Abstract:
This report describes an assessment of the redesigned National Crime Victimization Survey (NCVS) sample design to (1) identify potential sources of error that may compromise the validity of state-level estimates (i.e., internal validation) and (2) evaluate how NCVS estimates compare with and augment estimates from the Federal Bureau of Investigation's Uniform Crime Reporting (UCR) Program (i.e., external context). The internal validation assessed potential errors with coverage, nonresponse, measurement, data processing, and sampling. The external context focused on comparing NCVS victimization estimates for crimes reported to the police with analogous estimates from the UCR. No overarching issues were identified during this examination that would call into question the validity of state-level victimization estimates produced from the redesigned NCVS sample. The NCVS State-Level Analysis User's Guide provides guidance on generating victimization estimates and standard errors. BJS also released *Criminal Victimization in the 22 Largest U.S. States, 2017–2019,* which details selected state-level estimates of violent and property victimization in 2017–19 in the 22 most populous U.S. states.

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National Crime Victimization Survey: Validation of State-Level Estimates

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EXECUTIVE SUMMARY

Before 2016, the primary objective of the National Crime Victimization Survey (NCVS) was to provide national estimates of criminal victimization in the United States. Under this directive, the sampling and weighting procedures were designed to ensure that the NCVS sample of households and persons was nationally representative. This national focus has historically limited the ability to leverage fully the abundance of information collected through the NCVS to understand the patterns and correlates of crime victimization within subnational areas.

To fill this gap and enhance the utility of the NCVS data, the goals of the survey were expanded beginning in 2016 to enable the creation of victimization estimates within the 22 most populous states and large local areas within those states. The assessment described in this report focuses on state-level estimates produced with the expanded NCVS. Fulfilling this dual purpose of supporting both national and subnational estimates required significant changes to the NCVS sample design, including an increased sample size and revisions to the process of selecting sample units. These changes were necessary to ensure a representative sample within subnational areas and a large enough sample to produce victimization estimates with adequate precision.

Given the size and complexity of the 2016 redesign, an evaluation of the effectiveness of the revised procedures and the quality of state-level estimates is warranted before the release of official state-level victimization statistics for the 22 most populous states. The objectives of the research described in this report are to (1) evaluate the redesigned NCVS from a total survey error (TSE) perspective to identify potential sources of error that may compromise the validity of state-level estimates (i.e., internal validation), and (2) evaluate how NCVS estimates compare with and augment estimates from the Federal Bureau of Investigation's (FBI's) Uniform Crime Reporting (UCR) Program (i.e., external context).

Overview

Internal validation is evaluated from a TSE perspective (Groves, et al., 2004; Groves & Lyberg, 2010) and examines whether the sample design, data collection protocols, and data processing procedures (e.g., weighting) are valid and based on appropriate statistical methodology. The error components and features of the NCVS data used to assess these components include the following:

- Coverage Error
  - NCVS coverage rates within states overall and by characteristics of persons and households
- Nonresponse Error
  - Household- and person-level response rates by state and within subpopulations by state
- Measurement Error
  - Distribution of respondent panel wave by state
  - Distribution of interviewer experience by state

- ○ Percentage of interviews completed by proxy respondents
- Data Processing Error
  - ○ Variability in household- and person-level weights by state
  - ○ Impact of the series weight adjustment on victimization estimates by state
  - ○ Impact of the time-in-sample (TIS) and bounding adjustments on victimization estimates by state
- Sampling Error
  - ○ Precision of state-level estimates based on 3 years of pooled data
  - ○ Impact of unequal weighting effects on estimate precision

External context focuses on how the NCVS state-level estimates compare with and augment estimates from the FBI's UCR Program and whether any differences can be attributed to design or other differences, particularly reporting to police. To assess external context, we compared NCVS victimization estimates for crimes reported to the police with analogous estimates from the UCR. This comparison included an examination of the absolute difference in estimates between the two sources and a rank-order comparison among the 22 states included in the analysis.

The primary concerns identified during this evaluation relate to subpopulation estimates within states. Certain subgroups can be more difficult to reach for interviews, resulting in higher rates of nonresponse and lower coverage. The smaller sample sizes for these groups will make domain estimates less precise and could result in estimates that are heavily influenced by a small number of respondents. These factors should be considered when planning an analysis as it may be necessary to pool additional years of data. However, no overarching issues were identified during this examination that would call into question the validity of state-level victimization estimates produced from the redesigned NCVS sample. Victimization estimates for the 22 largest states meeting the Bureau of Justice Statistics' standards for quality and precision can be produced and released to the public beginning with the 2017 collection year. With current sample sizes, a minimum of 3 years of data should be used to ensure that estimates achieve adequate precision. This recommendation aligns with the original NCVS sample redesign goal of obtaining a coefficient of variation (CV) for violent crime estimates of no more than 10%, based on data aggregated over three years.

Key findings of this evaluation from the internal validation review and external context assessment are summarized in this report. A forthcoming state-level analysis user's guide will also be available to approved analysts in the Census Bureau restricted-use data environment with guidance on generating victimization estimates and standard errors, identify potential issues with specific subnational estimates produced with the NCVS, and identify strategies for mitigating any such issues.[1]

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[1] For more information on restricted-use NCVS data access, visit https://bjs.ojp.gov/standard-application-process.

1. BACKGROUND

1.1 Motivation for NCVS State-Level Estimates

The National Crime Victimization Survey (NCVS) is one of two national indicators of crime in the United States. Historically, the NCVS sample was selected and weighted to be representative of the entire nation. Within a given subnational area (e.g., states), the sample members were not intended to be representative of the inferential population within those geographies. In addition to issues of validity, sample sizes within most subnational areas were insufficient to provide reliable estimates of crime victimization with a single year of data.

Because of this, most subnational crime statistics have traditionally been based on information from crimes being reported to the police. The Federal Bureau of Investigation's (FBI) Uniform Crime Reporting (UCR) Program compiles data from monthly law enforcement and crime incident reports to generate crime counts for the entire United States and for subnational areas, such as states. [2,3] Notwithstanding the value of these data, particularly with the expanded NIBRS, police statistics provide only a partial picture of crime given that less than half of violent victimizations and approximately one-third of property victimizations are reported to law enforcement (Thompson & Tapp, 2021).

Expanding the scope of the NCVS to produce valid estimates below the national level enhances the utility of the NCVS by providing information about the prevalence, characteristics, and response to crime at local or subnational levels. It is important to understand victimization and victimization risk at the local level because communities use that information to inform and improve their prevention efforts, their investigation and victim response practices, and the location and mix of their victim services in the community.

The Bureau of Justice Statistics (BJS) examined a variety of statistical methods to produce reliable data for specific states, including the use of pooled and reweighted NCVS data to produce direct estimates of criminal victimization in subnational areas (Moore, Couzens, & Berzofsky, 2021) as well as through small area estimation techniques (Fay & Diallo, 2015) These efforts have illuminated the victimization landscape at the state level and have made useful analytical tools available to researchers and others. Yet, the methods employed are often complex and require access to restricted-use data. Even after pooling multiple years of data, such analyses may be limited to a handful of states or be restricted to certain crime types or analysis domains due to small sample sizes, which increases the sampling error in estimates.

Furthermore, the reweighting methods may suffer from coverage error due to the pre-2016 NCVS sample being selected to represent the nation as a whole. For example, before the

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[2] The Federal Bureau of Investigation (FBI), through their Uniform Crime Reporting (UCR) Program, collects crime incident data from local law enforcement agencies throughout the U.S., through the National Incident-Based Reporting System (NIBRS). Beginning in 2021, the FBI's UCR Program transitioned to only collecting law enforcement crime data through NIBRS.

[3] Some states conduct their own victimization surveys (https://www.jrsa.org/jrsa-documents/victimization.html). These surveys, however, vary on periodicity, measures, precision, and methods, limiting comparability across place.

sample redesign, some states may only have contained urban counties in the national sample. In such a scenario, state-level estimates may be subject to bias even after reweighting if crime victimization differs between urban and rural counties.

1.2 2016 Sample Redesign

Beginning in 2016, BJS expanded the sample design of the NCVS to enable the creation of victimization estimates for the 22 most populous states[4] and large local areas within those states (e.g., core-based statistical areas). As part of the sample redesign, BJS increased the number of households selected annually and modified the process for selecting primary sampling units (PSUs) (i.e., large metropolitan statistical areas or MSAs, counties, or groups of counties) to minimize coverage error within the 22 largest states.

The sample redesign developed by BJS, in collaboration with the Census Bureau, was based on the assumption that, in states with average crime rates, data would have to be aggregated over 3 years to generate reliable estimates of violent victimization with a relative standard error (RSE) of no more than 10%.[5] This expansion of the NCVS sample in large states will now allow local stakeholders in many areas to use NCVS data to get a more accurate picture of local crime conditions and can serve as a tool to assess police performance and other criminal justice services. For more information on the 2016 sample redesign and the sample pilot boost that informed the sample redesign, see *Criminal Victimization 2016, Revised* (NCJ 252121) and *Criminal Victimization in the 22 Largest States, 2017–2019* (NCJ 305402).

1.3 Goals of Evaluation

Before releasing the state-level estimates and beginning a state-level time series, an evaluation of the quality of the state-level data and resulting estimates is necessary. Ensuring that state-level estimates from the NCVS are statistically accurate from both a validity and a reliability standpoint is vitally important. In addition, an investigation of findings that may be counterintuitive to what is known about crime rates generally based on other sources (e.g., UCR) is needed to understand why NCVS-based estimates may differ from these sources.

The expanded NCVS was designed to balance any potential impacts on data quality with the increased utility of a survey that would allow more expansive reporting at the subnational level. Within this framework, the goals of this evaluation are to (1) examine the redesigned NCVS to identify any potential issues or error sources that may jeopardize the validity of state-level estimates, and (2) evaluate estimates within the context of other available data sources.

Although many of the results in Section 2, *Evaluation of State-level Estimates*, are presented by state, the goal of this analysis is not to assess specific estimates of a given type for particular states, crime types, or domains (e.g., how is the estimate for the total number of violent

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[4] As of 2010, the 22 most populous were Arizona, California, Colorado, Florida, Georgia, Illinois, Indiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Texas, Virginia, Washington, and Wisconsin.

[5] For higher-crime states, states with the largest sample sizes, or crime types with higher rates (e.g., property crime), fewer years of data may be sufficient to reach this threshold. For smaller areas or for subgroup analyses of violent or property crime, more than 3 years of data may be necessary.

crimes experienced by females in Florida affected by undercoverage or overcoverage). Instead, the focus is on evaluating the sample design and data processing procedures to identify overarching issues or patterns in the data that may undermine the validity of estimates for all, or a large number of, states. For example, as seen in Section 2.1.5, the violent crime rate among persons with a race/ethnicity of "non-Hispanic, Other" is flagged as unreliable in 10 of the 22 states. For analyses involving this subpopulation, analysts should be aware that, due to small sample sizes in many states, victimization estimates may suffer from low precision. To alleviate this issue, it may be necessary to include additional years of data in the analysis, collapse subgroups, or exclude certain states from the analysis. The forthcoming state-level analysis user's guide will present additional details on these types of considerations.

2. EVALUATION OF STATE-LEVEL ESTIMATES

The primary objective of the analyses described in this section is to assess internal validity and provide external context for the state-level estimates. Internal validation is evaluated from a total survey error (TSE) perspective (Groves, et al., 2004; Groves & Lyberg, 2010) and examines whether the sample design, data collection protocols, and data processing procedures (e.g., weighting) are valid and based on appropriate statistical methodology. External context focuses on how the NCVS state-level estimates compare with and augment estimates from the FBI's UCR Program and whether any differences can be attributed to design or other differences, particularly reporting to police.

Due to the complexity of the NCVS and differences in sample design across large national surveys, benchmarks for many of the quality measures included in this evaluation do not exist. Thus, results were measured in terms of relative quality rather than absolute quality with a focus on congruity across the 22 largest states, with historical levels, and with patterns observed for the United States overall. A summary of the quality components analyzed as part of this investigation and the potential risks these factors pose to the validity of state-level estimates produced with NCVS data are presented in Section 3, *Conclusions*.

For this evaluation, state-level estimates of victimization and other relevant measures (e.g., coverage rates) were calculated using pooled data from 2017 through 2019. Data from the first half of 2016 were excluded from the analysis because a majority of respondents during this period were first-time interviewees with many of these interviews being conducted by new Census field representatives.[6] Data from the second half of 2016 were initially included in the analysis, but once BJS made the decision to publish state-level estimates using data from 2017 onward, the evaluation focused on the period from 2017 through 2019.

2.1 Internal Validation

The TSE paradigm catalogs the various sources of error that may impact estimates produced from survey data (Groves et al., 2004; Groves & Lyberg, 2010). These errors can emerge during various periods throughout the survey lifecycle, including sample design, data collection, post-processing, and analysis. Broadly, these sources can be grouped into sampling error, which results from basing estimates on a sample of the target population; and non-sampling error, which includes coverage error, nonresponse error, measurement error, and processing error. In the following subsections, the NCVS data and resulting state-level estimates are evaluated on these dimensions of the TSE framework.

2.1.1 Coverage Error

Definition: Coverage error occurs when the sampling frame excludes a portion of the target population. If the population that is excluded from the sampling frame is systematically different from the population included, then estimates could be biased.

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[6] For more information, see *Criminal Victimization, 2016: Revised*. https://bjs.ojp.gov/content/pub/pdf/cv16.pdf

Context: The NCVS sample design introduced in 2016 was devised to ensure that the sample members selected within each of the 22 most populous states would be representative of the population of households and persons age 12 or older within those states. However, an unfortunate sample selection or systematic patterns of nonresponse within certain subpopulations could lead to bias in state-level estimates. For each address selected, questions related to crimes experienced by the household are only asked once. The individual responsible for answering these questions (i.e., the household respondent) must be at least 18 years old and is the person most knowledgeable about the household. Each household member age 12 or older is also asked questions about crimes affecting persons that they experienced during the 6 months prior to the interview.

Methods: Coverage rates at the household and person levels are used to examine the coverage error. These rates are calculated by comparing the sum of the weights in the NCVS data from 2017 to 2019 to the same population estimates in the American Community Survey (ACS) as the sum of the weights in the NCVS data is intended to reflect the target population—for example, the nation or a given state. Coverage ratios are interpreted as follows:

- a coverage ratio equal to 1 indicates that the total estimates are the same between the NCVS and ACS (i.e., the NCVS perfectly covers the target population),

- a coverage ratio less than 1 indicates the ACS total estimate is larger than the NCVS total estimate (i.e., the NCVS undercovers the target population), or

- a coverage ratio greater than 1 indicates the ACS total estimate is smaller than the NCVS total estimate (i.e., the NCVS overcovers the target population).

Results: Coverage ratios at the person level and household level are plotted in *Figure 1* and *Figure 2*, respectively. Each blue point is a coverage ratio for one of the 22 largest states, and the red point is the national (50 states and DC) coverage ratio.

Person level

- Coverage ratios at the person level overall and by sex are near 1 for all states and nationally (see *Figure 1*).

- Nationally, coverage ratios by age group and by most race/ethnicity categories are near 1, but there is some variation across states (see *Figure 1*). Although the Census calibration process initially rakes age group and some race/ethnicity categories by state, the process then does a final national raking step that relaxes the state-level weight controls (U.S. Census Bureau, 2017). See the *National Crime Victimization Survey, 2016 Technical Documentation* for more information on the calibration process.

