

Has Anything Changed in a Decade? An Experimental Evaluation of Mail/Web Mixed-Mode General Population Surveys

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AAPOR Conference, May 2022
Chicago, IL

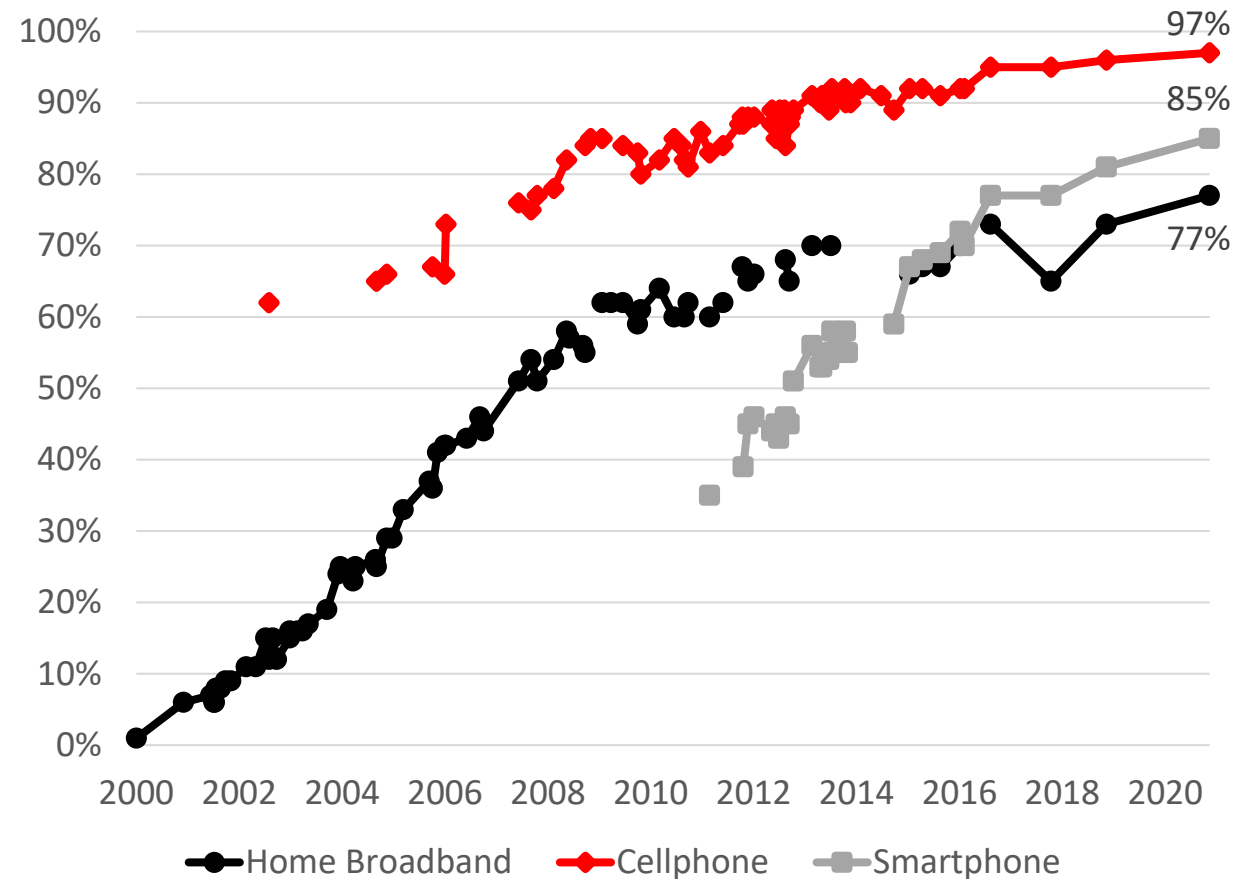


Mixed-mode surveys are ubiquitous

- Survey practitioners have increasingly turned to self-administered survey modes of data collection, often combining web and mail in a mixed-mode study (e.g., Olson, et al. 2020).
- There are many ways to mix survey modes.
 - Can offer people two modes at the same time (concurrent mixed-mode designs) or sequentially (one mode followed by another).
- Early work indicated that concurrent mixed-mode web and mail designs yielded lower response rates than mail-only surveys (e.g., Medway and Fulton 2012).
 - But, there is pressure to incorporate web into our designs. As a result, sequential mixed-mode designs (sometimes called web-push or push-to-web) are often used (e.g., Dillman, Smyth, and Christian 2014).
 - Some evidence that concurrent mixed-mode designs may be as efficacious as sequential mixed-mode designs (e.g., Olson, et al. 2020).

