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Measuring Socioeconomic Status (SES) in the NCVS: Background, Options, and Recommendations

Report

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Measuring Socioeconomic Status (SES) in the NCVS: Background, Options, and Recommendations

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CONTENTS

Section Page

Introduction 1

1 Socioeconomic Status—Importance and Measurement 2

1.1 Background 2

1.2 Use of SES in Crime and Victimization Literature 5

1.3 Measuring SES in Other Federal Surveys 10

2 Recommendation for Using Measures of Socioeconomic Status in Future Reports From the National Crime Victimization Survey 12

2.1 Single Measure as a Proxy for SES 12

2.1.1 Common Single Measures of SES 12

2.1.2 Alternative Single Measures for SES 19

2.1.3 Macro-level Single Measures of SES 20

2.2 Composite SES Measure for NCVS 21

2.2.1 Factors Considered for Composite SES Indexes 21

2.2.2 Considered SES Indexes 22

2.2.3 Assessing the Quality of the SES Indexes 29

2.3 Conclusions and Recommendation 31

2.4 Operationalizing SES in Future Reports 34

2.5 How to Use the SES Index When Analyzing Crime Victimization Data 35

3 Improving the Measurement of Socioeconomic Status in the National Crime Victimization Survey 36

References 43

A Referenced Tables 49

LIST OF TABLES

Table Page

2-1. Victimization rates by type of crime and household income, 2010 13

2-2. Distribution of income among NCVS respondents, 1998–2012 14

2-3. NCVS income categories (question 12a) 15

2-4. 2012 Federal poverty level for the 48 contiguous States and the District of Columbia 16

2-5. Comparison of population distribution as a percentage of the Federal poverty level as estimated by the NCVS and the CPS, 2008, 2009, 2010, 2011, and 2012 16

2-6. Victimization rates by type of crime victimization and percentage of Federal poverty level, 2010 17

2-7. Victimization rates by type of crime and education level, 2010 18

2-8. Distribution of level of education by year, 2004–2012 18

2-9. Victimization rates by type of crime and 6-month employment status, 2010 19

2-10. Victimization rates by type of crime and housing tenure, 2010 20

2-11. SES index options for NCVS 23

2-12. Unweighted sample size and weighted percent distribution of respondents by SES index options, 2010 25

2-13. Correlation matrix between NCVS characteristics considered for an SES index 25

2-14. Logistic regression of violent and property crime victimization by SES index characteristics 26

2-15. Victimization rates by type of crime and SES Index 1, 2010 28

2-16. Correlations among SES index options and index characteristics by split sample 31

2-17. Option for reclassifying SES Index Option 1 into three categories 34

LIST OF FIGURES

Figure Page

2-1. Violent crime victimization rates by SES for three index options, 2010.....24

2-2. Property crime victimization rates by SES for three index options, 2010.....24

INTRODUCTION

The National Crime Victimization Survey (NCVS) is the most important source of information on criminal victimization in the United States. Each year, data from a nationally representative sample of about 40,000 households comprising nearly 75,000 persons are obtained on the frequency, characteristics, and consequences of criminal victimization. The survey enables the Bureau of Justice Statistics (BJS) to estimate the likelihood of experiencing rape, sexual assault, robbery, assault, theft, household burglary, and motor vehicle theft victimization for the population as a whole as well as for segments of the population.

One of BJS's goals for the NCVS is to continually improve its utility so that victimization can be better understood as crime and its correlates change over time. Recently, BJS has been interested in assessing the measurement of variables that have long been associated with victimization, including factors such as socioeconomic status (SES). The goals of this paper are to (1) understand how other studies have measured SES and identify variables within the NCVS that could be used to measure or be proxies for SES, (2) explore options for creating an SES index that could enhance BJS's analysis of victimization and its correlates, and (3) assess how components of a potential SES index are currently measured in the NCVS and consider ways in which they can be improved.

Section 1 summarizes the literature on how SES has been measured in the scientific literature and how it relates to crime and victimization. ***Section 2*** summarizes the recommended approach for creating a measure of SES via an index that includes imputed income data. Finally, ***Section 3*** recommends changes to the NCVS that would address the current limitations and allow for better measurement of SES and its components.

SECTION 1. SOCIOECONOMIC STATUS—IMPORTANCE AND MEASUREMENT

1.1 Background

Socioeconomic factors are vital determinants of human behavior and functioning across the lifespan (American Psychological Association [APA], 2007). Most commonly referred to as socioeconomic status (SES) within the health, social, and criminological literature, the terminology for socioeconomic factors can vary widely (e.g., "socioeconomic position," "social disadvantage," and "socioeconomic deprivation"). Broadly, the APA describes SES as the social standing or class of an individual or group, often measured as a combination of education, income, and occupation (APA, 2007). SES also captures an individual's or a group's access to financial, social, cultural, and human capital resources (APA, 2007; National Center for Education Statistics, 2012; Shavers, 2007).

As Oakes and Rossi noted in 2003, there is a substantial gap between studies that evaluate how SES is measured and studies that include SES as a variable of interest, and this situation has not changed appreciably in the past decade. There is no standard method for measuring or deriving SES, and researchers use a variety of approaches depending on the conceptual modelor study design being employed and the data available (Braveman et al., 2005). The traditional indicators of SES are described below.

- **Income**: Gross household income is the most common measure of income used in calculations of SES. Rather than reporting salary as a continuous variable, most researchers define low, medium, and high income categories, often using the official Federal poverty line as a reference point (McLaughlin, Costello, Leblanc, Sampson, & Kessler, 2012) or dividing them into tertiles or quartiles, depending on the distribution of the sample.

- **Education**: Education is often considered a critical indicator of SES because it conveys information regarding earning potential across the lifespan, whereas income and occupation provide a snapshot of an individual's social and economic situation (Shavers, 2007).

- **Occupation**: Occupation, irrespective of salary, is a traditional indicator of SES because it is believed to convey information regarding an individual's power, income, and educational requirements associated with various positions in the occupational structure (APA, 2007). Most SES calculations using occupation specify categories of labor and rank those categories. For example, the Registrar General's Scale categorizes and ranks occupations as follows, from lowest to highest SES: Unemployed, Unskilled Manual Labor, Skilled Manual Labor, and Professional Labor (Szreter, 1984).