- The person-level coverage ratios are more variable across states for other characteristics (federal poverty limit [FPL], tenure, education, marital status, and employment status) with the most variability in FPL with all coverage rates between 75% and 160% (see *Figure 1*). Income is measured differently in the ACS and the NCVS, with the ACS having an open-ended question and the NCVS using categorical income leading to some

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difference in measurement.[7] To calculate the FPL, a continuous measure of income is necessary, so the income was interpolated in the NCVS (Couzens, Berzofsky, & Peterson, 2016) before calculating the FPL.

Household level

- Coverage ratios at the overall household level are near 1 nationally and for all states (see *Figure 2*).

- The coverage ratios for household-level characteristics differ from 1 more often than person-level characteristics (see *Figure 2*). Household-level weights are initially constructed from the weight of the principal person in the household,[8] and then a ratio adjustment is used to calibrate totals to the number of housing units in the ACS. In this national-level calibration step, no other demographic factors are controlled for, and no adjustment is done by state.

Figure 1:   Person-level coverage ratios by demographic characteristics, 2017–2019
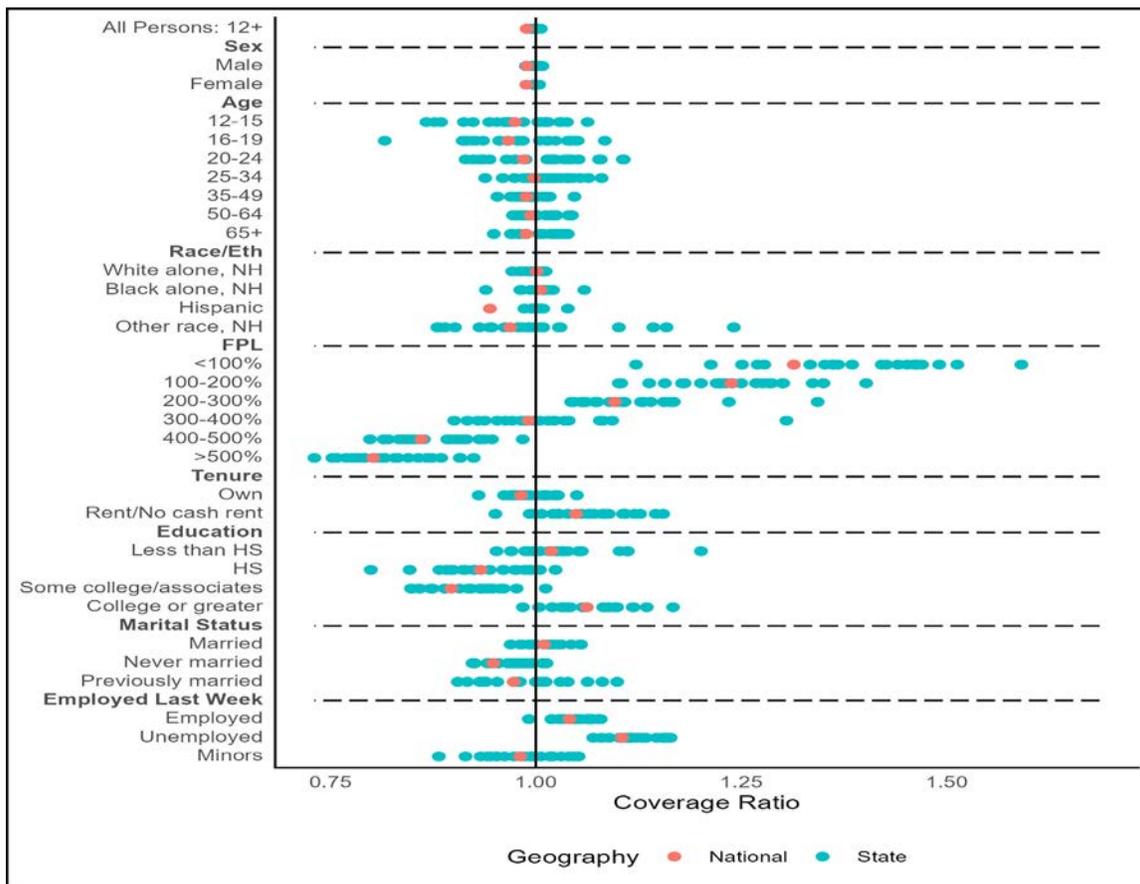
Note: FPL=Federal Poverty Limit; ETH=ethnicity; NH=non-Hispanic; HS=high school.

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[7] For more information on how income is measured in the ACS, see questions 43 and 44: https://www2.census.gov/programs-surveys/acs/methodology/questionnaires/2019/quest19.pdf

[8] In husband-wife households, the wife is designated as the principal person. For other households, the individual identified as owning, buying, or renting the dwelling is designated as the principal person.

Figure 2: Household-level coverage ratios by demographic characteristics, 2017–2019
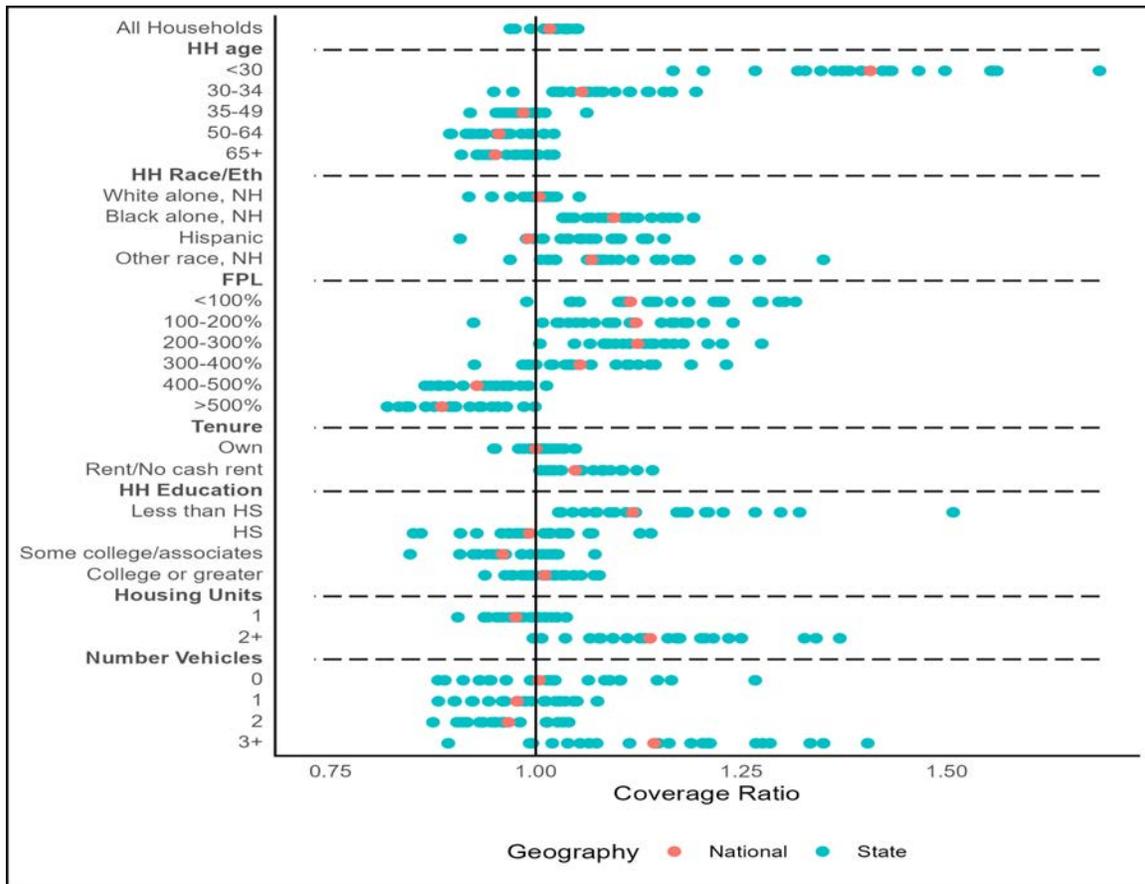
Note: FPL=Federal Poverty Limit; ETH=ethnicity; HH=household; NH=non-Hispanic; HS=high school.

2.1.2   Nonresponse Error

Definition: Nonresponse error quantifies the error due to a portion of the sample not participating in the survey. If the nonresponding units are different from responding units with respect to the outcome of interest, then estimates can be subject to nonresponse bias. The precision of estimates can also be affected by nonresponse due to smaller sample sizes.

Context: In the NCVS, nonresponse can occur at the household or person level. If nonrespondents have different victimization rates than the full sample, estimates of victimization rates will be biased. Although we cannot know the victimization rate for both the full sample and nonrespondents, other characteristics of the nonrespondents can be used as a proxy to evaluate the potential for nonresponse bias.

Methods: Response rates can only be calculated for characteristics where the variable is known for both respondents and nonrespondents. Because of this restriction, household nonresponse rates are only calculated at the overall level by state. Person-level response rates are calculated conditionally among responding households and thus allow response rates to be calculated among various subgroups. Additionally, the relative bias of the responding sample is calculated by comparing the percentage of respondents with various characteristics to the

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percentage of persons or households in the overall sample with the same characteristics and calculating the relative difference. For example, if 48.2% of the sample is male and 47.6% of the respondents are male, then the percentage relative bias is calculated as (47.6−48.2)/48.2*100= −1.3%. A negative relative bias indicates the respondents underrepresent a particular group, whereas a positive value indicates an overrepresentation.

Results: Nationally, the household-level response rate was 73% with response rates across the largest states ranging from 57% (NJ) to 81% (NC) (see *Figure 3*). Person-level response rates are higher given they are conditional on household response with the national person-level response rate at 83% and response rates within the 22 largest states ranging from 75% (IN) to 90% (MI) (see *Figure 4*). Response rates across states by sex, race/ethnicity, FPL, and tenure do not vary much from the national average response rates (see *Figure 5*). However, response rates vary more across states by age group, education level, and marital status.

Relative bias at the household level is evaluated by MSA status and urbanicity (see *Figure 6*). Both rural areas and areas not in an MSA are overrepresented among respondents compared with the overall sample. Person-level relative bias is examined by sex, age, race/ethnicity, and relationship to reference person (see *Figure 7*). Relative to the overall sample, younger age groups (persons ages 12–17 and 18–24) are underrepresented among respondents. Additionally, people other than the reference person are underrepresented in the sample.

Figure 3:   Household-level response rate, 2017–2019
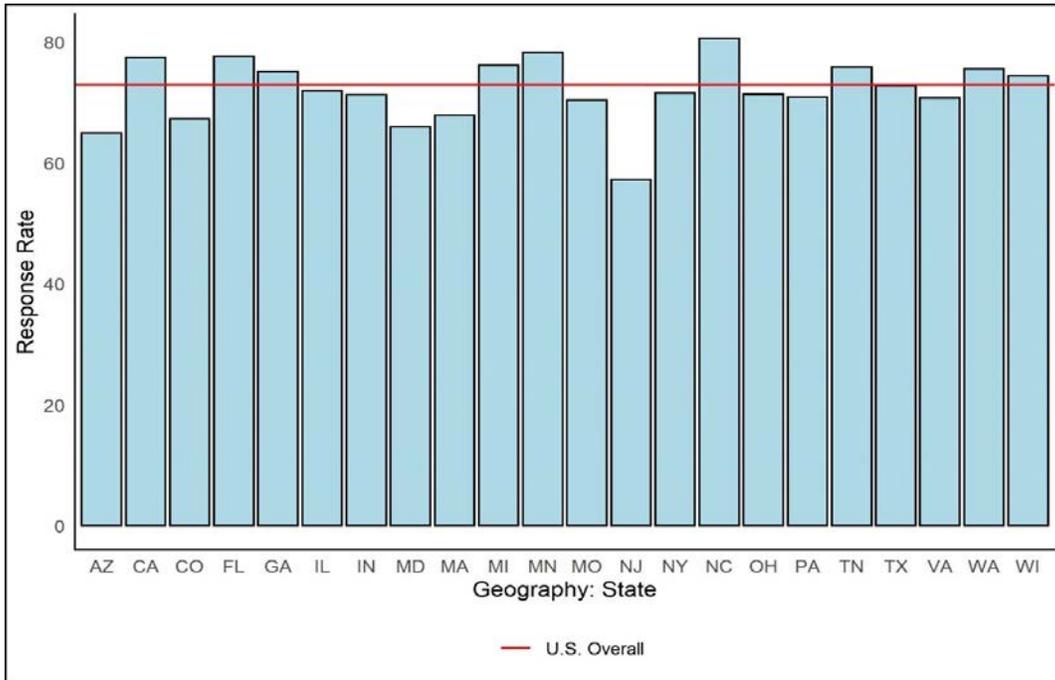
Figure 4:   Person-level response rate, 2017–2019
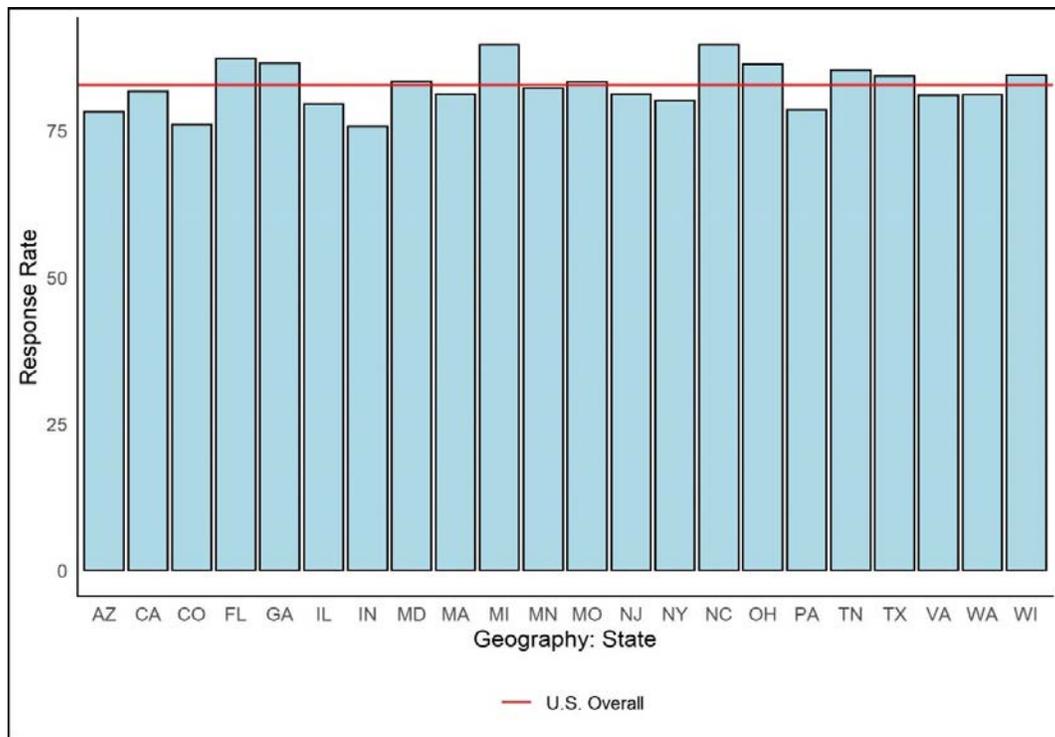
Figure 5:   Person-level response rate (by demographics), 2017–2019
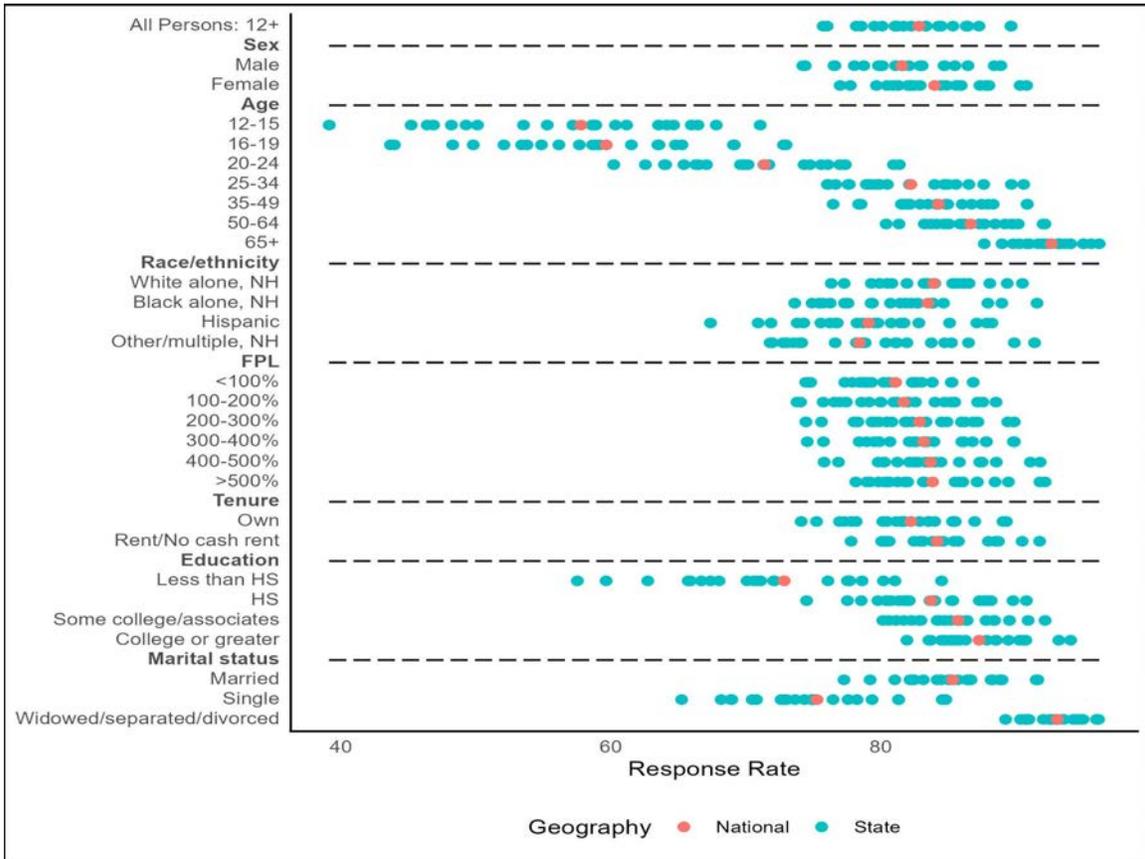
Note: FPL=Federal Poverty Limit; NH=non-Hispanic; HS=high school.

