Demographic Surveys Sample Redesign at the U.S. Census Bureau:
Update, Lessons Learned, Next Steps

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Federal Committee on Statistical Methodology
October 2024

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Topics

- Overview of Demographic Surveys Sample Redesign Program

- Update and status on 2020 Sample Redesign

- Findings of funded survey research

- Lessons learned / Factors for success

- Plans for the 2030 Redesign

What is the Demographic Surveys Sample Redesign Program?

- Research and development program funded by direct appropriation

- Historically focus on updating samples and sampling methods

- More recently, focus has expanded to encompass other parts of the survey life cycle

- Approved innovations targeted towards all participating surveys, i.e. coordinated sampling

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Surveys participating in Redesign

- American Housing Survey (AHS)
- Consumer Expenditure Surveys, Diary and Quarterly (CED and CEQ)
- Current Population Survey (CPS)
- National Crime Victimization Survey (NCVS)
- National Health Interview Survey (NHIS)
- Survey of Income and Program Participation (SIPP)

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2020 Demographic Surveys Sample Redesign – Sampling plan

Continue multistage sample design

Update and select new PSUs (as strata become less homogenous over time)

Increase expected overlap between designs to minimize field disruption

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Planned: Two-stage sampling

- 1st stage:
  - Divide country into primary sampling units (PSUs)
    - Counties or groups of contiguous counties
  - Some PSUs selected with certainty (e.g., large metro areas) – self-representing (SR)
  - Remainder, non-self-representing (NSR), are stratified using characteristics of interest to each survey
  - Portion of these stratified PSUs are selected
- 2nd stage: Unit samples (addresses) are selected annually within the selected PSUs

Planned change: Update PSUs

- These results refer to surveys which sample from the Master Address File (i.e., not NHIS)

2020 Primary Sampling Units	Count
PSUs with changes	65 (3%)
No change from 2010 PSUs	1,918 (97%)
Total 2020 PSUs	1,983 (100%)

Source: U.S. Census Bureau, 2023, Demographic Surveys Sample Redesign (CBDRB-FY24-POP001-0104)

Planned change: Use method to increase expected overlap

PSU overlap achieved (in this case, more is better)

Survey	Overlap achieved
American Housing Survey	83%
Consumer Expenditures (Quarterly and Diary)	83%
Current Population	84%
National Crime Victimization Survey	87%
Survey of Income and Program Participation	95%

Source: U.S. Census Bureau, 2023, Demographic Surveys Sample Redesign (CBDRB-FY24-POP001-0104)

Sampling process milestones

- 2023: Completed first-stage (PSU) sampling
- 2024: Completed second-stage (within-PSU, i.e., unit) sampling
- 2025: Data collection begins

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National Health Interview Survey

- Samples from a different frame (Marketing Systems Group) per sponsor requirements

- Planning and engagement effort to ascertain sponsor requirements

- Research on various methodological topics
  - Do we still need a supplemental area frame? Can we use dependent listing?

- Aligned NHIS methods with those used by surveys which sample from the Master Address File
  - Two-stage sampling

- Primary Sampling Unit cycling to obtain state-level estimates (over a three-year period)

Survey life cycle projects and results

- Created an address filter for a mail-only frame.

- Researched crowdsourcing as a substitute or adjunct to traditional cognitive testing.

- Compared various measures of attrition across panels and recommended a specific formula.

- Assessed innovations in private sector research organizations for their potential for use at the Census Bureau.

Challenges

- Keeping all stakeholders informed throughout the Sample Redesign
  - Staff may change during multi-year process
- Transferring knowledge when staff retire
- External factors
  - Delays in inputs
  - Geographic boundary changes (e.g., Connecticut)

Lessons learned / Factors for success

- Having pre-determined processes for securing buy-in

- Written, approved communication plan

- Involving information technology management and staff early and throughout project

- Monitoring schedule

- Customized approach to team management

- Monitoring risk

- Amazing team chairs, project managers and staff

2030 Redesign agenda

Areas of interest:

- (Internet) Self-Response

- Nonresponse, Nonresponse Bias, and Nonsampling Error

- Business Ecosystem Changes

- Frame and Sampling Innovations

- Business Process Improvement

- Machine Learning / Artificial Intelligence

Next steps – 2030 Redesign

- Continue listening tour – been soliciting feedback on initial plans
- Solicitation of specific research topics under identified areas
- Research, development, and implementation as applicable!

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If you have ideas, be in touch!

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