The traditional measures of SES—or the "big three" as they are sometimes called (National Center for Education Statistics, 2012)—can be measured at the individual, family, or household level. They have been referred to in the health literature as "compositional" approaches to measuring SES (Shavers, 2007). Other individual-level measures of SES can include indicators of accumulated wealth, which include savings, ownership of assets such as homes and vehicles, or both. Researchers who have used this additional indicator of SES argue that traditional SES indicators fail to account for contributions such as inheritances and savings, which can greatly improve an individual's social and economic situation (Kington & Smith, 1997).

When used in analyses, SES characteristics such as income and occupation are frequently used as potential confounders, correlates, or controls for examining certain phenomena. SES-related measures are sometimes used as single items or combined to create composite or index measures that can be applied to individuals, households, or both (Braveman et al., 2005; Cirino et al, 2002; Shavers, 2007). For example, some of the most commonly used SES scales (e.g., Hollingshead, Nakao and Treas, and Blishen scales; more information on these scales is provided later in this chapter) use averages or medians for determining the income in two-income households. In studies using single items as SES indicators, the main earner's occupation, educational attainment, income, or some combination of these have been used to represent the family or household (Lewis, Rice, Harold, Collishaw, & Thapar, 2011). Other studies that have examined SES in the context of families or households have taken both parents' educational attainment and occupation into account (Magklara et al., 2012).

Contextual SES measures have also been studied extensively (Shavers, 2007). Contextual measures of SES, which are designed to represent an individual's environment, can range from a neighborhood (identified via ZIP codes, census tracts, and census blocks) to areas as large as states and regions. The underlying assumption is that the physical environment has a bearing on individuals' health, behaviors, and functioning, as well as their access to goods and services (National Center for Education Statistics, 2012; Shavers, 2007). Common area-based attributes of SES include average home value, proportion of college-educated people, percentage of single-parent families, and unemployment, which have been used as single items or combined into scales. These types of methods have been used to produce values that are applied to individuals as well as households. In fact, contextual-level SES has been used to address a common problem in survey data, which is that in the absence of income data—because income typically has high nonresponse in comparison to education or occupation—contextual SES can be used as a proxy for individuals and for households.

Criminological research suggests that SES characteristics—such as employment, status, educational attainment, and income level—are associated with victimization both in the United States (Xie, Heimer, & Lauritsen, 2012) and abroad (Flatley, Kershaw, Smith, Chaplin, & Moon, 2010; Van Kesteren, Mayhew, & Nieuwbeerta, 2000). Studies like these and others (Baumer, Horney, Felson, & Lauritsen, 2003; Markowitz, 2003) show that violence is not randomly distributed across demographic or socioeconomic categories. In fact, there is evidence that victimization in the United States has become more concentrated in the poorest SES classes. For example, the crime drop in the United States in the mid-1970s was greater among upper-income households than among lower-income households (Thacher, 2004), and similar patterns have been found in Scandinavia (Aaltonen, Kivivuori, Martikainen, & Sirén, 2012; Nilsson & Estrada, 2006). SES also seems to affect the relationship between victimization and various health outcomes, such as general self-reported worsened health, pain, and anxiety (Winnersjö, Ponce de Leon, Soares, & Macassa, 2012).

The value of and interest in including SES measures in research is clear. In fact, an analysis of how SES has been used in health research yielded the conclusion that measures of economic resources, education, occupation, past SES, and neighborhood socioeconomic conditions have such a strong bearing on health outcomes that their absence in any health-related

analysis should be justified and the implications of these unmeasured factors discussed (Braveman et al., 2005). As noted above, there is no "gold standard" for deriving SES despite the growing body of multidisciplinary literature designed to address this gap that has emerged over the past decade (e.g., Braveman et al., 2005; Cirino et al., 2002; Deonandan, Campbell, Ostbye, Tummon, & Robertson, 2000; Demissie, Hanley, Menzies, Joseph, & Ernst, 2000; Shavers, 2007; Yabroff & Gordis, 2003). Indeed, the health literature alone demonstrates great variation in how SES has been measured and applied, which has, in turn, influenced the understanding about the relationships between SES characteristics and health outcomes (Braveman et al., 2005; Shavers, 2007). Unfortunately, there is a dearth of studies in the criminological literature that assess how accurately different approaches to measuring SES reflect the relationship between SES and victimization rates and crime outcomes.

The next sections summarize how SES has been measured and used in the crime and victimization literature specifically, how SES has been measured and used in other Federal surveys, how SES has been measured in the National Crime Victimization Survey (NCVS), and the ways in which alternative approaches could be used with NCVS data. SES has been conceptualized and measured using a wide variety of approaches, so rather than favoring or selecting one approach, the term "SES" is used throughout the remainder of ***Section 1*** in a somewhat general way to discuss the relationships between various socioeconomic characteristics and victimization within the criminological literature.

1.2 Use of SES in Crime and Victimization Literature

Many studies in the crime and victimization literature have established a relationship between measures of SES, crime, and victimization (Baumer et al., 2003; Faergemann Faergemann, Lauritsen, Brink, Skov, & Mortensen, 2009; Flatley et al., 2010; Markowitz, 2003; Khalifeh, Hargreaves, Howard, & Birdthistle, 2013; Van Kesteren et al., 2000; Xie et al., 2012). Although some studies show that the SES of victims varies by type of victimization, and within certain types of victimization, the findings are sometimes mixed. Generally, when the analysis focuses on serious violent victimization, the link between victimization and low SES is strong, whereas the association with SES is weaker for less serious violent acts (Aaltonen, Kivivuori, Martikainen, & Sirén, 2012; Magklara et al., 2012; Menard, Morris, Gerber, & Covey, 2011). Within the intimate partner violence (IPV) literature, Kiss and colleagues (2012) found that

women's risk of experiencing IPV was not influenced by socioeconomic factors, whereas an older review of the IPV literature concluded that SES, demographic characteristics, and alcohol use are important factors to consider in IPV analyses (Field & Caetano, 2004). Meanwhile, SES was found to be only minimally predictive of family violence and violence exposure in one study (Kassis, Artz, Scambor, Scambor, & Moldenhauer, 2012), but this relationship was robust in other research (Zinzow et al., 2009). Such variation in findings may be due in part to other research that shows that the strength of SES as a predictor for violence varies by sex. For example, a Finnish study showed that for all types of police-reported violence, violence against males was strongly associated with the SES of the offender, and male-to-female violence in private places was more associated with low SES than was violence in public places against males or females (Aaltonen, Kivivuori, Martikainen, & Sirén, 2012).