Figure 6:   Household-level absolute relative bias, 2017–2019
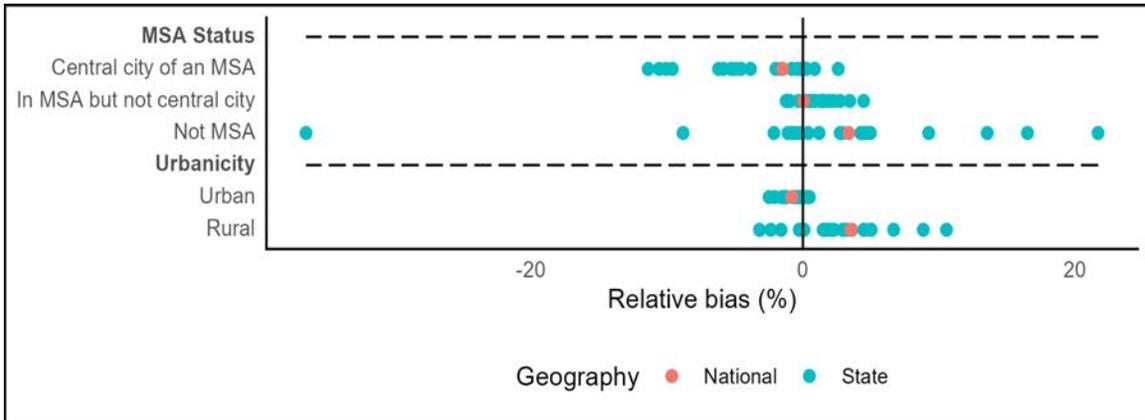
Note: MSA=Metropolitan Statistical Area.

Figure 7:   Person-level absolute relative bias, 2017–2019
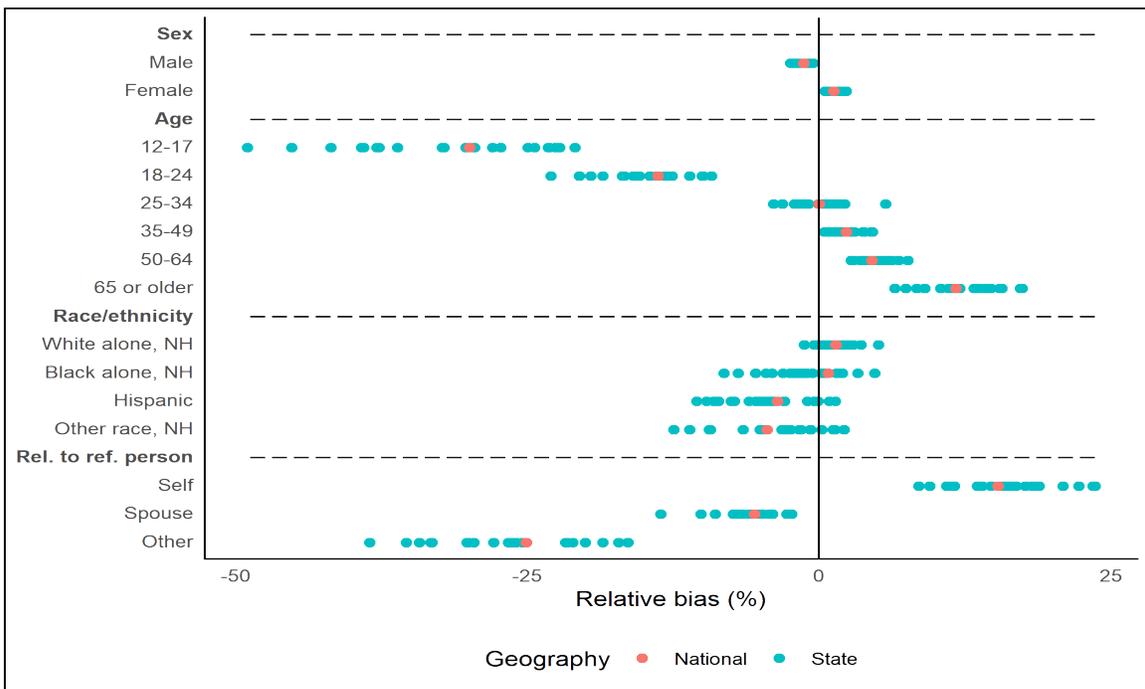
2.1.3   Measurement Error

Definition: Measurement error occurs when the construct being assessed (e.g., whether a respondent was the victim of a crime) is incorrectly measured during data collection. These errors can arise from respondents intentionally or unintentionally providing incorrect responses, interviewers unduly influencing responses or failing to adhere to data collection protocols, poor questionnaire design, and survey administration mode (Biemer, 2010). Measurement error is of particular importance for validating state-level estimates due to changes that were introduced as part of the 2016 NCVS sample redesign. For more information on the 2016 sample redesign, see *Criminal Victimization 2016, Revised* (NCJ 252121).

2.1.3.1   Time-in-Sample

Context: The first relevant change from the 2016 redesign was a large increase in the annual sample size. Between 2015 and 2016, the number of households interviewed increased by approximately 41% (Morgan & Kena, 2018). The increased sample size resulted in a higher proportion of respondents than normal being in their first panel wave. In a panel survey such as the NCVS, the first interview is unbounded and subsequent interviews are bounded. For bounded interviews, the interviewer can be more certain that victimizations reported by the respondent occurred only during the 6-month reference period by comparing incidents reported during the current interview with those reported during the prior interview. For the unbounded first interview, the NCVS incorporates a "bounding adjustment" into the survey incident weights to account for the likelihood that respondents are telescoping in victimizations (i.e., reporting victimizations that occurred outside the reference period). The bounding adjustment is the same for all violent crime incidents and property crime incidents, respectively, regardless of characteristics of the victim or household.[9] Without the adjustment, telescoped events could be a source of bias in NCVS estimates by inflating reports of victimization (Berzofsky, Moore, Couzens, Langton, & Krebs, 2020). Since January 2007, the unbounded interview from respondents in their first panel wave has been included in the computation of annual estimates, and the bounding adjustment has been applied to these respondents' weights to compensate for the potential inclusion of events that are outside the reference period. However, the increase in the number of unbounded interviews introduced during the phase-in period for the 2016 sample redesign warranted further examination.

Measurement error can also occur in the form of respondent fatigue due to the repeated nature of the panel design. Respondent fatigue, or panel conditioning, can occur if a respondent chooses not to report incidents during later interviews upon learning in prior interviews that reports of incidents result in longer interviews. This behavior can result in an underreporting of victimization incidents. The increased proportion of respondents in their first interview during the phase-in period for the 2016 sample redesign decreased the proportion of respondents in later interview waves (i.e., waves 2-7). Although this distribution across interview waves would likely reduce the impact of respondent fatigue on national victimization estimates, this reduction may not be uniform across the states included in the analysis.

Methods: Across the states, variations in time-in-sample (TIS), which counts the number of times an individual is eligible for the survey, or interview number, which counts the number of interviews completed by an individual, could indicate differential impacts of telescoping and fatigue on victimization estimates. To evaluate these potential effects, the distributions of TIS and interview number were calculated by state.

Results: Although the percentage of respondents in TIS 1 (25% in 2015; 45% in 2016) and interview number 1 (30% in 2015; 45% in 2016) increased substantially between 2015 and 2016, the percentages quickly normalized to pre-2016 levels. As shown in ***Figure 8***, between 2017 and 2019, the TIS distribution was relatively consistent across the 22 states, and the

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[9] See National Crime Victimization Survey, 2016 Technical Documentation (pp. 39-40) for more information on the bounding adjustment. https://bjs.ojp.gov/sites/g/files/xyckuh236/files/media/document/ncvstd16.pdf

percentage of TIS 1 cases was consistent with levels in 2015. Similarly, the distribution of interview number over this period was relatively stable across the 22 largest states, with the percentage of interview number 1 cases returning to pre-redesign levels (see *Figure 9*).

**Figure 8:   Distribution of person time-in-sample by state, 2017–2019**
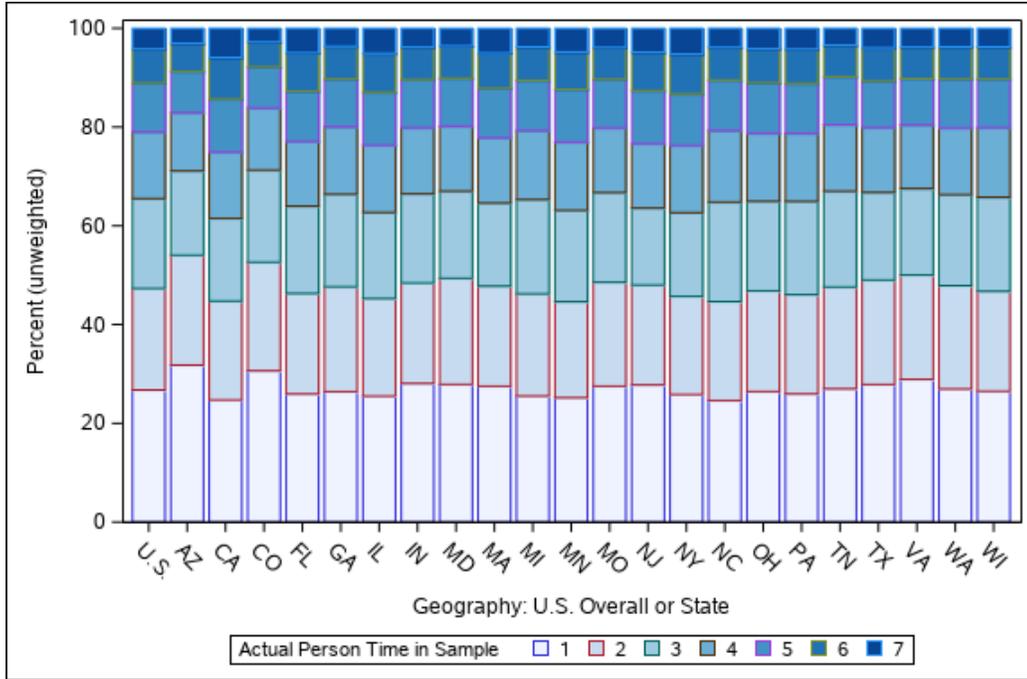
Figure 9:   Distribution of person interview number by state, 2017–2019
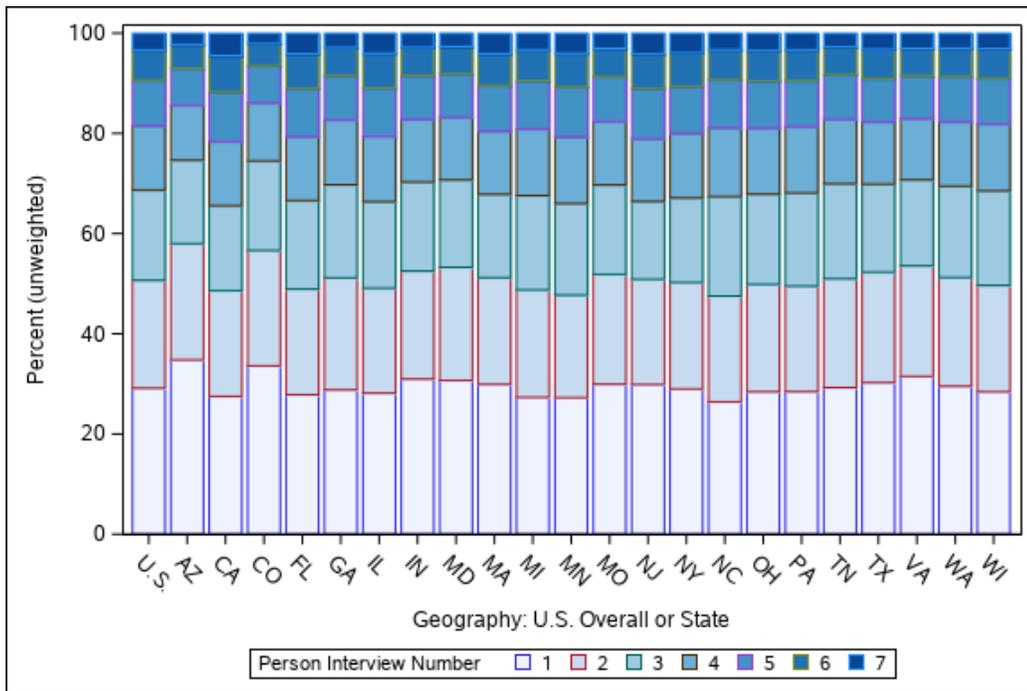
2.1.3.2   Interviewer Experience

Context: The second relevant change introduced as part of the 2016 redesign was an adjustment to the formation and selection of PSUs. Beginning in 2016, the NCVS introduced a new sample design to reflect the 2010 decennial census and to be representative of individual states and local areas as well as the United States as a whole. These changes resulted in an influx of new interviewers, which previous analyses have found to be associated with increased reports of victimization (U. S. Census Bureau, 2017).