Why might the effects of modes on participation decisions have changed over time?

- Changes in home internet access
- Changes in concerns about privacy or confidentiality
- Changes in designs and protocols
- And more



This paper

- Do early findings related to survey participation and representation on mail, web, and self-administered mixed-mode surveys continue to hold on...
 - Response rates,
 - Mode selection, and
 - Sample composition?

Methods

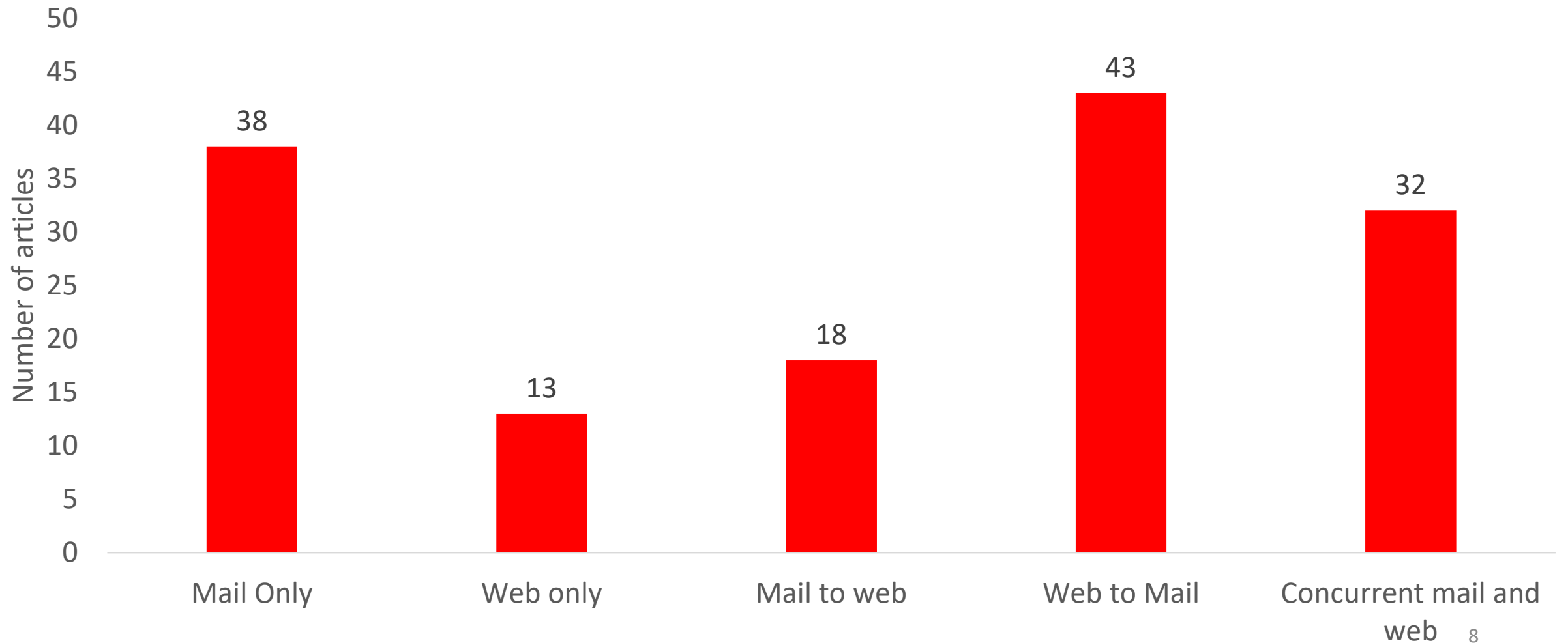
Systematic literature review

- Goal: To understand the “lay of the land” of knowledge in mixed-mode web and mail surveys
- What do we mean by mixed mode?
 - Some sample members must have had the option of completing either mail surveys or web surveys at some point during the data collection, offered at the same time or not
- Search terms: (“mixed-mode” or “mixed mode” or “web push” or “mode choice”) *and survey and* experiment
 - Plus review of bibliographies and Google Scholar reverse-citation lookup for key papers
 - Experiments with random assignment to mode conditions
 - Outcomes of interest had to be related to **participation**, not measurement or postsurvey adjustment