Across this body of work, individual- and household-level SES characteristics have been used to examine the SES–violence nexus. In a comprehensive review of risk factors for violence and victimization in the early 1990s, household or family income was highlighted as being inversely related to victimization, although the magnitude of the effect of family income was not as large as individual-level characteristics such as age, race, sex, and marital status (National Research Council, 1994). More recently, Khalifeh and colleagues (2013) found that lifetime physical IPV experienced by English women was associated with low SES (i.e., low household income and educational attainment, government-subsidized housing, low social class, and residence in a deprived area); physical IPV experienced by men was not associated with any of the socioeconomic characteristics studied.

Within the crime and victimization literature, it is not uncommon for researchers to use single measures to capture SES. In European studies, for example, occupation is most often used as a single-measure proxy for SES, and occupation has proven to be a more useful measure than other single measures like education (Cirino et al., 2002). Limitations associated with using occupation as a single measure include the heterogeneity associated with occupational classes, the lack of precise measurement, the difficulty in classifying certain groups (e.g., homemakers), and the racial/ethnic and gender differences in benefits that may arise from employment in the same occupation (Shavers, 2007).

Income has also been used as a single-measure indicator of SES within the crime and victimization literature, including in studies using NCVS data (e.g., Rennison & Planty, 2003). (Within the NCVS, household income is measured by a single categorical question that asks the respondent to choose from 14 different income response categories. The ranges of income choices are not uniform across the 14 categories, the upper income category is $75,000 or more, and the household respondent is asked about income every other interview wave.) In studies using NCVS income measures, income has been used as a categorical variable, as well as recoded into dummy and trichotomized variables. For example, the "20–20 ratio" has also been used to operationalize income in NCVS (Thacher, 2004) and with Swedish household victimization data (Nilsson & Estrada, 2006). The 20–20 ratio calculates the victimization rate for individuals in the poorest 20% of households and divides it by the rate for individuals in the wealthiest 20% of households. Although this method might be insensitive to changes in victimization in the middle of the income distribution, the 20–20 ratio has been found to show patterns of inequality similar to those of more sophisticated options, such as the Concentration or Gini index (which also uses a single measure of income; Thacher, 2004, p. 94).

There are limitations of using income as a single, individual-level measure for SES. Specifically, the relationship between income and violence has been shown to be nonlinear (Brownfield, 1986). Income is not an appropriate proxy for overall wealth (Braveman et al., 2005), which can provide an important buffer to problems such as unemployment, which has been found to be associated with victimization (Faergemann et al., 2009). Income is also age dependent and is typically less stable than measures of education or occupation (Shavers, 2007). Regardless of the single measure used, an added risk of using single measures is the possibility of spurious associations with outcome variables of interest.

Other research has used multiple measures to characterize SES. Khalifeh and colleagues (2013) measured individual or household deprivation across four domains, including housing tenure, household income, educational attainment, and social class. Each of the constructs was operationalized as a single ordinal categorical variable. In his analysis using NCVS data, Baumer (2002) used the 14-point ordinal income scale, the number of completed years of school, and home ownership (a dummy variable) for control variables in his analyses. In cases in which income information was missing within the NCVS, income was imputed on the basis of

education, employment status, job type, marital status, and age (Baumer, 2002). Similarly, Aaltonen, Kivivuori, Martikainen, and Salmi (2012) used three individual-level measures of SES—education, income, and unemployment history—to predict male-perpetrated violence against men and women. Unemployment was coded into three classes that took the number of days unemployed into account, including no employment, less than 1 year, and more than 1 year. A separate category was included for persons on disability retirement, retired, or otherwise outside of the workforce. Income, which was based on taxable income from both work and assets, was recoded into quintiles. Education was based on the highest degree completed.

Composite measures have also been developed to characterize SES, including the Duncan Socioeconomic Index (Duncan, 1961), Nakao and Treas Scale (Nakao and Treas, 1994), Blishen Index (Blishen, Carroll, & Moore, 1987; Pineo, Porter, & McRoberts, 1977), and Hollingshead Index (Hollingshead, 1975). Notably, the Nakao and Treas Scale, Blishen Index, and Hollingshead Index have all been applied to both individuals and to households. When applied to multiple-income households, the convention across each of these scales is to average the SES scores for multiple earners to obtain a single SES score to apply to the household and every household member.

Macro-level SES indicators have been studied in the context of victimization as well. Researchers using macro-level SES predictors suggest that understanding social structural forces is necessary to understanding root causes of phenomena of interest (Spriggs, Tucker Halpern, Herring, & Schoenbach, 2009). SES macro-level conditions may reflect an area's material resources and residents' access to municipal services, such as police protection (Cubbin, LeClere, & Smith, 2000), proximity to crime (Aaltonen, Kivivuori, Martikainen, & Sirén, 2012), and concentrations of offenders (National Research Council, 1994). The economic status of an area or neighborhood has generally been supported by social disorganization theory, in which poverty is considered a central tenet that lowers levels of social control. Other theories posit that economic deficiencies foster attitudes that support using violence and crime as a means of obtaining material goods and nonmaterial resources (Markowitz, 2003). Such studies have shown that low SES and violence are associated with neighborhood cohesion and collective efficacy (e.g., Markowitz, 2003). Although some studies have found no association between macro-level SES and victimization for IPV (Kiss et al., 2012) or violence in general (Baumer et

al., 2003), other research has found that area poverty is associated with victimization (Morenoff, Sampson, & Raudenbush, 2001; Spriggs et al., 2009) and homicide (Morenoff et al., 2001).