Methods: To examine whether the increase in the number of field staff required to administer the expanded NCVS had a differential impact within certain states, interviewers were categorized into three groups based on their experience level: (1) experienced NCVS interviewers (i.e., interviewers with at least 6 months of experience on the NCVS), (2) experienced Census interviewers (i.e., interviewers with at least 6 months of experience conducting surveys for the Census Bureau but fewer than 6 months of experience administering the NCVS), and (3) new interviewers (i.e., interviewers with fewer than 6 months of experience conducting surveys for the Census Bureau, including the NCVS).

Results: The addition of new NCVS interviewers largely coincided with the large increase in sample size between 2015 and 2016. However, the staffing mixture quickly stabilized and returned to pre-2016 levels. Between 2017 and 2019, more than 80% of person-level interviews were conducted by experienced NCVS interviewers in all 22 states, and the percentage exceeded 90% in all but three states (AZ, TN, TX) (see ***Figure 10***).

Figure 10:   Distribution of interviewer experience by state, 2017–2019

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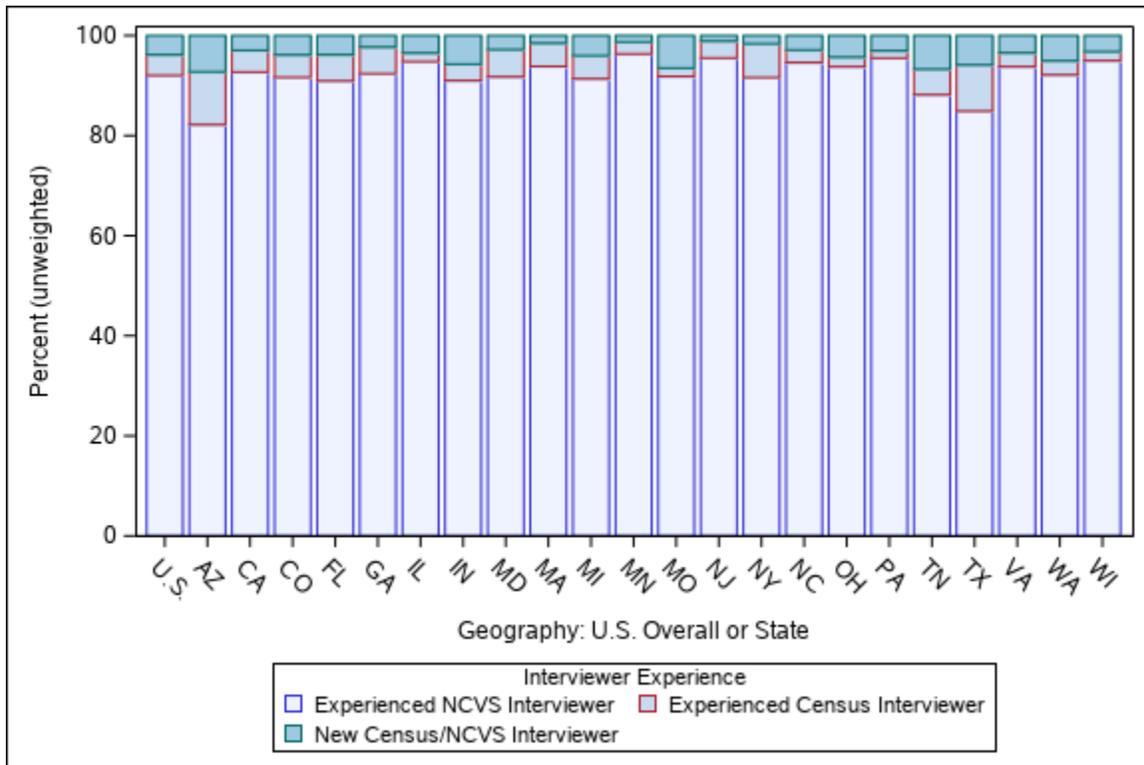
2.1.3.3 Proxy Respondents

Context: Another feature relevant to measurement error and the validation process, although unrelated to the 2016 redesign, is the use of proxy respondents. The NCVS allows proxies for household members ages 12-13, when the household member is temporarily unavailable, or when the household member is physically or mentally unable to complete the interview. Collecting data from a proxy, as opposed to the eligible household member, could affect reports of victimization or the characteristics associated with a reported incident.

Methods: To examine whether proxy respondents were a significant source of measurement error in state-level estimates, the percentage of interviews completed by a proxy respondent and the distribution of the reason for proxy interviews by state were examined.

Results: As seen in *Figure 11*, most states had between 4% and 8% of interviews completed by a proxy with a national rate of 6% of all interviews. Three states (CA, MD, and NJ) had proxy rates over 10%, whereas two states (CO and MN) had proxy rates under 3%. The reason a proxy interview was conducted was relatively consistent across the 22 states (see *Figure 12*). In most states, the most frequent reason for a proxy interview was that the household member was temporarily absent (~48%) followed by the household member being physically or mentally unable to complete the interview (~41%) and parental refusals for household members ages 12-13 (~11%). Some individual states deviated from this general pattern. For example, in Maryland, nearly 80% of proxy interviews were conducted because the household member was temporarily absent.

**Figure 11:   Proxy interview rate by state, 2017–2019**
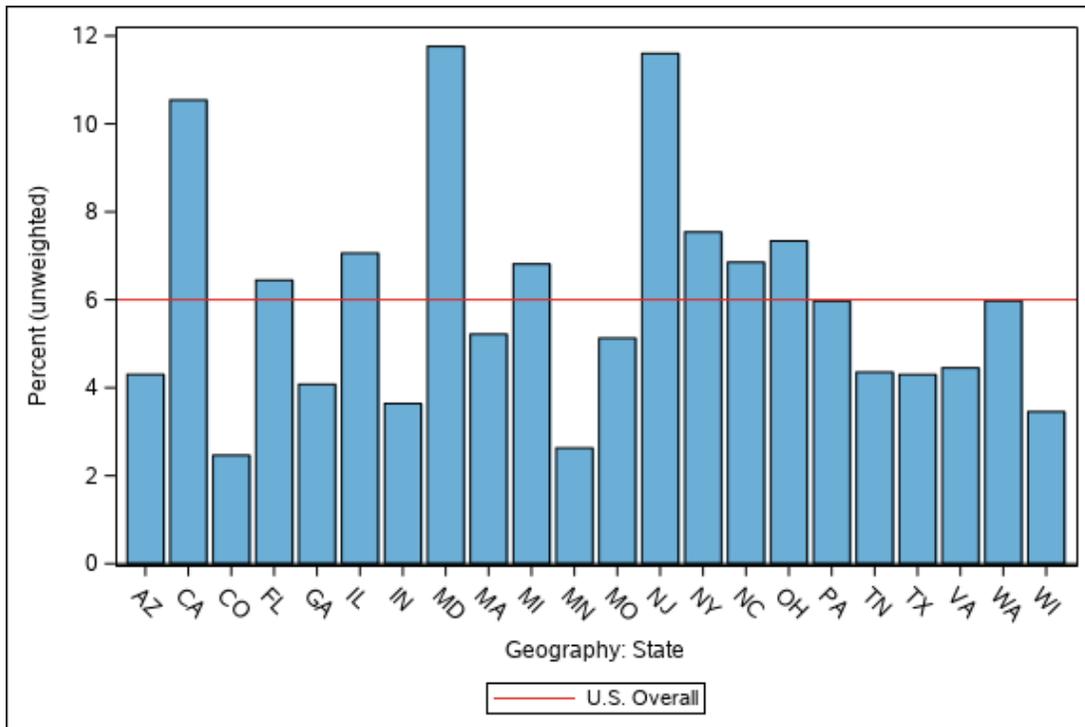
Figure 12:   Reason for proxy interviews by state, 2017–2019
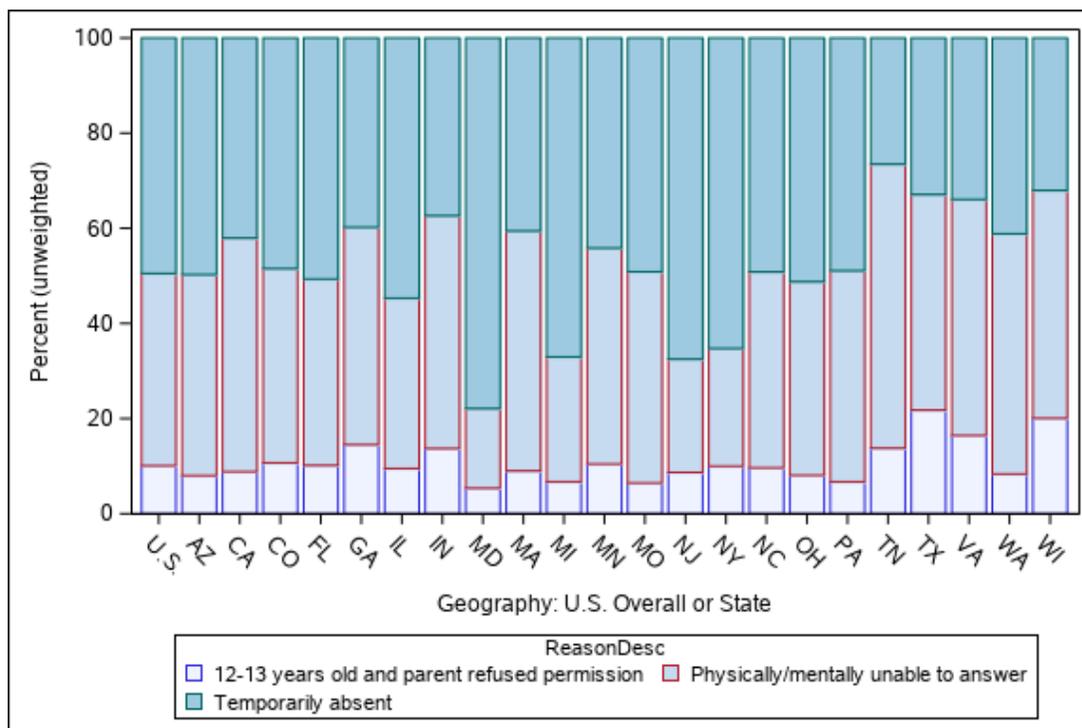
2.1.4   Data Processing Error

Definition: Processing error occurs during the data processing stage (i.e., after the conclusion of data collection) and can be introduced while editing or weighting the data. Although weighting adjustments are generally implemented to decrease the bias of estimates, they can also decrease the precision of estimates, which is a form of error.

2.1.4.1   Weight variability and extreme weights

Context: The weighting methodology for the NCVS is complex and involves multiple steps from the design weight, nonresponse adjustments, and ratio adjustment for the household and person weights (U.S. Census Bureau, 2017, pp. 35-43). Only the design weights and the first step of ratio adjustment are state-specific.

Methods: Any errors from the data processing stage are examined internally by the Census Bureau and should have no state-specific effects as the process is centralized. However, weight variability can impact the variance of estimates through design effects, which can vary across states. The weight distributions across states and the presence of extreme weights are examined. Extreme weights are defined as weights that are greater than the median weight plus three times the interquartile range (IQR).

Results: Using violin plots, the variability of household- and person-level weights by state is illustrated in *Figure 13* and *Figure 14*, respectively. These violin plots illustrate distributions similar to boxplots or histograms with the wider part of the plots indicating where

the bulk of the distribution lies. Additionally, the extreme percentiles (99.0, 99.2, 99.4, 99.6, 99.8, 100.0 [maximum]) are indicated with lines. States with larger populations have larger weights, on average, because a similar number of respondents is used to represent a larger population. The extreme weights look similar across the states with the maximum always separated from the 99.8th percentile.

For each state, extreme weights were identified as being greater than the median weight plus three times the IQR. The bar charts in *Figure 15* and *Figure 16* illustrate the percentage of household- and person-level weights that were extreme in each state along with the percentage nationally. For household-level weights, the percentage of extreme weights ranges from 0.7% (in CA) to 3.7% (in WA), and the percentage of extreme person-level weights ranges from 1.1% (in CA) to 6.6% (in IN). Victimization estimates in states with more extreme weights are more likely to be influenced by only a few cases, particularly for rare crime types. Some studies use weight trimming to reduce the impact of extreme weights, which reduces the variance of estimates and the impact of influential cases.[10]

Figure 13: Household-level weight variability by state, 2017–2019

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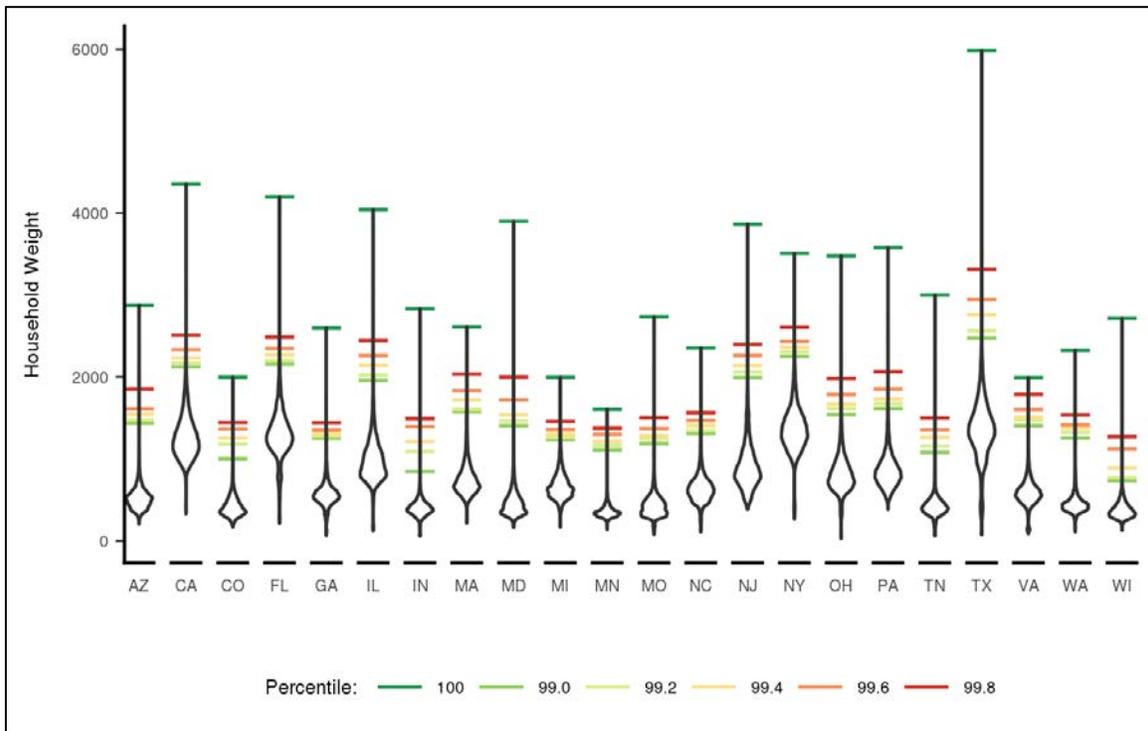
[10] Beginning with the 2020 NCVS data file, BJS began incorporating an additional weighting adjustment factor to moderate the impact of extreme cases on NCVS estimates. However, this change does not affect the findings outlined in this report. For more information on the research BJS conducted to develop this methodology, see *National Crime Victimization Survey: Assessment of Outlier Weights* (NCJ 302186, BJS, October 2021). Available at https://www.ojp.gov/pdffiles1/bjs/grants/302186.pdf.