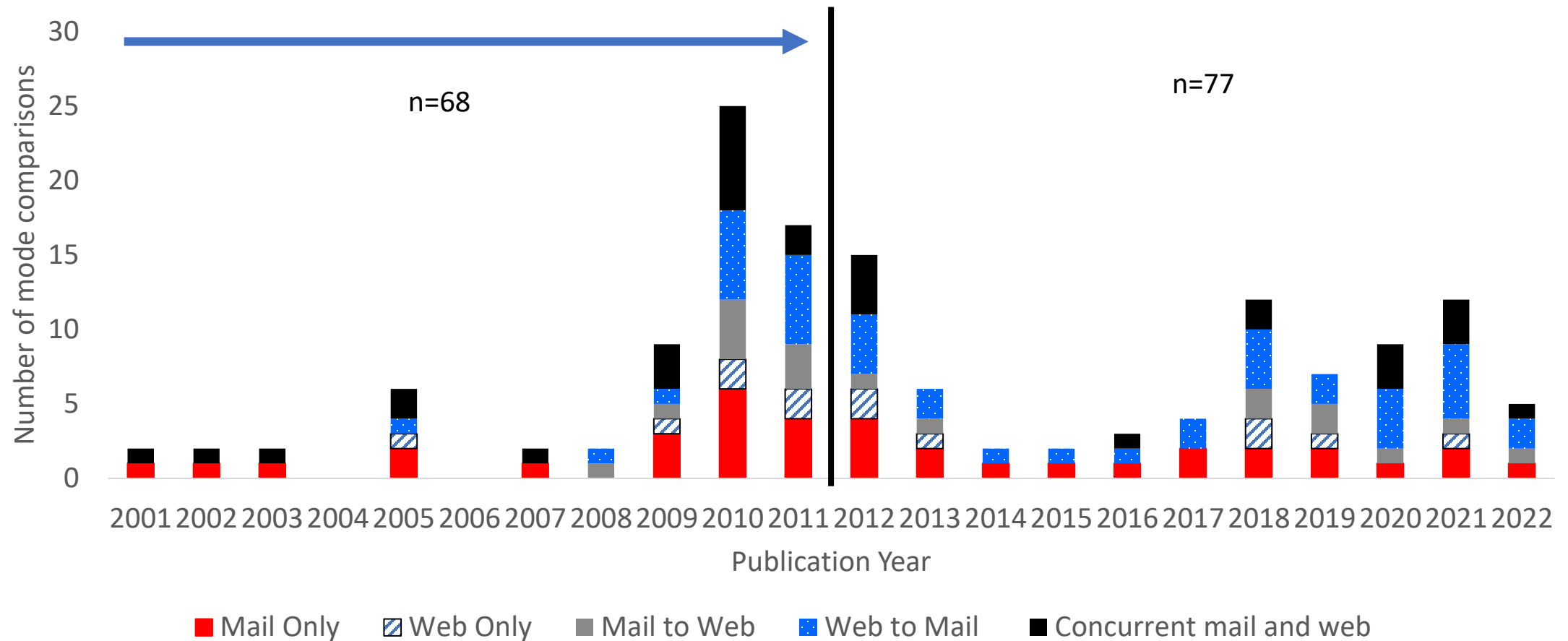
Systematic literature review (2)

- A few more scoping rules
 - Must include an experimental comparison that includes a **mail** and **web** mixed-mode condition to a single-mode mail or single-mode web or different mixed-mode (web and mail) condition
 - Exclude mixed-mode designs that use interviewers
 - Focus on surveys of people (not establishments)
 - Search is extensive but not exhaustive
 - Goal (for today) is not to formally meta-analyze, but to examine patterns
- 55 papers included so far with about 145 mode comparisons (averaging across multiple experiments and design features within a study for now)

Systematic Review: What modes have been examined across 55 papers with experimental comparisons?



