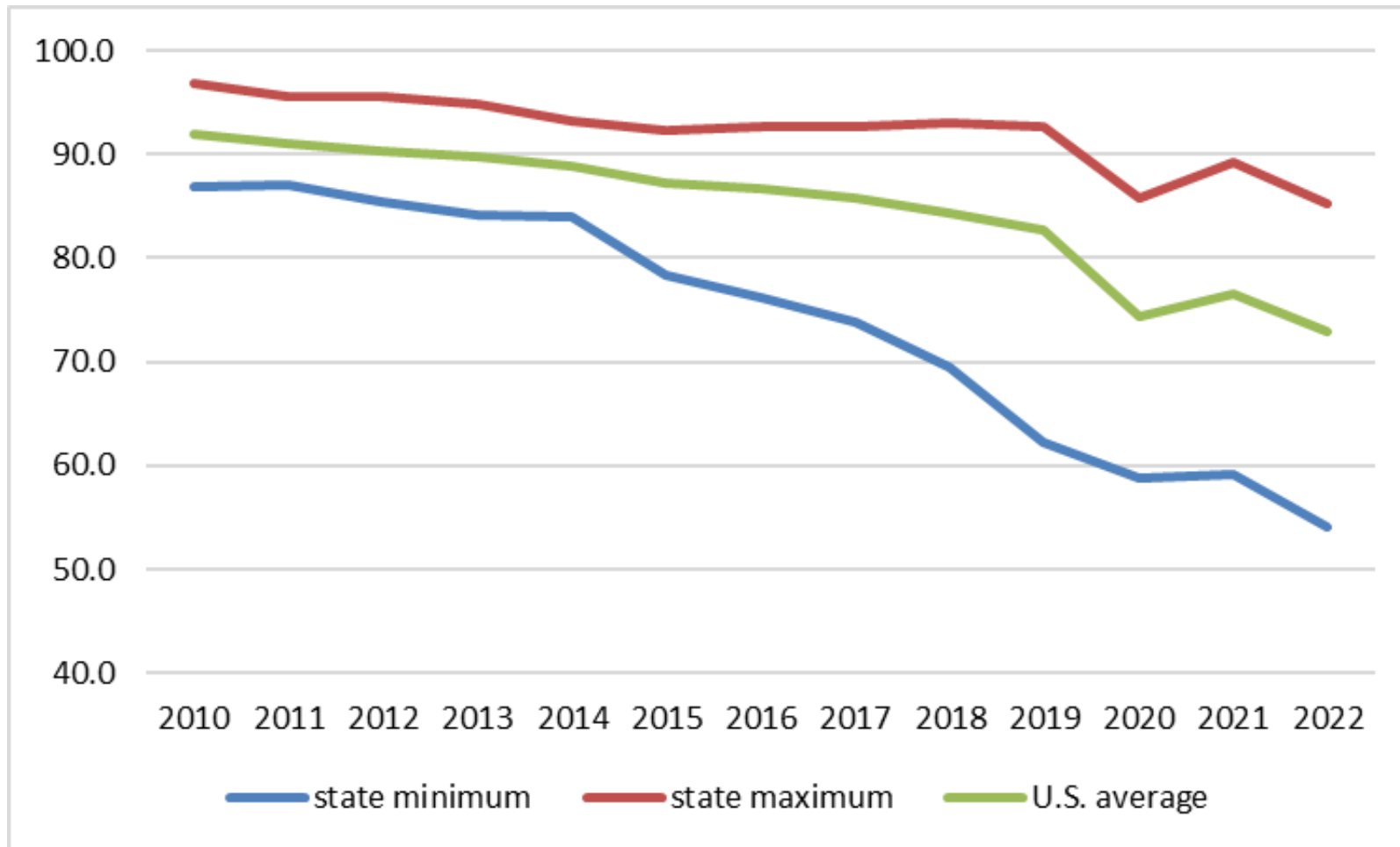


LAUS Data Uses

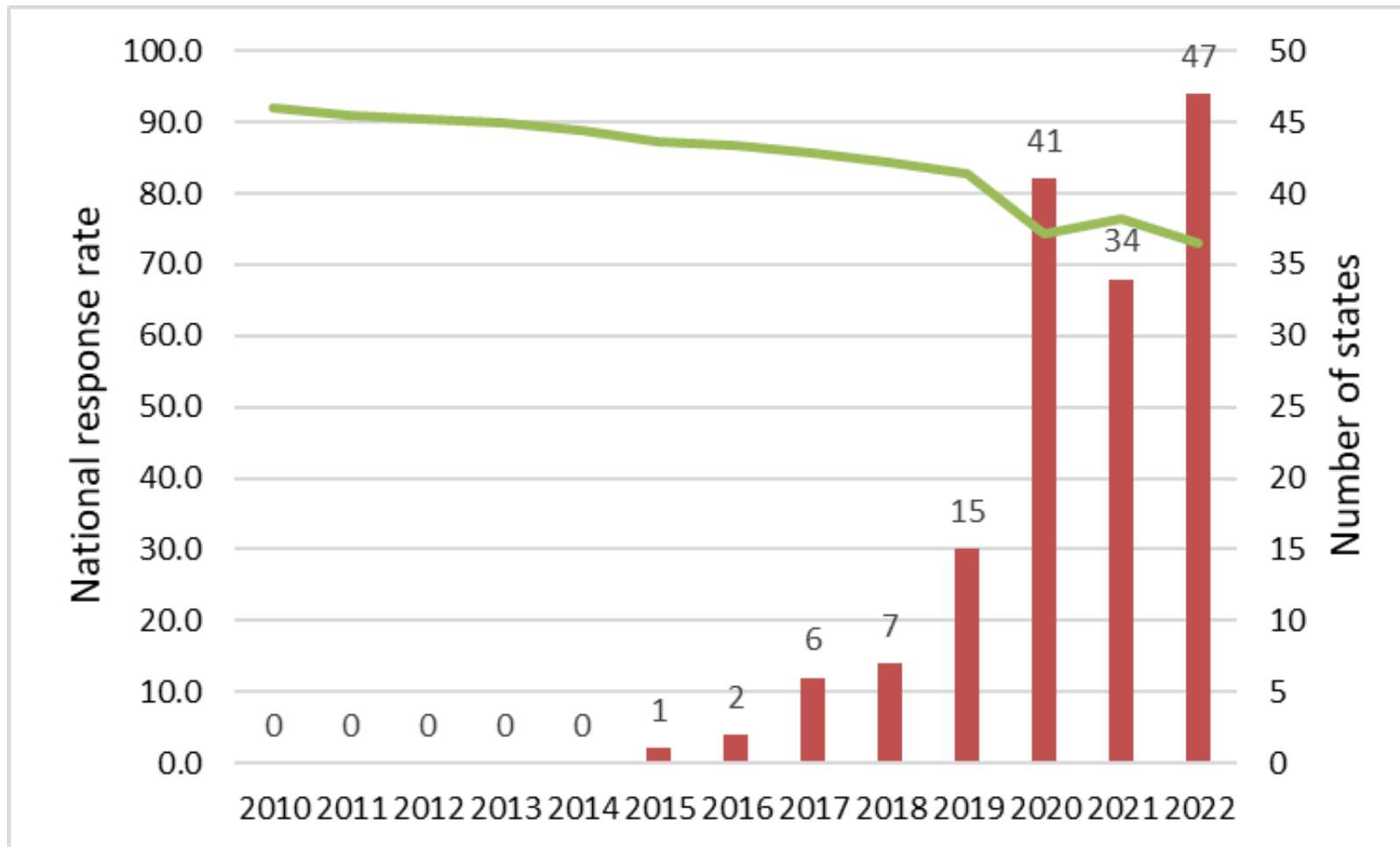
- At least 25 federal programs across 9 departments and independent agencies make use of LAUS data administratively
 - ▶ Known uses are listed at <https://www.bls.gov/lau/lauadminuses.pdf>
- As key indicators of local economic conditions, LAUS data also have been used:
 - ▶ To facilitate planning and budgeting by state and local governments
 - ▶ To indicate the need for local employment and training services and programs
 - ▶ For bond and mortgage underwriting



State minimum and maximum CPS response rates, 2010–22 annual averages



Number of states with annual-average CPS response rates below 80.0 percent, 2010–22



Household Interviews by State

- Number of state-months for which fewer than 500 household interviews successfully were completed:
 - ▶ 26 in 2019
 - ▶ 60 in 2020
 - ▶ 48 in 2021
 - ▶ 66 in 2022
 - ▶ 65 so far in 2023
 - October 2023: AK, CT, KY, ME, MD, and RI (6 states)

Extreme Observations

- Number of state-month observations based on fewer than 10 unemployed sample people:
 - ▶ 0 in 2019
 - ▶ 1 each in 2020 and 2021
 - ▶ 9 in 2022
 - ▶ 13 so far in 2023 (most recently ME in September)



Bottom Line for LAUS Impact

- The LAUS program cannot replicate for states and local areas the CPS's activity-based concepts of household employment and unemployment without the CPS state subsamples
 - ▶ Declining response rates = increasing volatility
 - ▶ BLS may be compelled to intervene in extraordinary ways on an emergency basis to produce viable estimates
- LAUS data users need to be made aware of the increasing volatility and consequent expectation of larger end-of-year revisions



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