Figure 14:   Person-level weight variability by state, 2017–2019
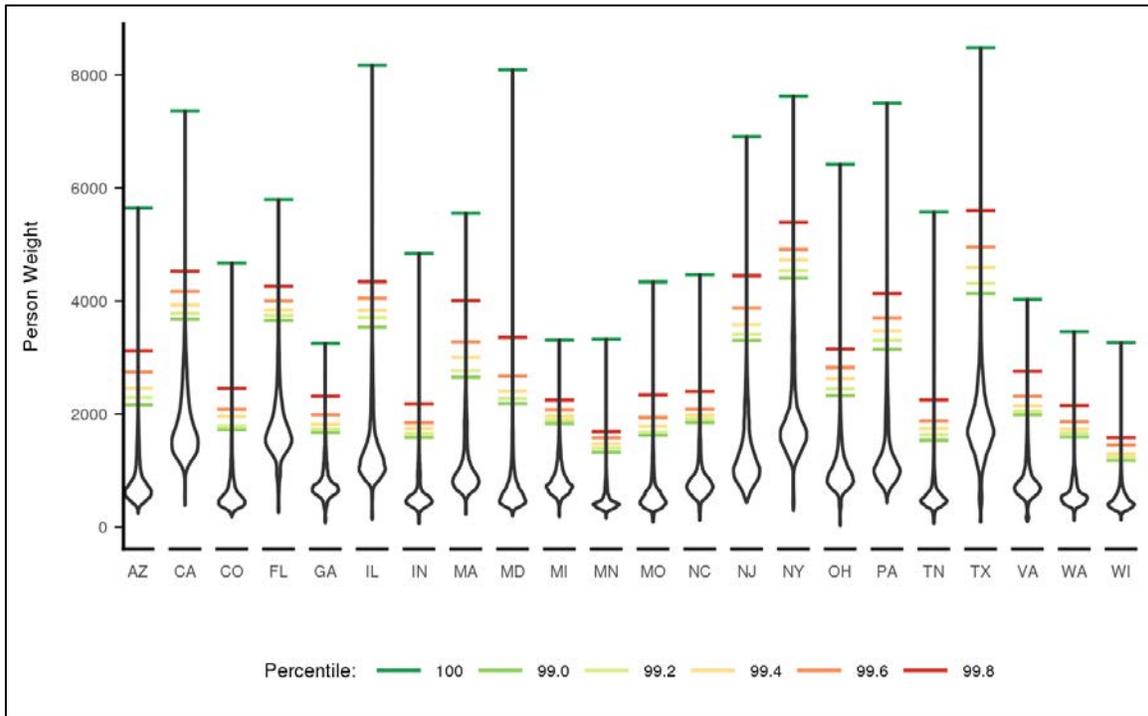

Figure 15:   Household-level extreme weight percentage, 2017–2019
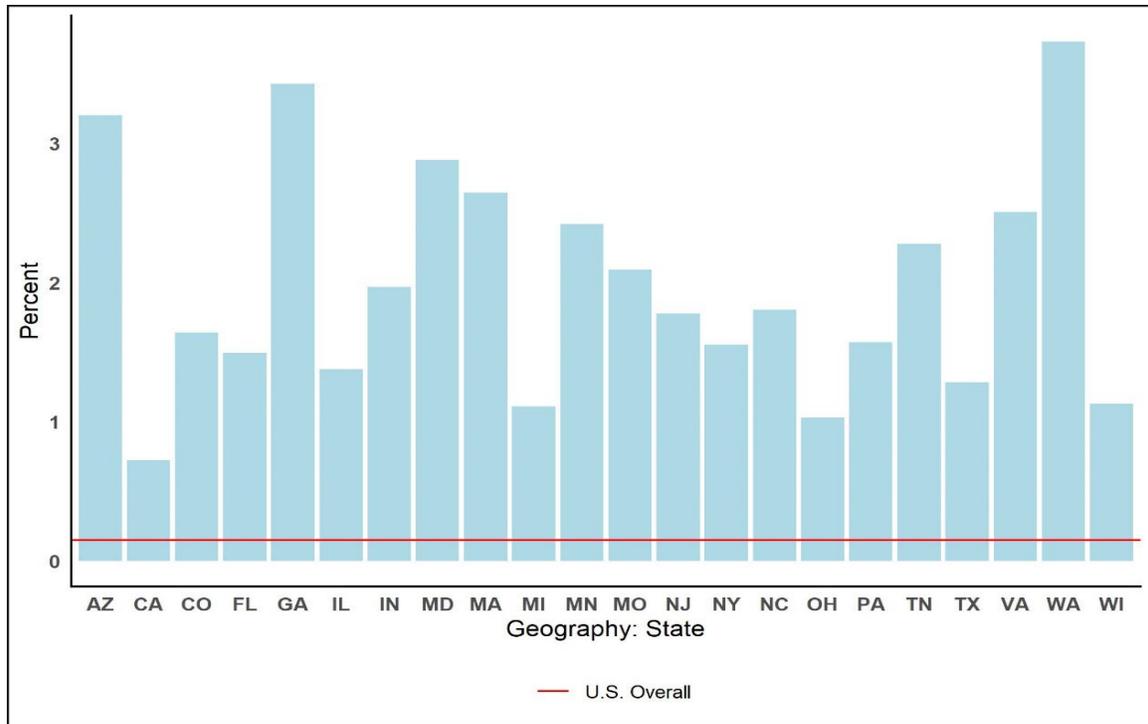
Figure 16:   Person-level extreme weight percentage, 2017–2019
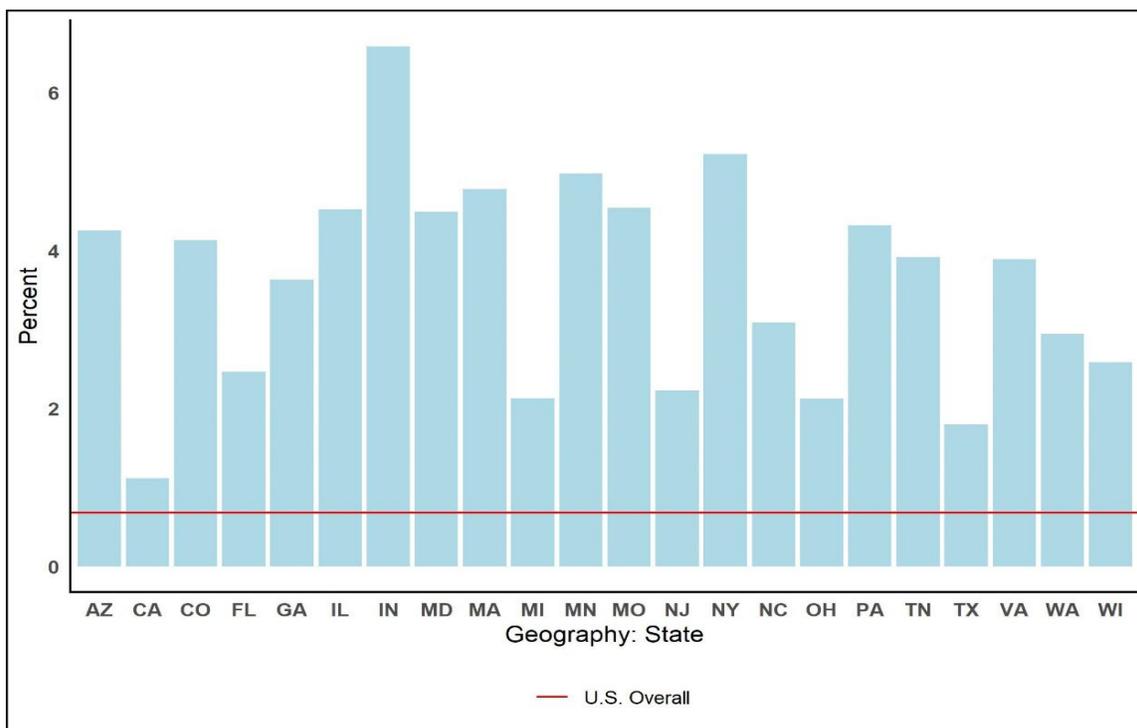
2.1.4.2   *Series weight adjustments*

Context: The final adjustment to the victimization weight is an adjustment for series victimizations. Series victimizations are incidents that are similar in nature but occur with such frequency (i.e., at least 6 times during the previous 6 months) that the victim is unable to recall the details of each individual event.[11] For series crimes, details are only reported for the most recent incident and the victimization weight is multiplied by the number of times the incident occurred (up to a maximum of 10) (U.S. Census Bureau, 2017, p. 40).

Methods: For each state, the impact of series crimes was examined in two ways:

1.   The percentage of incidents classified as series crimes
2.   Comparing victimization rates with and without the series adjustment

Results: Property crimes are less likely to be classified as series crimes. Between 2017 and 2019, only 0.8% of all property crime incidents were labeled as series crimes. Within the 22 largest states, this percentage ranged from 0.2% (in MA) to 1.6% (in IN) (see ***Figure 17***). Violent crimes are more likely to be classified as series incidents with 3.6% of all violent crime incidents labeled as a series crime between 2017 and 2019. This percentage varied widely across the 22 largest states, ranging from 0.5% (in VA) to 7.7% (in IN) (see ***Figure 18***).

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[11] For more information on series victimizations, see Methods for Counting High-Frequency Repeat Victimizations in the National Crime Victimization Survey (NCJ 237308, BJS, April 2012). Available at https://bjs.ojp.gov/content/pub/pdf/mchfrv.pdf.

Victimization rates were also calculated with and without the series crime adjustment and plotted along with a 45° reference line. Rates that are close to the reference line have less impact from series crimes. The series adjusted rates are always smaller than the unadjusted rates. None of the state-level property victimization rates are impacted to a significant degree by the series crime adjustment (see *Figure 19*) as they fall near—and are a similar distance to—the reference line. However, some states have rates far from the reference line for violent victimization, which indicates that series crimes contribute a significant amount to overall victimization estimates (see *Figure 20*). In Arizona, Indiana, Massachusetts, and Washington, the violent victimization rate increases by more than 40% when using the series adjustment, and these points fall far from the reference line. In contrast, the rate of violent victimization changes by less than 10% in Minnesota and Virginia, which are closest to the line. Nationally, the rate of violent victimization increases by 26% after applying the series crime adjustment.

Figure 17:   Percentage of property incidents classified as series crimes, 2017–2019
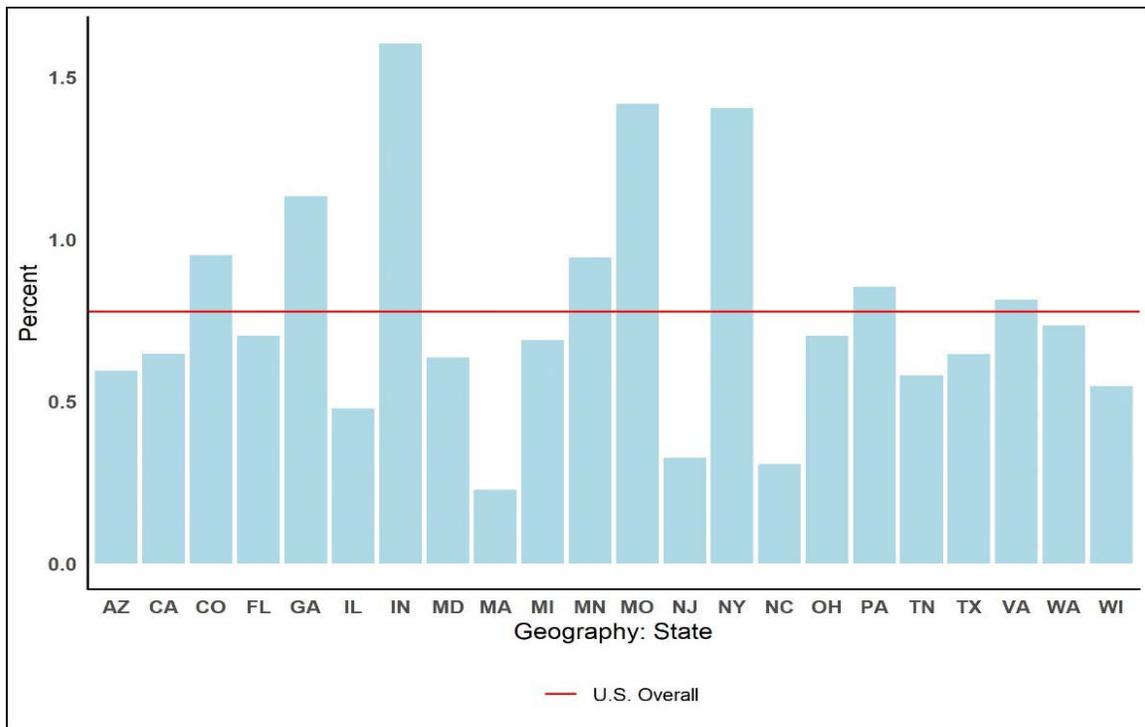
Figure 18: Percentage of violent incidents classified as series crimes, 2017–2019
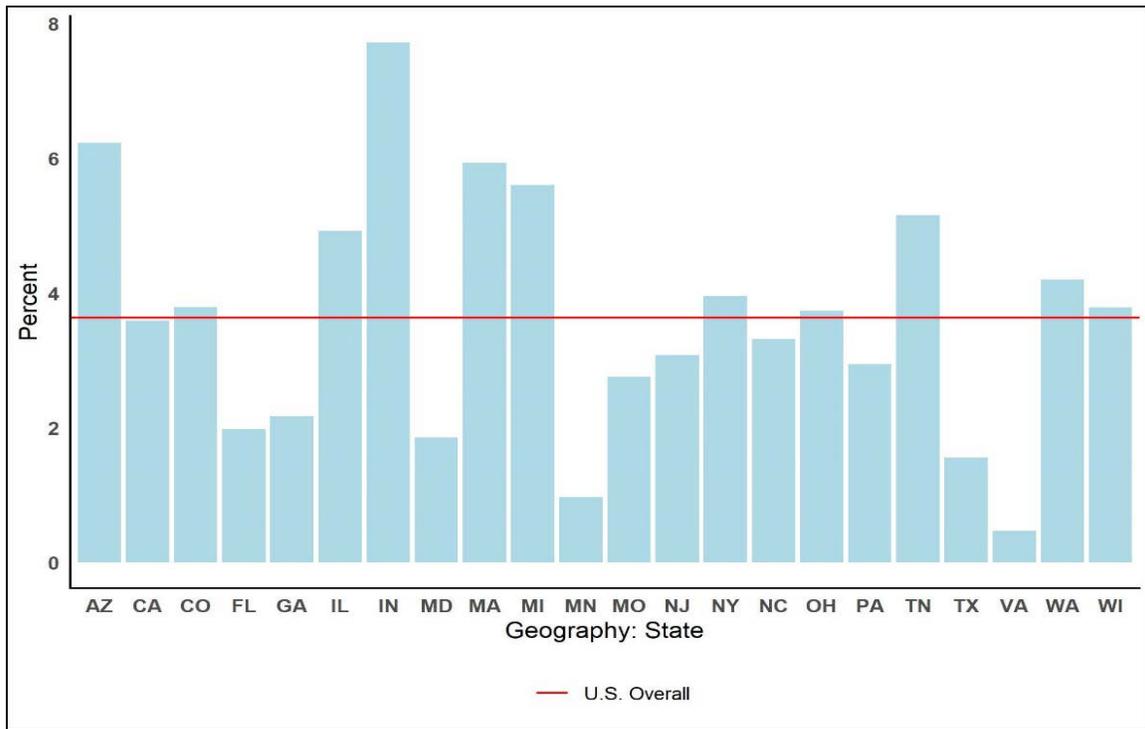
Figure 19: Property victimization rates with and without series adjustment, 2017–2019
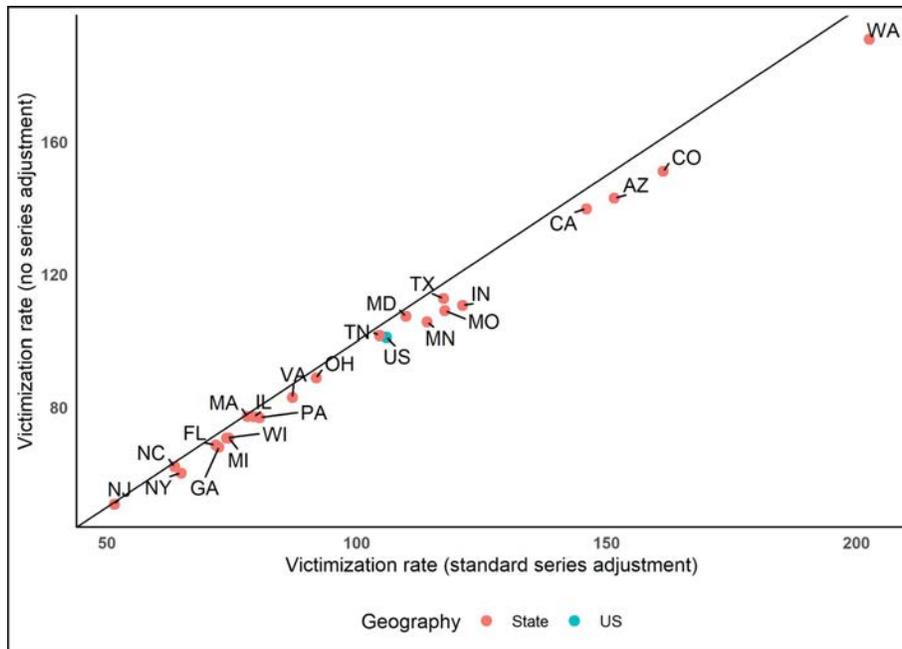
NOTE: The distance between each point and the reference line represents the impact of the series victimization adjustment on estimates. If no respondents in a particular state report a series victimization for a given crime type, then the impact of the series victimization adjustment will be zero and the point for that state will fall on the reference line.