Systematic Review: Is there recent information available for an updated review?



Analysis

- Examine averages across studies within mode conditions in
 - Response rates (as reported by authors)
 - Proportion that select web
 - Any significant difference in demographic variables
- Test differences using multilevel models (mode conditions nested within papers)

Mode Experiment Data

- Nebraska 2020 Survey
 - Mixed-mode web and mail survey
 - Questions on COVID-19 and race relations
 - Fielded September-December 2020 by the Bureau of Sociological Research
 - Participation modes: Mail (58%) vs. Web (42%)
 - N=10,000 Nebraska households selected as simple random sample from USPS Delivery Sequence File by Dynata
 - Overall response rate=28.1% (AAPOR RR2, n=2811)

Mode Experiment Data (2)

- Sampled households randomly assigned to one of four mode conditions (n=2500 in each condition)
 - Mail only
 - Web only
 - Sequential Web to mail (paper in third mailing)
 - Concurrent web and mail
- Initial cover letter and questionnaire and/or URL sent to all households via postal mail, followed by a reminder postcard and up to two replacement letters with URLs and/or paper questionnaires to nonrespondents

Outcomes

- Response rates: AAPOR RR2
- Mode of response
- Base-weighted sample composition vs ACS and/or State-level Benchmarks:
 - Adult Demographics: Age, Sex, Education, Race/ethnicity, Urbanicity, Children in Household, Marital Status, Family Income, Party Registration, Home Ownership, Type of structure
 - Household Internet-related variables: Any computer; Desktop or Laptop; Smartphone; Tablet; Internet Access; Broadband Access; Cellular Access

Analysis Methods

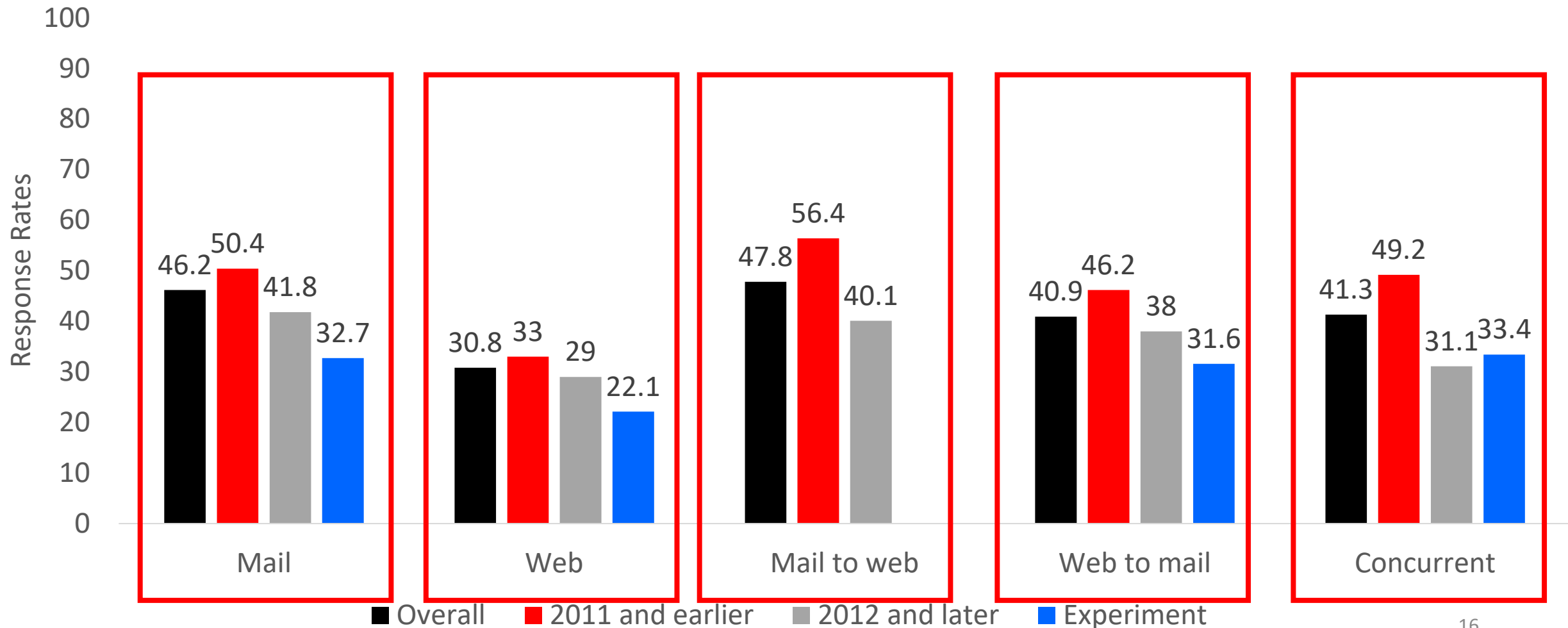
- χ^2 tests for bivariate differences in response rates and mode selection
- Survey-design based F-tests for differences in base-weighted survey estimates across experimental treatments
- Cohen's w (Cohen, 1988; p. 216+) as measure of consistency for the survey data (p_{1i}) with ACS data (p_{0i}) (smaller is better; small deviations from benchmark=0.1; medium=0.3; large=0.5)