One review of the literature concluded that environmental or ecological SES can provide further insights into the study of risk factors for victimization, given the myriad studies showing that neighborhood levels of disruption and violence were related to victimization outcomes, even after controlling for individual-level factors such demographic characteristics and lifestyle measures (National Research Council, 1994). Baumer (2002) and Lauritsen (2001) used special releases of the NCVS data that contained census tract information to examine victimization and macro-level SES. Baumer (2002) found that neighborhood disadvantage does not significantly affect the likelihood of police notification among robbery and aggravated assault victims, whereas Lauritsen (2001) found that the persons most at risk for violence were in disadvantaged census tracts, but individual-level characteristics had a complex bearing on such risk. For example, Lauritsen (2001) showed that sex as a predictor for violent victimization was conditioned on whether the event occurred within a central-city location, occurred in an individual's neighborhood, or was limited to stranger events. Within central cities, men experienced higher rates of violent victimization than women, but outside these locations, women were as likely as men to experience violence within a mile of their homes (Lauritsen, 2001). Race was another individual-level characteristic that was predicated on location of the event (i.e., occurring in a central city, occurring in the individual's neighborhood, or being limited to stranger events). On the basis of this work, Lauritsen (2001) concluded that analyses that include multilevel SES can provide an enhanced understanding of how individual-level factors may interact with broader macro-level characteristics when violence and victimization are examined.

However, because census tracts are not available on the current, publicly available NCVS data files, creating contextual, community-level indicators of SES for the NCVS may not be feasible at this time but may be in the future. Therefore, for the purposes of this report, using macro-level SES is beyond the scope of the current effort. However, other ways of measuring SES with NCVS data are summarized in the next section.

1.3 Measuring SES in Other Federal Surveys

Poverty status, used as either a reference point for income categories or as a stand-alone measure, is also sometimes used in SES calculations. Federal agencies generally use indicators of poverty status that are based on both income and monetary resources. ***Table A-1*** in ***Appendix A*** shows how the Census Bureau and Bureau of Labor Statistics measure poverty status across the Current Population Survey (CPS), the Survey of Income and Program Participation (SIPP), Panel Study of Income Dynamics (PSID), and the American Community Survey (ACS). In CPS and ACS reports in particular (e.g., Bishaw, 2012), poverty status reflects a set of income thresholds (money made before taxes, not including capital gains or noncash benefits) that vary by family size and composition to determine who is in poverty (more details of how poverty status is derived by the Census Bureau can be found in Table A-1 in ***Appendix A***). Thus, poverty status—because it does not account for occupation and educational attainment—does not represent an SES measure per se.

Notably, the Bureau of Labor Statistics and the Census Bureau have recently begun reporting on what is known as the "Supplemental Poverty Measure." Considered to be a work in progress, it adds geographic contextual data to analytic models to provide more indicators of macro-level SES (U.S. Census Bureau, 2010). Over the years, the Census Bureau has also defined several contextual variables that can be used to determine neighborhood or community characteristics, including

- ***social class***—the percentage of persons employed in 8 of the 13 Census-defined occupational groups;
- ***poverty area***—an area in which more than 20% of the persons are below the poverty level;
- ***working-class neighborhood***—a neighborhood in which more than two-thirds of employed persons work in working-class occupations; and
- ***wealth***—the percentage of households that own a home, that have one or more cars, and that have annual incomes of at least $50,000.

Others have provided insights into constructing other ways of measuring community-level SES. For example, the APA recommends deriving a community SES measure by including the percentage of individuals in the surrounding area who are unemployed, who are living at or below the Federally defined poverty level, and who lack a college degree (APA, 2007). Abroad, the United Kingdom uses deprivation indexes that assess SES in specific communities in England, Wales, and Scotland that can be applied to both individuals and households (Home Office, 2011; Page & Twist, 2011; Scottish Government, 2012).

Studies that incorporate macro-level or contextual analyses of SES have been criticized as showing contextual or group effects that may be due to the omission of individual-level variables related to the outcome or to the group characteristic under investigation (Diez-Roux, 1998). As Diez-Roux elaborates (1998, p. 219):

> [S]uppose that neighborhood violence level (measured by mean number of violent crimes in neighborhood each year) is associated with increased risk of hypertension after adjusting for age and gender. You could interpret it to mean that neighborhood violence, possibly through its effects on the stress levels experienced by individuals, is related to the development of hypertension. On the other hand, it is also possible that relevant individual-level variables have been excluded from the model and that the observed neighborhood effects are due to the low income of persons in the neighborhood who are at increased risk of hypertension because of diet, obesity, lack of exercise, and other factors and that the neighborhood effects disappear when individual-level income is included in the model.

SECTION 2. RECOMMENDATION FOR USING MEASURES OF SOCIOECONOMIC STATUS IN FUTURE REPORTS FROM THE NATIONAL CRIME VICTIMIZATION SURVEY

As noted in ***Section 1***, the relationship between SES and different types of victimization varies, which, in turn, underscores the importance of ensuring that a usable, appropriate, and meaningful SES measure is available for the NCVS. The goal of this section is to determine which variable or variables best capture the broader concept of SES. This measure could be a single measure, such as income or education level, or a derived measure that incorporates multiple components that represent SES concepts. Several considerations were evaluated before it was determined which measure best represents SES in the NCVS. The approach for determining the most appropriate measure, which is summarized below, includes a description of the process that was used and results from analyses of several potential SES measures.

2.1 Single Measure as a Proxy for SES

It is not hard to find instances in the victimization and crime literature in which single measures of SES are used. As a first step in assessing potential measures of SES, a review of all possible single measures in the NCVS questionnaire that could be used as SES proxies was conducted. For the comprehensive review of the possible single measures, all the measures that the literature clearly indicates are highly correlated with SES (e.g., income, education, occupation) were considered, as well as those that are not as well-documented in the literature but are available within the NCVS and potentially associated with SES (e.g., employment status, housing tenure). Additionally, macro-level factors, such as characteristics of the community in which the household resides, were considered.