Figure 20:   Violent victimization rates with and without series adjustment, 2017–2019
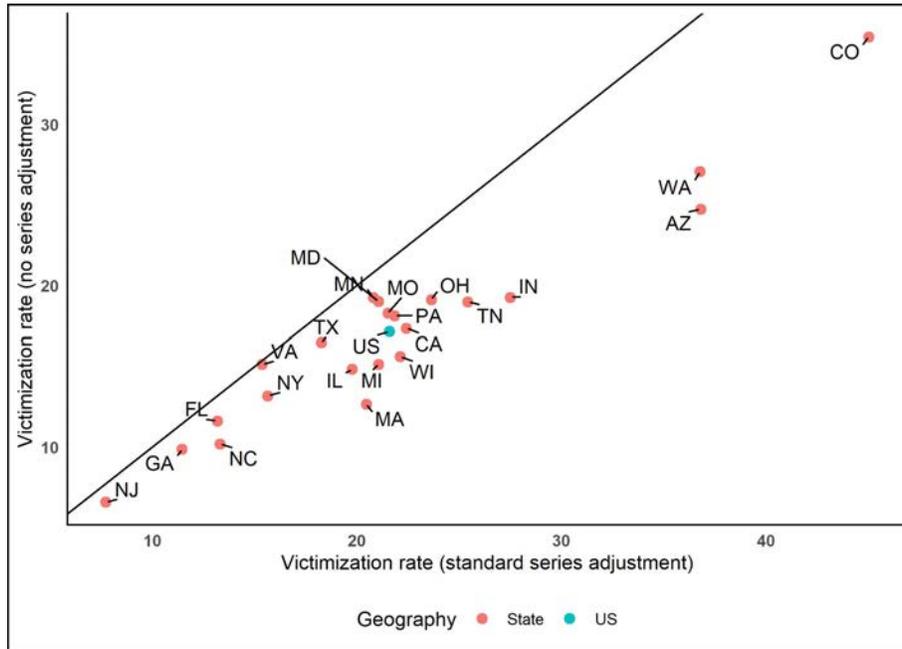
NOTE: The distance between each point and the reference line represents the impact of the series victimization adjustment on estimates. If no respondents in a particular state report a series victimization for a given crime type, then the impact of the series victimization adjustment will be zero and the point for that state will fall on the reference line.

2.1.4.3   TIS and bounding weight adjustments

Context: The NCVS weighting methodology uses a TIS adjustment factor and a bounding adjustment factor to adjust the victimization weight for some respondents. The bounding factor is used to adjust for telescoping error, which occurs when a respondent recalls events that occurred outside the period of interest. This bounding adjustment factor is applied to TIS-1 incidents. Additionally, a TIS adjustment factor is used when a large number of new cases are added to the sample, such as in 2016, and also accounts for telescoping (U.S. Census Bureau, 2017, pp. 39-40).

Methods: Victimization rates are calculated with and without the standard TIS and bounding adjustments applied. The percentage difference in the victimization rates is calculated relative to the standard adjustment.

Results: Both the TIS and bounding adjustment factors reduce the victimization rates to account for telescoping. Although there are no state-specific adjustment factors, the impact of these factors is homogenous for property victimization rates (see *Figure 21*) and violent victimization rates (see *Figure 22*). The average impact on property crime rates is 13.6% and ranges from 11.1% in Minnesota to 16.9% in Florida. The average impact on violent crime rates is 15.5% and ranges from 9.4% in Massachusetts to 21.4% in Maryland. There is little variability among the states, indicating that the impact of the TIS and bounding adjustment is homogenous across states and nationally.

Figure 21: Property victimization rates with and without TIS and bounding adjustment, 2017–2019
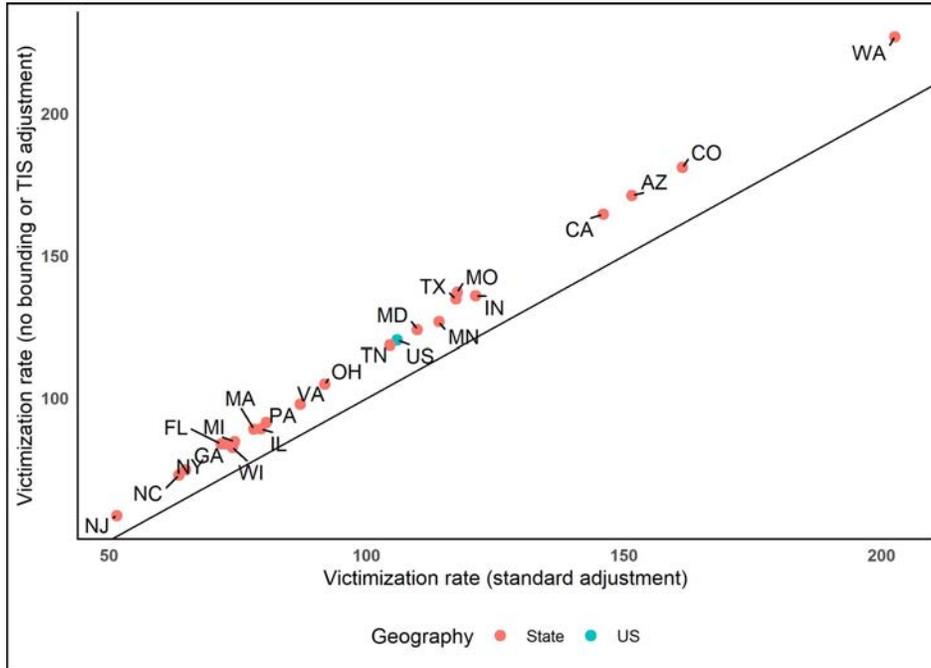
NOTE: The distance between each point and the reference line represents the impact of the TIS and bounding adjustments on victimization estimates.

Figure 22: Violent victimization rates with and without TIS and bounding adjustment, 2017–2019
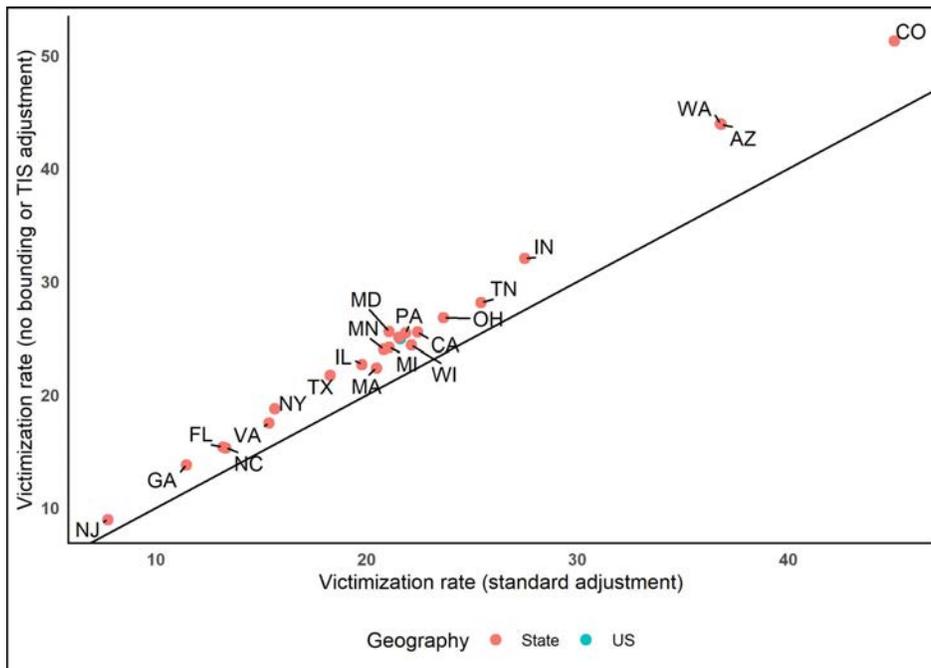
NOTE: The distance between each point and the reference line represents the impact of the TIS and bounding adjustments on victimization estimates.

2.1.5   Sampling Error

Definition: Sampling errors arise when a sample, rather than a census, is used to estimate characteristics of a target population. The difference between a statistic generated from the sample and the unknown population parameter is the sampling error. These types of errors affect both the bias and variance of statistics generated from a sample and are dependent on characteristics of the sample design, including the methods used to select the sample and the size of the sample (Biemer, 2010).

2.1.5.1 Estimate precision

Context: The NCVS uses a complex multi-stage stratified sample design with sample members being interviewed every 6 months for a total of seven interviews (U.S. Census Bureau, 2017). As part of the sample redesign in 2016, the sampling scheme (e.g., stratification, selection of PSUs) and sample size were modified to accommodate the expanded goal of the NCVS: to produce victimization estimates for the 22 largest states and large local areas within those states. Although the impact of these changes on national victimization estimates is likely to be minimal (i.e., the increased sample size would be offset by increased design effects), the adequacy of the new sample design to produce subnational estimates with adequate levels of precision required further validation.

Methods: Because the true population parameters are unknown (e.g., the rate of violent crime in Arizona), it is not possible to estimate the contribution of bias to the sampling error of state-level estimates. However, the RSE of state-level estimates produced from the sample is one way to quantify the sampling error.[12]

Results: *Figure 23* shows the RSE of the violent crime rate by state. In all but four states (MA, NJ, NC, and WI), the RSE of the violent crime rate is less than 15%, with Massachusetts having the highest RSE at 27.2%. For comparison, in 2021, the single-year national estimate for the rate of violent crime had an RSE of 4.4% (Thompson & Tapp, 2021). However, using NCVS data from 2017 to 2019, only five states (CA, CO, MN, TX, and WA) met the stated goal of the redesigned sample to produce state-level violent crime estimates with an RSE of no more than 10% using 3 years of data. The distribution of RSE across the 22 largest states for additional crime types is summarized in *Table 1*. The number of states whose estimate would be flagged as unreliable (i.e., an RSE greater than 50% or an estimate that is based on 15 or fewer sample cases[13]) is also provided. *Table 2* presents summary statistics for the violent crime rate RSE and the number of estimates that would be flagged across the 22 largest states for various demographic characteristics of the victim. Generally, estimates for rarer crime types (e.g., rape/sexual assault, intimate partner violence) and subpopulations that are smaller or less likely

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[12] The calculation of the relative standard error (RSE) is equivalent to the calculation of the coefficient of variation (CV) cited in BJS publications. See National Crime Victimization Survey, 2016 Technical Documentation (pp. 48) for more information on the CV.
https://bjs.ojp.gov/sites/g/files/xyckuh236/files/media/document/ncvstd16.pdf

[13] BJS typically flags estimates based on 10 or fewer sample cases. However, estimates for this analysis were conducted within a Census Research Data Center and disclosure avoidance rules implemented by the Census Disclosure Review Board required the use of a higher threshold (i.e., 15).

to be a victim of violent crime (e.g., non-Hispanic Other,[14] persons age 65 or older) have higher RSEs. The higher sampling error in estimates for rarer crime types and small subpopulations may make identifying differences across states, subpopulations, or time more difficult.