$$\omega = \sqrt{\sum_{i=1}^m \frac{(p_{1i} - p_{0i})^2}{p_{0i}}}$$

Findings

Response Rates

Mail only and mail-to-web have the highest response rates, followed web-to-mail and concurrent mixed mode designs, followed by web only. All have decreased.

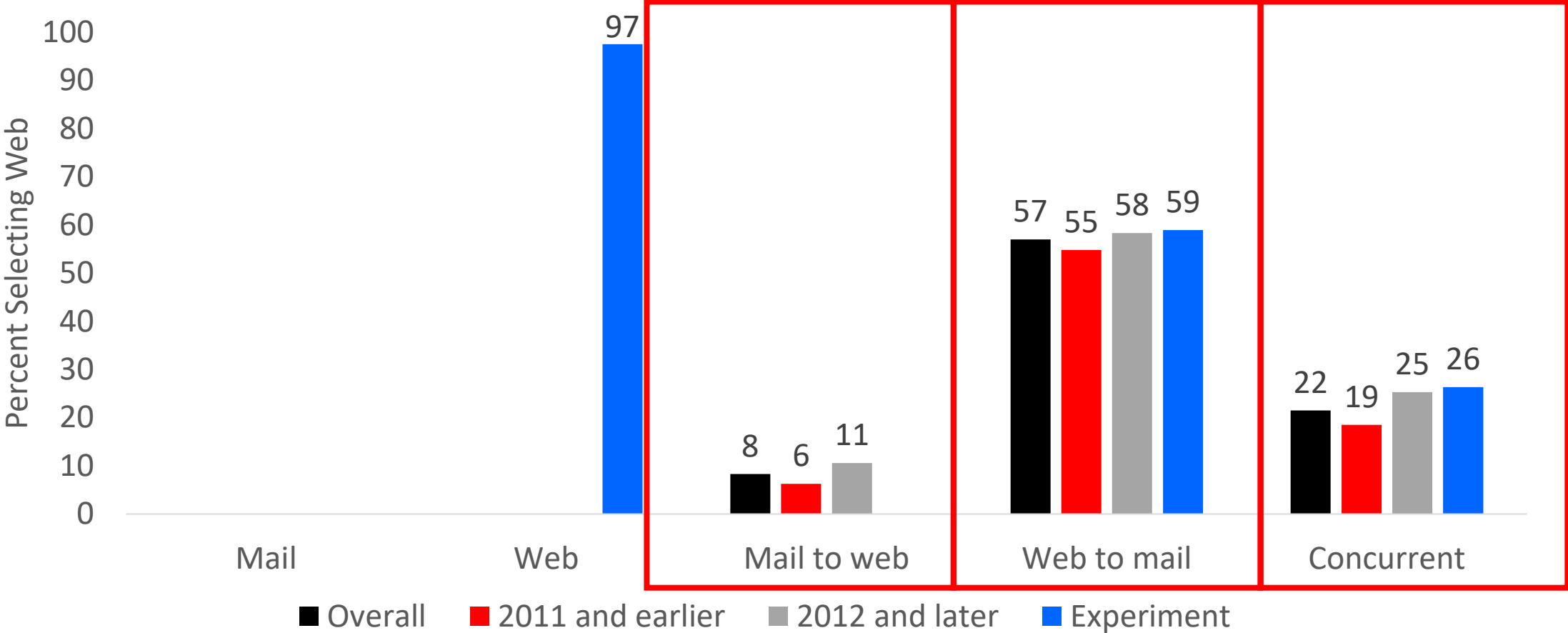


Accounting for the combinations of modes studied in the same experiment....