2.1.1 Common Single Measures of SES

On the basis of the literature, the most obvious choices for single measures are the “big three” SES constructs: education, income, and occupation. The NCVS asks households about their incomes and individuals about their levels of education and current occupations.

Income. The 2010 distributions for the income measure are summarized in ***Table 2-1*** below (see ***Table A-2*** in ***Appendix A*** for victimizations rates by detailed crime categories and household income). As noted earlier, the current NCVS uses a single categorical question to

measure household income with 14 different income response choices. Household respondents are asked the income question every other interview wave. In the interview waves in which income is not asked, a carry-forward imputation method is used (i.e., the income response from the previous wave is used as the income level for the current wave). The carry-forward imputation assigns the reporting household income value to the current interview wave. For example, if a respondent reported a household income level of 3 during interview 5, an income level of 3 is assigned as the household income for interview 6.

Table 2-1. Victimization rates by type of crime and household income, 2010

Household income	Number of households	Percentage	All violent crimes (rate per 1,000 persons)	All property crimes (rate per 1,000 households)
Less than $15,000	17,185,600	14.0	28.4	159.3
$15,000–$34,999	30,206,400	24.6	22.9	132.2
$35,000–$49,999	19,406,900	15.8	18.2	121.6
$50,000–$74,999	20,965,200	17.1	17.6	109.8
$75,000 or more	35,121,200	28.6	14.9	114.4

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

As in other household surveys, such as the British Crime Survey (Home Office, 2011) and the ACS (U.S. Census Bureau, 2011), the NCVS income measure suffers from a high level of item nonresponse. In 2010, income was missing for 32.4% of households. In a separate Bureau of Justice Statistics (BJS) Working Paper, Berzofsky et al. (2014) recommend imputation methods for NCVS income data. For the purposes of the current paper, it is assumed that missing income data would be imputed before implementing any of the proposed strategies for creating an SES measure (as described in Section 3).

Table 2-1 uses the imputed household income values developed using the processes described in Berzofsky and colleagues (2014). The imputation process created five income categories that split the population into approximate quintiles. In 2010, the distribution for income across the five categories showed 14.0% of households with incomes of less than $15,000; 24.6% with incomes from $15,000 through $34,999; 15.8% with incomes $35,000–$49,999, 17.1% with incomes $50,000–$74,999, and 28.6% with incomes of $75,000 or more. Generally, as income increased, the rates for all violent and property crimes decreased.

Table 2-2 presents the unimputed distribution of income from 1998 to 2012, with every other year displayed. During this time, the distribution of income shifted from the lower income categories to the higher income categories due to inflation. Ideally, for analysis purposes, the income measure should be inflated to the current year's value using the Consumer Price Index (CPI). However, because the NCVS income variable is categorical, assumptions have to be made about the household's actual income before applying the inflation rates. These assumptions (e.g., household income has a uniform distribution within a category level) would introduce some additional error in the income estimate. Therefore, additional considerations need to be made before an inflation factor is applied. However, although the income distribution has shifted over time, the relationship between victimization and income has not. The victimization rates are higher in years before 2010, but the pattern (i.e., decreasing victimization rates as income increases) seen in Table 2-1 for both violent and property crime remains the same.

Table 2-2. Distribution of income among NCVS respondents, 1998–2012

	Income distribution by year							
Income category	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**
Less than $15,000	21.8%	18.6%	16.9%	16.2%	14.8%	12.8%	13.8%	14.0%
$15,000–$34,999	32.2	29.8	28.3	27.2	25.0	23.6	24.7	24.6
$35,000–$49,999	17.0	17.0	17.1	16.1	15.9	16.5	16.1	15.7
$50,000–$74,999	15.4	16.7	17.0	17.3	18.4	17.8	17.5	17.0
$75,000 or more	13.5	17.8	20.8	23.1	25.8	29.4	27.9	28.7

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 1998–2012

Household income as a measure of SES can also be presented as a percentage of the Federal poverty level (FPL). The FPL for a household is a function of the household's total income and the number of people (adult and children) living in it. Using FPL rather than simply household income is an attractive measure for SES because it is used in other nationally representative surveys such as the ACS and the CPS.

Usually, when FPL is used as a measure of poverty on a survey such as the ACS, respondents provide their income as a number across several different types of income sources (e.g., on the ACS, the following income sources are included: wages, salary, commissions, bonuses, or tips from all jobs; self-employment income from nonfarm businesses or farm businesses, including proprietorships and partnerships; interest, dividends, net rental income,

royalty income, or income from estates and trusts). In contrast, the NCVS asks respondents to select one of 14 income categories, with some of the higher income levels having wide ranges (e.g., $50,000 to $74,999; see ***Table 2-3***). This makes constructing a sound poverty rate using the NCVS data challenging.

Table 2-3. NCVS income categories (question 12a)

Household income code	Income level
1	Less than $5,000
2	$5,000 to $7,499
3	$7,500 to $9,999
4	$10,000 to $12,499
5	$12,500 to $14,999
6	$15,000 to $17,499
7	$17,500 to 19,999
8	$20,000 to 24,999
9	$25,000 to $29,999
10	$30,000 to $34,999
11	$35,000 to $39,999
12	$40,000 to $49,999
13	$50,000 to $74,999
14	$75,000 or more

Source: 2010 NCVS-1 Basic Screen Questionnaire

As shown in ***Table 2-4***, the number of people who make up a household greatly affects the FPL for that household. Unfortunately, the income levels set forth in the Federal poverty guidelines do not correspond well with the NCVS income category cut points (e.g., some FPL cut points fall within an NCVS income category range). Therefore, for the distribution to be estimated accurately as a percentage of the FPL, a specific income value needs to be estimated for each household. To implement this, the distribution of income—controlling for age and race/ethnicity—from the ACS was used to generate the population parameters from a right-skewed log normal distribution (the distribution that income follows). The ACS provides income categories beyond $75,000+, allowing for better estimation of the distribution of income in households in the highest NCVS category. Specific income values were estimated on the basis of the respondent's reported or imputed income category. Once the household's actual income value was determined, it was assigned a percentage of FPL using the poverty levels for the

corresponding year of the survey (e.g., the 2010 NCVS survey year used the 2010 Federal poverty guidelines).