Figure 23:   Relative standard error of violent crime rate by state, 2017–2019

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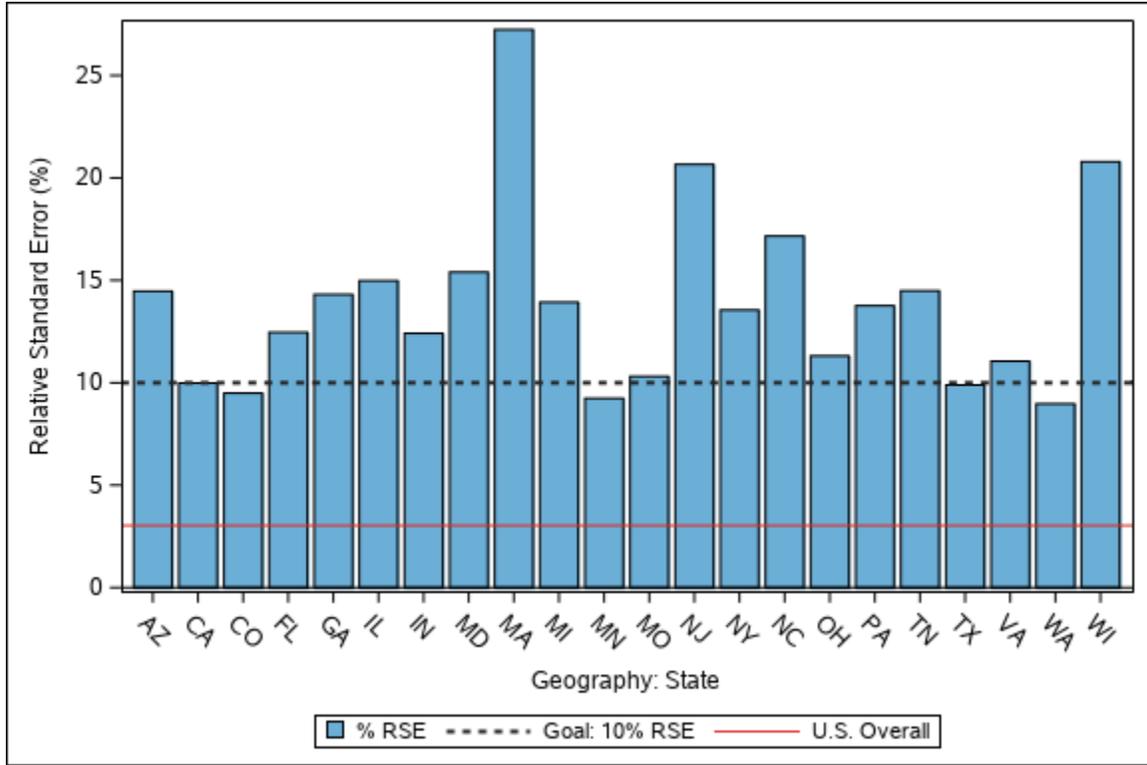
[14] Includes Asians, Native Hawaiians and Other Pacific Islanders, American Indians and Alaska Natives, and persons of two or more races.

Table 1:   Distribution of relative standard error across 22 largest states by type of crime, 2017–2019

Type of Crime	Relative Standard Error				Number of States with Estimates Flagged as Unreliable[a]
	Mean	**Min**	**Median**	**Max**	
Violent crime	13.90	8.97	13.66	27.24	0
Rape/sexual assault	36.73	20.88	38.83	49.66	5
Robbery	29.13	16.70	26.42	58.39	2
Assault	15.14	9.89	15.09	31.21	0
Aggravated assault	23.10	11.64	21.86	52.78	1
Simple assault	17.05	9.09	16.70	34.74	0
Violent crime excluding simple assault[b]	18.11	10.78	16.64	31.52	1
Selected characteristics of violent crime					
Domestic violence[c]	29.43	17.35	26.46	48.37	0
Intimate partner violence[d]	36.10	16.57	37.62	60.96	2
Stranger violence[e]	18.13	10.09	17.07	26.33	0
Violent crime involving injury	23.41	15.02	21.57	38.97	1
Violent crime involving a weapon	21.80	11.60	20.88	45.86	1
Property crime	6.31	4.04	6.48	9.80	0
Burglary[f]	15.03	8.61	13.86	22.83	0
Motor vehicle theft	22.38	10.14	21.99	34.50	3
Other theft	6.64	3.62	6.93	9.13	0

[a] Estimates are flagged as unreliable when the relative standard error is greater than 50% or the numerator of the estimate is based on 15 or fewer sample cases.

[b] Includes rape or sexual assault, robbery, and aggravated assault.

[c] Includes the subset of violent victimizations that were committed by intimate partners or family members.

[d] Includes the subset of domestic-violence victimizations that were committed by intimate partners, which include current or former spouses, boyfriends, or girlfriends.

[e] Includes the subset of violent victimizations that were committed by someone unknown to the victim.

[f] Includes only crimes where the offender committed or attempted a theft and does not include trespassing.

Table 2:   Distribution of violent crime rate relative standard error across 22 largest states by victim demographic characteristics, 2017–2019

Victim demographic characteristic	Relative Standard Error				Number of States with Estimates Flagged as Unreliable[a]
	Mean	**Min**	**Median**	**Max**	
Sex					
Male	17.64	12.47	16.79	27.13	0
Female	18.24	11.31	16.78	36.72	0
Race/ethnicity					
White[b]	17.73	10.32	17.43	29.96	0
Black[b]	32.67	18.58	29.90	67.65	3
Hispanic	31.59	12.68	29.44	67.56	4
Other[b,c]	42.79	23.61	38.52	88.10	10
Age					
12–17	35.09	14.63	33.32	79.42	4
18–24	29.89	18.83	30.31	48.70	1
25–34	25.52	14.04	24.19	38.13	0
35–49	26.20	10.87	24.58	68.00	1
50–64	26.46	15.83	24.04	59.42	2
65 or older	31.53	19.77	29.70	56.60	6
Marital status					
Never married	18.16	12.32	17.11	31.08	0
Married	24.36	14.24	22.33	61.78	1
Previously married	22.76	14.95	21.41	40.54	1
Education					
Less than high school	25.27	14.25	24.02	41.75	1
High school graduate or equivalent	25.26	16.44	22.58	39.63	0
Some college	22.33	15.55	19.90	37.81	0
College degree or greater	22.70	12.57	21.40	42.76	0
Household income					
Less than $25,000	21.82	9.69	21.19	46.92	1
$25,000–$49,999	21.79	12.12	21.66	38.51	1
$50,000–$74,999	29.36	18.77	28.64	52.55	1
$75,000 or more	22.88	11.30	21.22	44.88	0

[a] Estimates are flagged as unreliable when the relative standard error is greater than 50% or the numerator of the estimate is based on 15 or fewer sample cases.

[b] Excludes persons of Hispanic origin (e.g., "white" refers to non-Hispanic whites).

[c] Includes Asians, Native Hawaiians and Other Pacific Islanders, American Indians and Alaska Natives, and persons of two or more races.

2.1.5.2 Unequal weighting effects

Context: Most national surveys, including the NCVS, incorporate a complex sample design with oversampling and clustering to increase cost-efficiency and to ensure a diverse and representative sample. However, this complex design can be less efficient from a precision standpoint than a simple random sample due to an increase in sampling error. A sample is less efficient when a larger sample size is required under a complex design to achieve the same level of precision as under a simple random sample.

Methods: The unequal weighting effect (UWE) can be used to quantify the sampling error introduced by a complex sample design. The UWE measures the variability of sampling weights and is a measure of the loss of efficiency from this complex design with larger UWEs being associated with larger variances and less precision. Under a simple random sample, all sample members will have the same probability of selection leading to uniform sampling weights and a UWE of 1. Under a complex sample design where different sample members have different probabilities of selection, the sampling weights will vary, resulting in a UWE greater than 1 and an increase in the variance of estimates.

Results: *Figure 24* and *Figure 25* show the UWEs of the household- and person-level weights by state, respectively. At the household level, the UWE for all states except one (MD) is less than or equal to 1.15. Person-level UWEs are slightly higher than household-level UWEs, although values are generally less than 1.25. At both the household and person levels, the UWE for each state is less than the UWE for the United States overall. This is likely due to weights within states being more homogeneous than weights across states.

**Figure 24:   Household-level unequal weighting effects by state, 2017–2019**
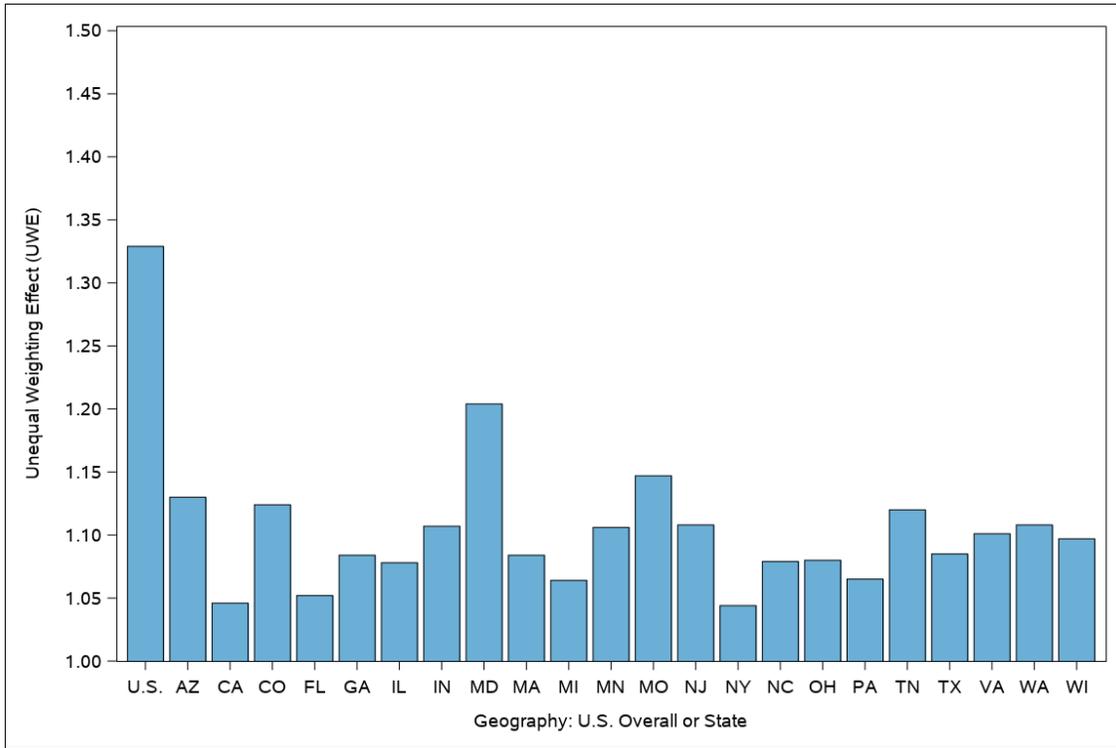
Figure 25:   Person-level unequal weighting effects by state, 2017–2019
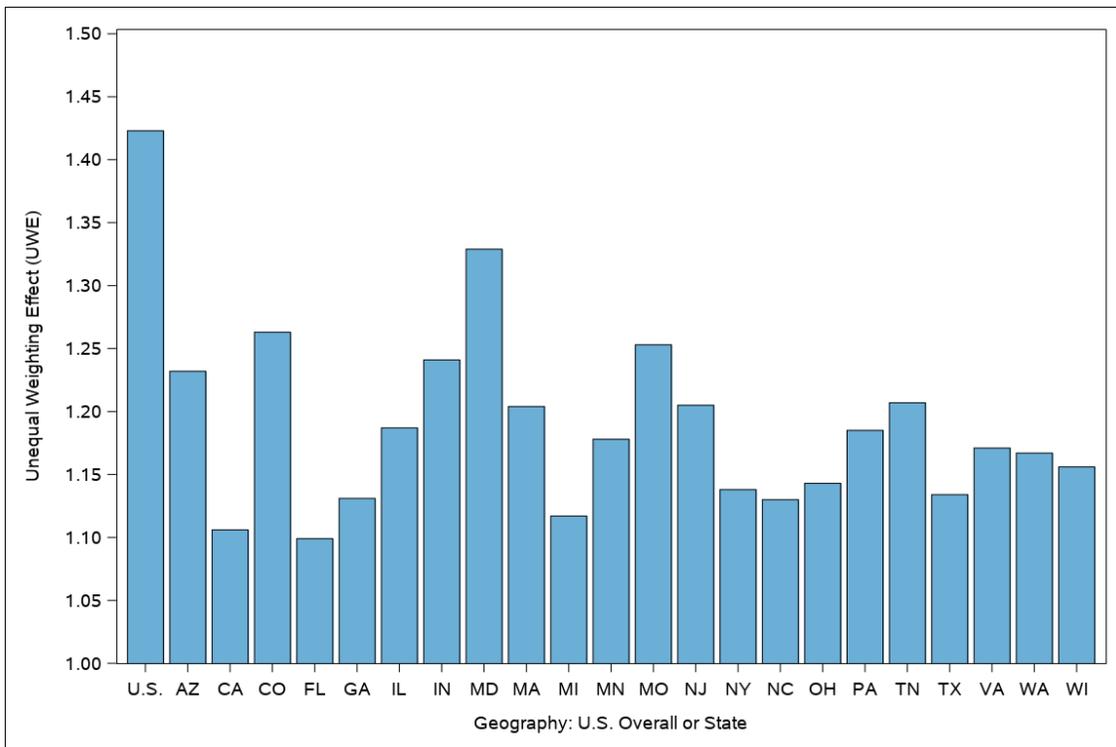
2.2   External Context

Crimes known to the police through the FBI's UCR Program vary in many important ways from results captured by the NCVS. The NCVS and the UCR measure a set of offenses that overlap but are not identical and use different data collection procedures to measure these incidents. Examples of these differences include the following:

- The UCR includes murder, non-negligent manslaughter, and crimes committed against commercial establishments, whereas the NCVS excludes these crime types.

- The UCR includes crimes against persons younger than age 12, whereas the NCVS estimates rates and totals among the population of persons aged 12 or older.

- The NCVS includes sexual assault that involves grabbing or fondling, which is excluded from the UCR.

- Property crime rates in the UCR are calculated per person rather than per household as is done in the NCVS.

- The NCVS includes verbal threats for some crime types (e.g., rape, assault), which are generally excluded from the UCR.

- The NCVS captures crimes not reported to the police, which constitutes a significant proportion of all crimes and can vary by characteristics of the victim and incident.

Context: Even when trying to account for many of these differences—for example, by focusing on overlapping crime types, restricting the NCVS to crimes reported to the police, and calculating UCR property crime rates per household—key distinctions remain between the two collections, so complete agreement is not expected. That said, it is important to compare these estimates to provide more context about crime at the local level.

Methods: For this analysis, NCVS victimization estimates—for crimes reported to the police—from the 22 largest states were compared to estimates from the UCR's Summary Reporting System (SRS). UCR rates are based on published estimates from the *Crime in the U.S.* reports for 2017–2019.[15] An attempt was made to use the UCR Program data (i.e., Offenses Known and Clearances by Arrest) to make the UCR and NCVS estimates more similar and to obtain estimates for additional crime types (e.g., simple assault, total violent crime). However, several issues were encountered that prevented such comparisons, including (1) agencies not reporting any data, (2) agencies reporting fewer than 12 months of data, and (3) agencies only reporting total assaults (i.e., not broken out into aggravated assault and simple assault).[16]

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[15] UCR estimates were obtained from https://ucr.fbi.gov/crime-in-the-u.s.

[16] Data from the National Incident-Based Reporting System (NIBRS), which includes more details about crime incident reports, were also evaluated for comparison with the NCVS. However, due to low NIBRS participation rates at the time of this analysis among most of the 22 largest states, comparisons were restricted to published UCR estimates based on SRS. For example, four of the 22 largest states were not NIBRS certified at the time of this evaluation, and in nine additional states included in this investigation, NIBRS reporting agencies covered less than 50% of the states' population.

Results: The NCVS and UCR estimates were compared in absolute and relative terms. Absolute comparisons evaluate the difference between the NCVS rate of victimization for a particular crime type (e.g., property crimes) and the same estimate in the UCR. Relative comparisons are made by examining the rank order of states (e.g., highest victimization rate to lowest victimization rate) across the two sources. A comparison of victimization rates from the NCVS and UCR showed the following general patterns:

- In absolute terms, person-level crime types showed better agreement than household-level crime types.