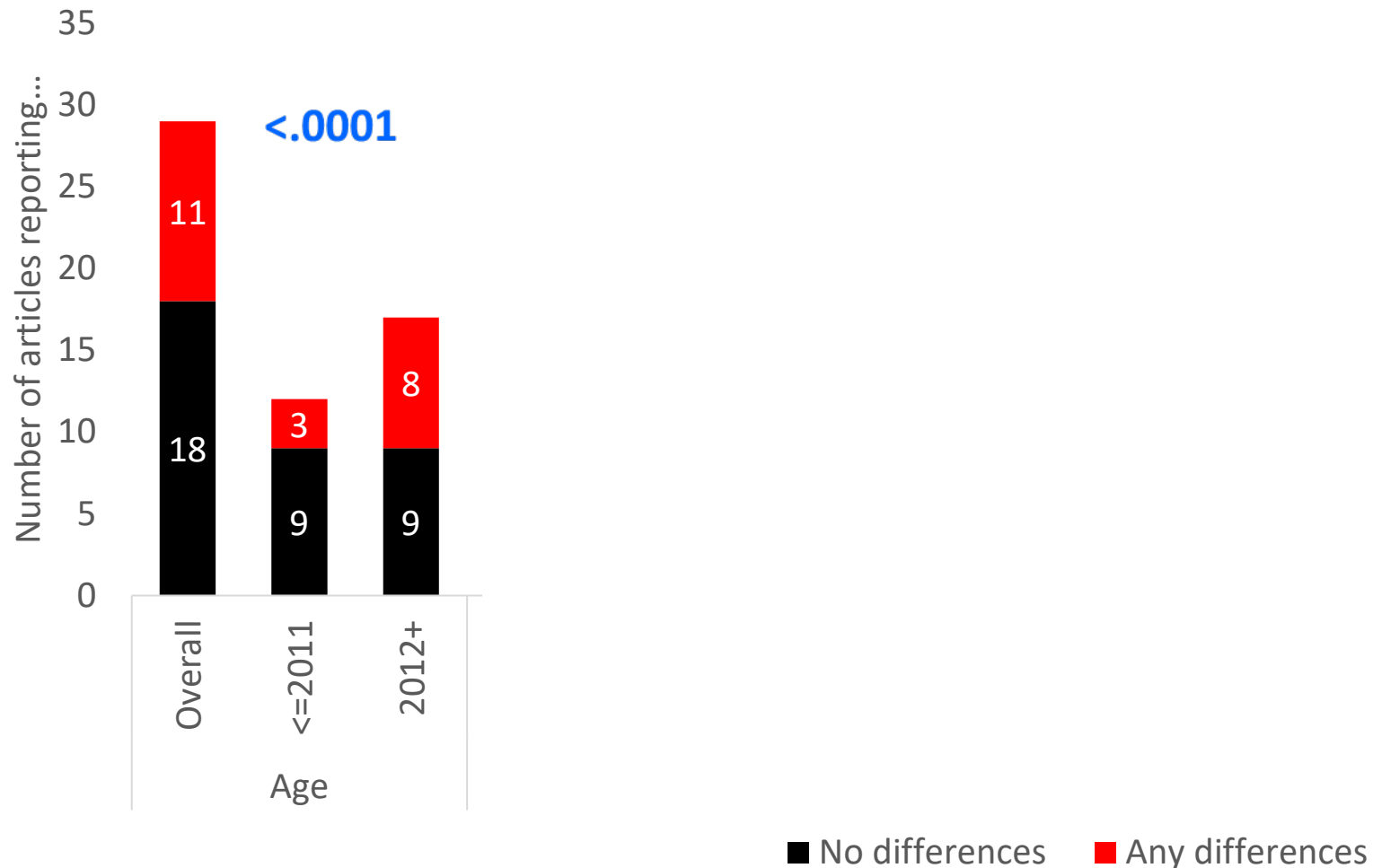
Mode choice

Respondents in a web-to-mail design consistently select web at higher rates than in a concurrent mixed mode or mail-to-web design. The rates haven't changed much over time.