Table 2-4. 2012 Federal poverty level for the 48 contiguous States and the District of Columbia

Family size	Percent gross yearly income						
	50%	75%	100%	133%	175%	200%	250%
1	$5,585	$8,378	$11,170	$14,856	$19,548	$22,340	$27,925
2	7,565	11,348	15,130	20,123	26,478	30,260	37,825
3	9,545	14,318	19,090	25,390	33,408	38,180	47,725
4	11,525	17,288	23,050	30,657	40,338	46,100	57,625
5	13,505	20,258	27,010	35,923	47,268	54,020	67,525
6	15,485	23,228	30,970	41,190	54,198	61,940	77,425
7	17,465	26,198	34,930	46,457	61,128	69,860	87,325
8	19,445	29,168	38,890	51,724	68,058	77,780	97,225

Note: This table is modified from the table *2012 Federal Poverty Level* on the U.S. Department of Health & Human Services Office of the Assistant Secretary for Planning and Evaluation Web site (http://coverageforall.org/pdf/FHCE_FedPovertyLevel.pdf).

Next, in order to verify the process for assigning a percentage of FPL, the distribution for NCVS households was compared to the distribution reported by the CPS's Annual Social and Economic Supplement. ***Table 2-5*** presents this comparison for survey years 2012, 2011, 2010, 2009, and 2008. As Table 2-5 indicates, the distribution of the percentage of FPL is very similar between the two surveys for each survey year reviewed. This indicates that the process used for the NCVS is accurately assigning a household's income to its percentage of FPL category.

Table 2-5. Comparison of population distribution as a percentage of the Federal poverty level as estimated by the NCVS and the CPS, 2008, 2009, 2010, 2011, and 2012

Percentage of FPL	2008		2009		2010		2011		2012	
	NCVS	CPS	NCVS	CPS	NCVS	CPS	NCVS	CPS	NCVS	CPS
100% or less	12.3%	11.5%	12.8%	12.5%	13.8%	13.2%	14.0%	13.1%	14.6%	13.1%
101%–150%	9.2	8.5	9.8	8.6	10.0	8.7	10.1	9.1	10.2	8.9
151%–200%	9.4	8.8	9.8	8.9	9.6	8.9	9.7	9.2	10.0	9.2
201%–300%	17.2	17.4	17.9	17.4	17.2	17.1	17.5	16.8	17.5	16.5
301%–400%	13.1	14.2	13.2	13.7	12.5	13.5	12.1	14.0	12.3	13.8
401%–500%	8.9	10.9	8.7	10.8	8.6	10.9	8.5	10.2	8.1	10.7
Greater than 500%	29.9	28.7	27.7	28.1	28.3	27.7	28.1	27.6	27.3	27.8

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2008, 2009, 2010, 2011, and 2012; Bureau of Labor Statistics Current Population Survey (CPS) Annual Social and Economic Supplement, 2008, 2009, 2010, 2011, and 2012.

Table 2-6 presents the victimization rates for violent and property crime by percentage of FPL (see ***Table A-3*** in ***Appendix A*** for victimization rates by detailed crime categories and household income as a percentage of federal poverty level). In general, for both violent and property crime victimization, as the percentage of FPL increased, the rate of crime victimization decreased. For violent crime, the rate ranged from 29.5 crime victimizations per 1,000 persons with a percentage of FPL below 100% to 11.7 crime victimizations for persons with a percentage FPL 500% or greater. Similarly, for property crime, the rate was highest for households with a percentage of FPL below 100% (179.8 crime victimizations per 1,000 households) and lowest for households with a percentage of FPL of e401% to 500% (97.1 crime victimizations per 1,000 households).

Table 2-6. Victimization rates by type of crime victimization and percentage of Federal poverty level, 2010

Percentage of Federal poverty level	Number of households	Percentage	All violent crimes (rates per 1,000 persons)	All property crimes (rates per 1,000 households)
100% or less	16,979,800	13.8	29.5	179.8
101%–150%	12,226,600	10.0	23.6	166.6
151%–200%	11,842,100	9.6	22.5	129.9
201%–300%	21,132,500	17.2	19.6	117.2
301%–400%	15,335,100	12.5	19.0	103.6
401%–500%	10,564,000	8.6	17.8	97.1
Greater than 500%	34,805,100	28.3	11.7	106.0

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Education. Education has been used as a single measure of SES because it is often easier to measure in a survey than income or occupation (Shavers, 2007). As shown in ***Table 2-7*** (see ***Table A-4*** in ***Appendix A*** for victimization rates by detailed crime categories and education), only 2.2% of the 2010 data were missing for education. Nearly a quarter of respondents in 2010 indicated that they had less than a high school education (23.3%), and half (50.1%) reported having a high school degree, some college, or an associate's degree. Generally, as education increased, the rate of all reported violent victimizations decreased. However, this pattern was not entirely true for property crimes, because the rates were lowest among those with a bachelor's degree (89.5 per 1,000 households) rather than those with a master'ss, professional, or doctoral degree (103.5 per 1,000 households).

Table 2-7. Victimization rates by type of crime and education level, 2010

Education level	Number of persons	Percentage	All violent crimes (rate per 1,000 persons)	All property crimes (rate per 1,000 households)
Less than high school	59,533,500	23.3	23.8	211.7
High school or equivalent diploma, some college, or associate's degree	128,207,600	50.1	20.6	128.0
Bachelor's degree	43,868,200	17.1	14.5	89.5
Master's, professional, or doctoral degree	18,609,800	7.3	10.7	103.5
Unknown	5,742,800	2.2	7.8	53.2

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

As seen in ***Table 2-8***, the distribution of education has not shifted much during the period from 2004 through 2012. This table indicates that education level is comparable across years without any sort of adjustment factor. Furthermore, the relationship between victimization and education level has not changed over time. Specifically, although the rates themselves have fluctuated for this period, the pattern of victimization by education level (i.e., decreasing as education level goes up for violent crime and property crime) seen in Table 2-8 for 2010 is the same as other years.