  ○ The NCVS 95% confidence interval (CI) for violent crime excluding simple assault included the UCR estimate in 14 of the 22 states (see *Figure 26*).

  ○ The NCVS 95% CI for overall property crime included the UCR estimate in zero states (see *Figure 27*). However, the 2017–2019 UCR rate of property crime for the U.S. overall (58.3 victimizations per 1,000 households) is approximately 60% higher than the NCVS rate of property crimes reported to police (36.2 victimizations per 1,000 households).[17]

  ○ Note that *Figure 26* and *Figure 27* use different scales for the y-axis. The average CI half width is 1.47 victimizations per 1,000 persons for violent crime excluding simple assault and 5.87 victimizations per 1,000 households for property crime.

- When comparing the relative rank order of the 22[18] largest states, household-level crime types (see *Figure 29*) showed better agreement than person-level crime types (see *Figure 28*).

  ○ When grouping the states into high (rank 1–7), medium (rank 8–14), and low (rank 15–22) categories (i.e., the shaded areas in *Figure 29* and denoted by the blue points) based on the victimization rate, the NCVS and UCR estimates "matched" in 11 to 15 states for the four household-level crime types.

  ○ Using this same grouping, the NCVS and UCR estimates "matched" in six to 11 states for the four person-level crime types analyzed.

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[17] Property crime rates in the UCR are typically reported per 100,000 persons. To make the UCR rates more congruent with NCVS estimates, the total number of property victimizations was divided by the number of households estimated to be in the NCVS population and multiplied by 1,000. For additional information about the differences between the NCVS and UCR, see *The Nation's Two Crime Measures, 2011–2020* (NCJ 303385, BJS, February 2022). https://bjs.ojp.gov/content/pub/pdf/ntcm1120.pdf

[18] For rape, robbery, and aggravated assault, some NCVS estimates were suppressed based on the statistical disclosure limitations policy of the Census Disclosure Review Board leading to fewer than 22 states included in the comparison.

Figure 26: **NCVS victimization rate and 95% Cl for violent crimes excluding simple assault reported to police and UCR victimization rate by state, 2017–2019**
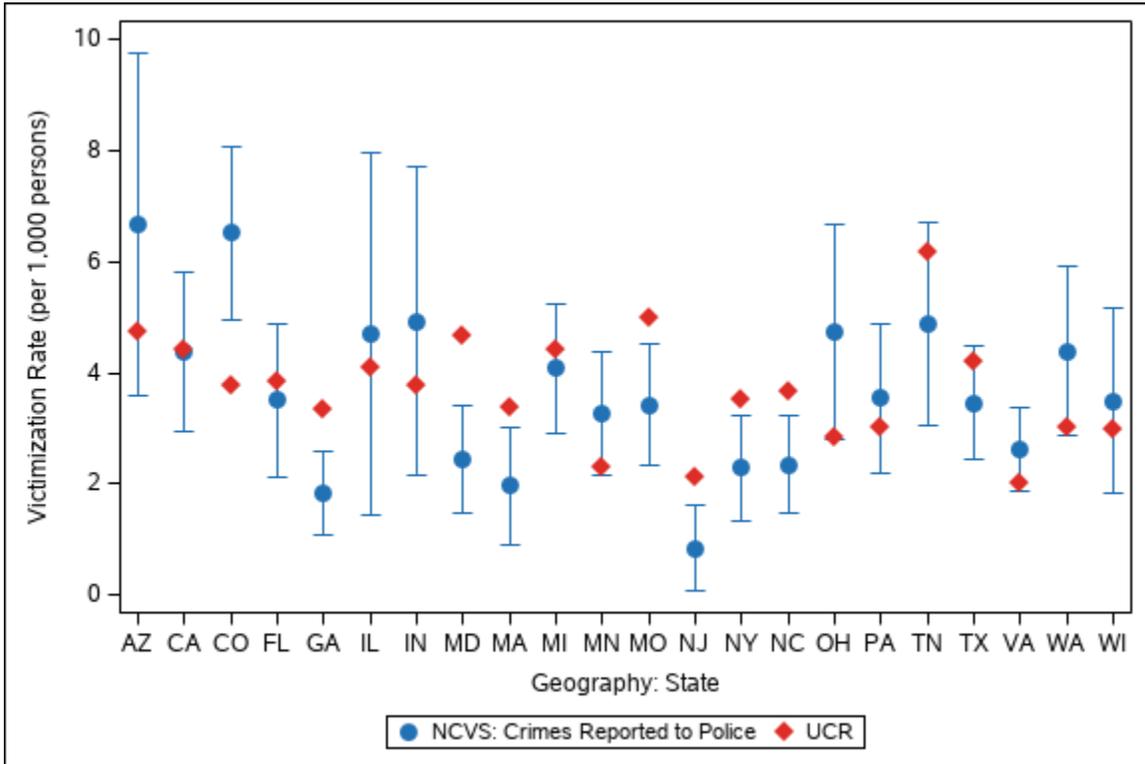

Figure 27: **NCVS victimization rate and 95% Cl for property crimes reported to police and UCR victimization rate by state, 2017–2019**
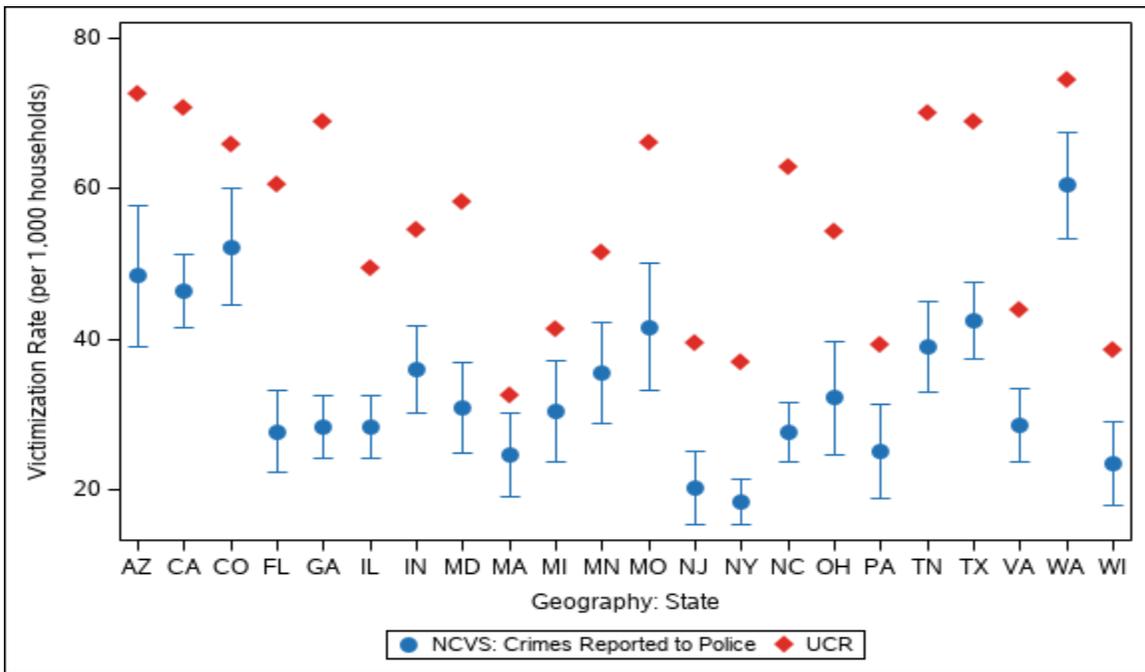
Figure 28:   Comparison of state rankings between the NCVS and UCR by person-level crime type, 2017–2019
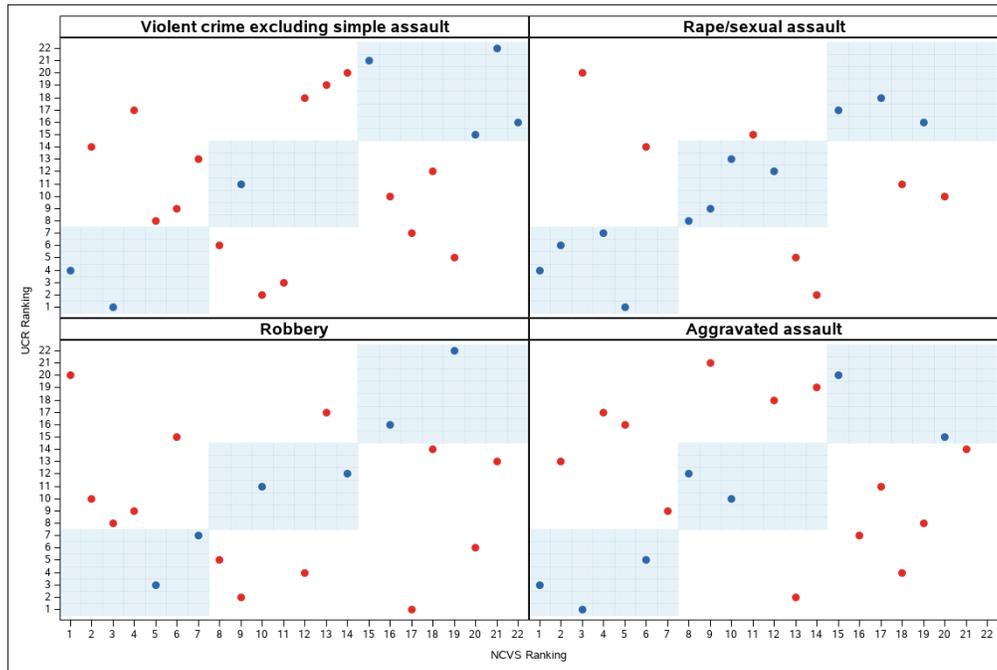
Note: Rankings shown in blue represent states that are in the same category (i.e., high, medium, or low) for both the NCVS and UCR. Rankings shown in red are states where the NCVS category and the UCR category disagree.

Figure 29:   Comparison of state rankings between the NCVS and UCR by household-level crime type, 2017–2019
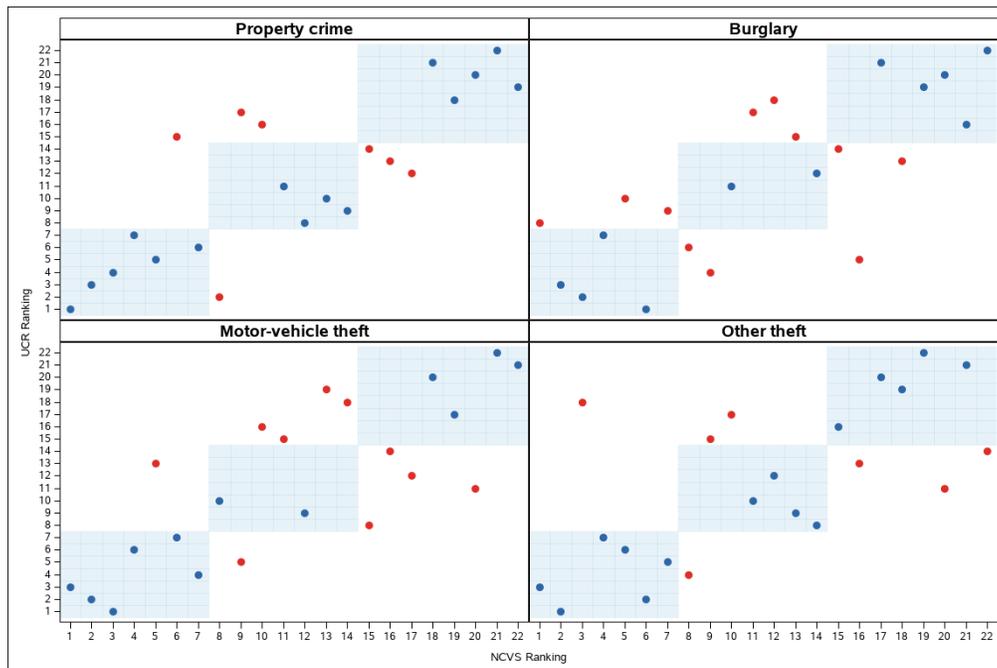
Note: Rankings shown in blue represent states that are in the same category (i.e., high, medium, or low) for both the NCVS and UCR. Rankings shown in red are states where the NCVS category and the UCR category disagree.

3. CONCLUSIONS

The primary objectives of this evaluation were to (1) examine the redesigned NCVS from a TSE perspective to identify any potential issues or error sources that may jeopardize the validity of state-level estimates, and (2) evaluate how the NCVS state-level estimates compare with and potentially augment estimates from the FBI's UCR program and whether any differences can be attributed to design or other differences.

These factors were examined within the broader context of the substantive goal of the redesigned NCVS sample to maintain nationally representative estimates of victimization, while also allowing estimates of criminal victimization to be produced within the 22 most populous states. *Table 3* summarizes the main findings from this evaluation.

Table 3:   Summary of Findings

Evaluation Criteria	Level of Concern			Notes
	Low	Moderate	High	
Coverage Error		X		Estimates in some states may not be representative of underrepresented groups (e.g., persons with a high school education) or overrepresented groups (e.g., persons with a college education) are systematically different with respect to victimization.
Nonresponse Error		X		Higher levels of nonresponse for some population subgroups (e.g., persons ages 12–15) may negatively impact precision and increase nonresponse bias.
Measurement Error	X			Distribution of TIS and interviewer experience generally stabilized by 2017 after the phase-in of the new design.
Data Processing Error		X		Victimization estimates, particularly for rarer crime types, may be significantly influenced by series weights. State-level estimates are more susceptible than national-level estimates to being influenced by respondents with a large series weight because of the smaller sample sizes.
Sampling Error	X			Estimate precision generally failed to meet stated goal, but few estimates were flagged as unreliable.
Comparisons with UCR*	X			Differences in estimates can generally be attributed to methodological differences between the NCVS and UCR.

*UCR comparison conclusions are as of the time of this analysis.

As described in *Table 3*, the primary concerns identified during this evaluation are related to subpopulation estimates within states. Some subgroups had much lower response rates than others, which could affect domain estimates. These effects would most likely include lower precision and estimates that are more susceptible to being influenced by a small number of respondents. For overall state-level estimates and for domains that are controlled for during the weighting process, nonresponse and coverage bias should be minimized by the raking procedures implemented by the Census Bureau. However, analysts should consider these factors when producing estimates for subpopulations within states and consider including additional years of data, as needed, to remediate these issues if identified. Despite these concerns, no issues were

identified during this examination that would, wholesale, call into question the validity of state-level victimization estimates produced from the redesigned NCVS. Although the redesign initially resulted in some significant irregularities in the first half of 2016 (e.g., an increase in the number of first interviews), these anomalies were largely abated by 2017 and should have negligible effects on state-level estimates produced from the 2017–2019 NCVS.

Rather than undermining state-level estimates from the NCVS, the lack of agreement with the UCR likely reflects the differences, strengths, and limitations of these two, complementary data collection methods, and the significant contribution each one makes to a more complete understanding of patterns of criminal victimization. Based on the validation study findings, state-level estimates for the 22 largest states meeting BJS's standards for quality and precision can be produced and released to the public beginning with the 2017 collection year. Three-year estimates (at a minimum) are required to ensure that estimates achieve adequate precision. A forthcoming state-level analysis user's guide will also be available to analysts with guidance on generating victimization estimates and standard errors, identify potential issues with subnational estimates produced with the NCVS, and identify strategies for mitigating such issues.

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