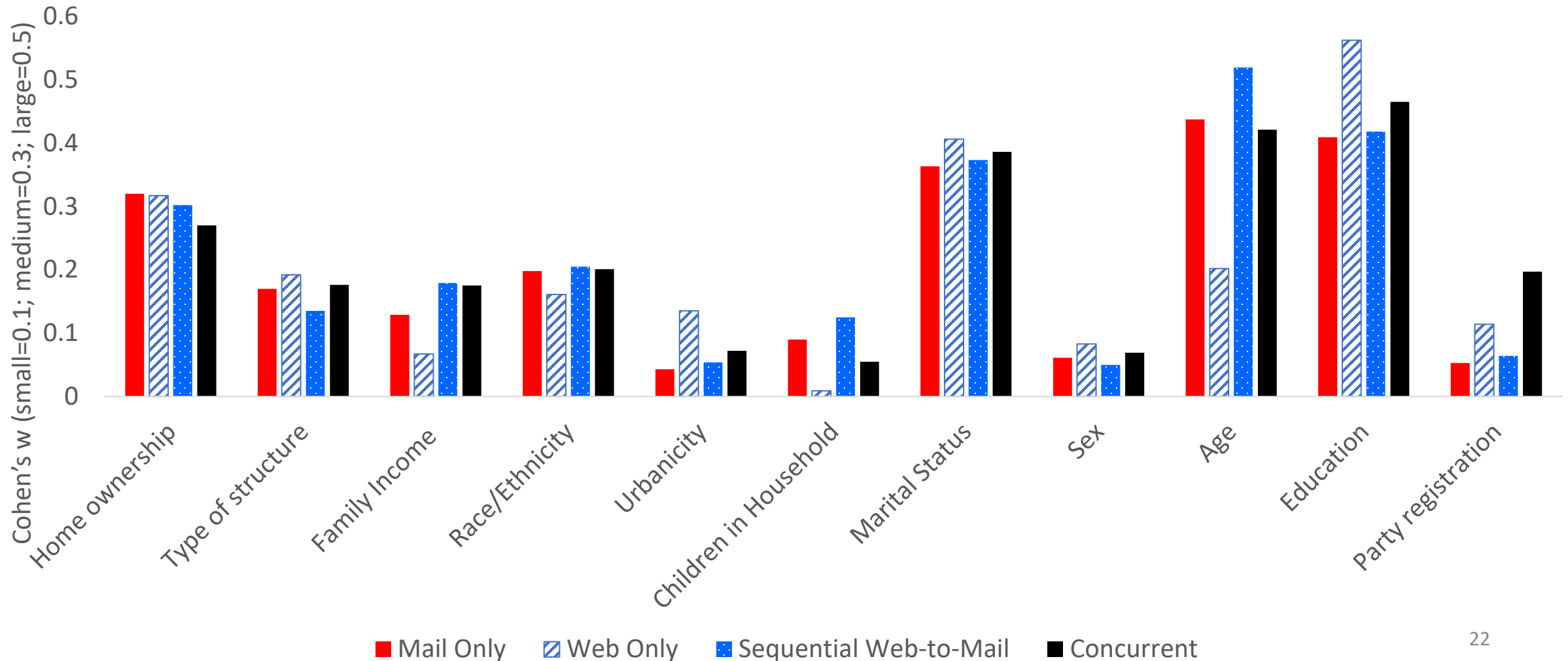


Sample Composition Differences

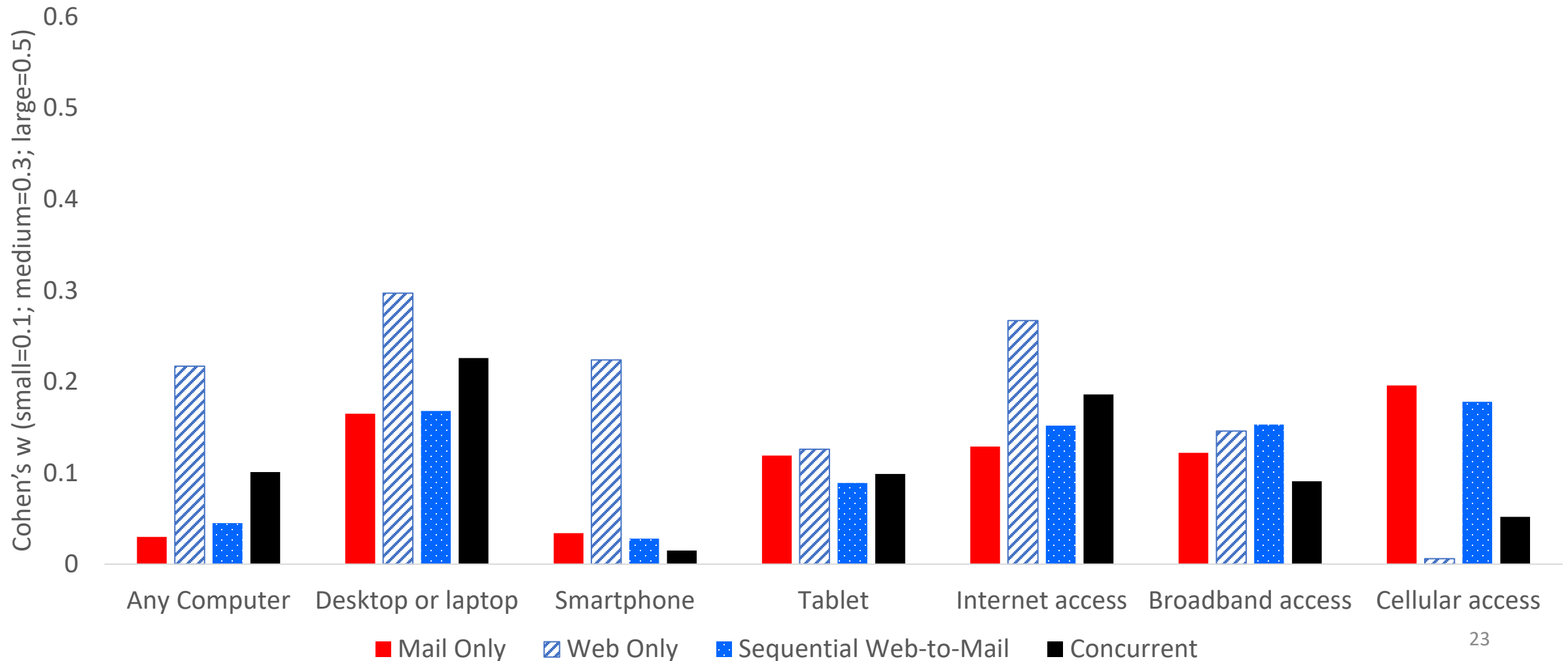
Systematic Review: Any differences across mode conditions in...



No single “best” mode condition. Smallest on average for single modes (mail-only 0.207; web-only 0.204); larger for mixed mode (sequential 0.220; concurrent 0.226).



Web-only is the “worst” condition (0.184). Smallest on average for mail-only (0.114), sequential (0.116), and concurrent (0.110) mode conditions



Summary

- Do early findings related to survey participation and representation on mail, web, and self-administered mixed mode surveys continue to hold on...
 - Response rates
 - No! Changes over time have ameliorated differences between concurrent, sequential and single-mode mail surveys
 - Yes! Web surveys continue to have the lowest response rates
 - No! Response rates have fallen over time
 - Mode selection
 - Yes! Sequential web-to-mail mode designs yield about 60% of responses from web, compared to about 25% of responses from web in concurrent web-mail designs.
 - Sample composition
 - Maybe! Age is variable with most mode condition differences in prior studies.

Implications and Future Research

- Effects of modes on householders' survey decisions are changing
 - It's worth reconsidering a concurrent mixed-mode web and mail design
- Not all studies implement modes and their combinations uniformly
 - Need a deeper dive into predictors/moderators influencing response rates and mode selection across the mode conditions
- More work to be done!

Thank you!

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