Table 2-8. Distribution of level of education by year, 2004–2012

	Level of education distribution[a]				
Education level	2004	2006	2008	2010	2012
Less than high school	24.1%	23.4%	24.4%	23.8%	23.1%
High school or equivalent diploma, some college, or associate's degree	52.6	52.8	51.1	51.2	51.4
Bachelor's degree	15.6	15.7	16.2	17.5	18.0
Master's, professional, or doctoral degree	7.7	8.1	8.3	7.4	7.5

a Distribution excludes cases with an unknown value for level of education.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2004–2012.

Occupation. As a single measure for SES, occupation is often used because it reflects a person's level of education and income level. The NCVS Crime Screener Instrument (NCVS-1) asks all respondents aged 16 or older about their occupations.[1] The questionnaire allows a respondent to be placed in one of 27 different categories; however, seven of these categories are

[11] The NCVS Crime Incident Report (NCVS-2) provides a more detailed occupation measure. However, only victims are administered the NCVS-2, making it of limited value for an SES measure for the NCVS.

some form of an "other" response that does not allow for a specific occupation to be determined. In 2010, these "other" categories accounted for 51% of the responses. Furthermore, an additional 40% of respondents did not provide an answer. Therefore, the NCVS does not have useable occupation information on about 90% of its respondents. For this reason, using occupation as a measure of SES in the NCVS was not considered.

2.1.2 Alternative Single Measures for SES

Although less commonly found in the literature, other potential single measures of SES in the NCVS are worth considering. These measures include employment status and household tenure.

Employment. Unemployment, if prolonged, can be an indication of a lowered SES. The NCVS provides estimates of a person's past-week and past-6-months' employment status. Because a 1-week period of unemployment is not likely to negatively affect a person's overall SES, a person's 6-month employment status as a single measure of SES was the only employment measure considered. As shown in ***Table 2-9*** (see ***Table A-5*** in ***Appendix A*** for victimization rates by detailed crime categories and employment status), 7.4% of the 2010 data were missing for employment in the past 6 months. More than half of respondents (57.3%) were fully employed over the past 6 months, whereas more than a third (35.4%) were fully unemployed or employed only part of the time. The property crime victimization rate was higher among those who were employed during the previous 6 months than among those who were unemployed (265.8 vs. 58.3 per 1,000 population). The rates for all violent crimes were fairly similar.

Table 2-9. Victimization rates by type of crime and 6-month employment status, 2010

Employment status	Number of persons	Percentage	All violent crimes (rate per 1,000 persons)	All property crimes (rate per 1,000 households)
Employed	146,617,000	57.3	20.6	265.8
Unemployed	90,474,400	35.4	16.0	58.3
Unknown[a]	18,870,500	7.4	24.9	391.5

[a] Includes those under 18 years old

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Household tenure. Household tenure is a potential indicator of stability in a household. Families who own their homes may be less transient and have more assets and, therefore, may have a higher SES. ***Table 2-10*** shows the distribution for housing tenure (see ***Table A-6*** in ***Appendix A*** for victimization rates by detailed crime categories and housing tenure). The 2010 data show that 66.9% of respondents owned their houses and 33.1% rented their houses. The rate of violent crime among those who rented their homes was triple that of those who owned (36.1 vs. 12.0 per 1,000 households). Renters also had a higher rate of property crime than homeowners (169.4 vs. 103.6 per 1,000 households). Another housing-related measure in the NCVS that was considered as a proxy for SES was whether the household was designated as public housing (see ***Table A-7*** in ***Appendix A*** for victimization rates by detailed crime categories and public housing status). This measure was not used because in 2010 the NCVS estimated that 98% of households were not designated as public housing.

Table 2-10. Victimization rates by type of crime and housing tenure, 2010

Housing tenure	Number of households	Percentage	All violent crimes (rate per 1,000 persons)	All property crimes (rate per 1,000 households)
Own	82,203,700	66.9	12.0	103.6
Rent or no cash rent	40,681,400	33.1	36.1	169.4

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

2.1.3 Macro-level Single Measures of SES

Developing macro-level SES indicators that would provide a larger context for respondents' living situations was considered, but this approach was eventually concluded to be infeasible. Census tracts are commonly used in other studies to categorize neighborhoods and communities in SES terms. Although other researchers have been able to take advantage of special releases of NCVS data that included census variables indicating State, county, and the census tract in which the respondents reside (e.g., Lauritsen, 2001; Baumer, 2002), these data sets are outdated. Future special releases of census tract data or data that include ZIP codes are not anticipated; thus, to the extent that publicly available NCVS data are the only data that can be used, this avenue is not possible at this time.

Although urbanization level could be included, once the Census place size in which the sampled household resides is accounted for in the composite, the urbanization variable would not

add much because the information it provides is redundant with land use. Although it might be possible to identify more generic areas (e.g. large cities in the Northeast) by combining region and census land use population) to develop some average costs of living, this result might not be easily interpretable. Moreover, the health literature has shown that contextual variables do not often correlate well with individual measures (Shavers, 2007). Therefore, adding macro-level measures of SES was not considered.

2.2 Composite SES Measure for NCVS

Given the relationship between SES and victimization, it is clear that SES is not something that should be ignored when studying the relationship between characteristics of households and individuals and violent and property crime victimization. However, the numerous data limitations associated with income and occupation bring to bear several challenges with using single measures or constructing a poverty level that may be both appropriate and meaningful for any analyses that account for SES.

2.2.1 Factors Considered for Composite SES Indexes

The alternative to using a single-measure proxy for SES is to develop a household-level SES composite measure that incorporates the best SES elements that are available in the NCVS. All of the relevant NCVS variables that could be used to measure SES were considered, and the narrowed list of possibilities for the composite index included the following individual- and household-level characteristics:

- income as a percentage of FPL (reported and imputed)—household level
- education—individual level
- housing tenure (owned or being bought; rented for cash; no cash rent)—household level
- housing type (public housing vs. not)—household level
- employment in the last 6 months—individual level

As noted above, it was not possible to include occupation in the SES index. Employment status in the last week and employment in the last two consecutive weeks were considered as potential variables, but from a theoretical perspective, the 6-month perspective was more relevant and meaningful for the index, and the distribution of this variable for 2010 was sound enough to warrant inclusion and was supported by the victimization literature (e.g., Aaltonen, Kivivuori, Martikainen, and Salmi, 2012; Faergemann et al., 2009). Furthermore, including the measure related to the number of cars owned was considered, but it was generally concluded that it was not a good measure of assets (e.g., wealthy people in large cities like New York generally do not own cars, whereas those in poverty-stricken areas may own several aging cars). The literature indicates that assets are important for determining SES, and in the absence of other measures, using housing tenure has been supported by other studies using NCVS data (Baumer, 2002). Finally, adding household size to the SES index was also considered. Household composition is generally not included in SES index measures, but it is a factor in determining how the indexes are applied or used in analyses. To that end, the next section describes how household composition was used in calculations.

2.2.2 Considered SES Indexes

The goal of this section is to describe an SES composite measure that could be applied to all members of the household, as is done with other SES indexes (Cirino et al. 2002, Nakao & Treas, 1994; Blishen et al., 1987; Pineo et al., 1977; Hollingshead, 1975). In these scales, for families with multiple persons 18 years old or over, the individual SES scores are averaged to obtain a single SES score to apply to the household and everyone in it who is at least 18 years of age. Different potential household structures were taken into account by using averages for all persons 18 years and older in the household. For example, households with retirees, homemakers, or students over 18 would have their SES reduced because of lower income levels, but the household's SES would be increased if the education level of these individuals is relatively high (e.g., a retired person or homemaker with a college education or greater). Furthermore, even though 12- to 17-year-olds may provide some little income (through summer job, etc.) to the household, this group was excluded from the indexes because their income and education level would artificially dilute the average of their parents or guardians.

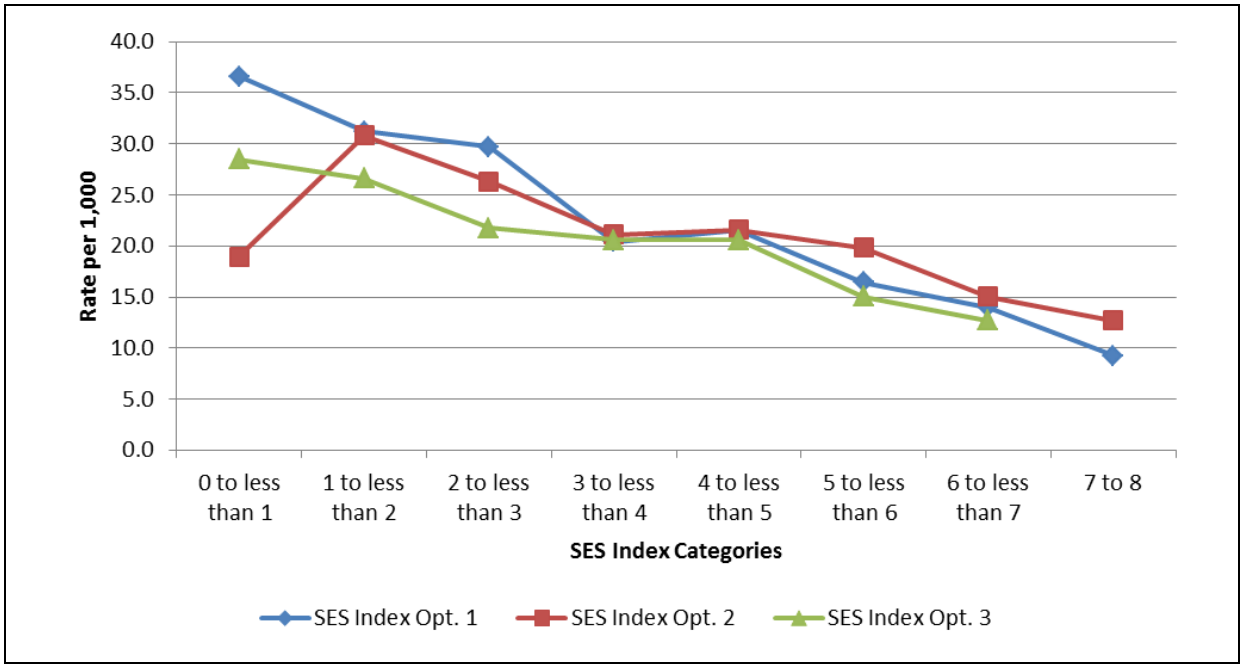
Three possible index options based on the variables listed in the bullets above were constructed. ***Table 2-11*** presents these three possibilities across the constructs examined. The SES indexes are weighted on the basis of the number of levels attributed to each characteristic. For example, in Index 1, income (as a percentage of FPL) and education have four levels, whereas employment and housing only have two. Therefore, income and education have equal weight and contribute two times more than employment and housing. Another approach is to assign a particular percentage of the index's weight to each characteristic (e.g., income counts as 50% of the score). This approach was not used because a suitable reference to what those weights should be was not identified.

Table 2-11. SES index options for NCVS

Measures	Index 1	Index 2	Index 3
Education	▪ 0: Less than high school ▪ 1: High school, some college, associate's degree ▪ 2: Bachelor's degree ▪ 3: Master's, professional, doctorate degree Possible range: 0–3	▪ 0: Less than high school ▪ 1: High school, some college, associate's degree ▪ 2: Bachelor's degree ▪ 3: Master's, professional, doctorate degree Possible range: 0–3	▪ 0: Less than high school ▪ 1: High school, some college, associate's degree ▪ 2: Bachelor's degree ▪ 3: Master's, professional, doctorate degree Possible range: 0–3
Income (percentage of Federal poverty level)	▪ 0: 100% or less ▪ 1: 101%–200% ▪ 2: 201%–400% ▪ 3: 401% or greater Possible range: 0–3	▪ 0: 100% or less ▪ 1: 101%–200% ▪ 2: 201%–400% ▪ 3: 401% or greater Possible range: 0–3	▪ 0: 100% or less ▪ 1: 101%–200% ▪ 2: 201%–400% ▪ 3: 401% or greater Possible range: 0–3
Employment	▪ 0: Unemployed past 6 months ▪ 1: Employed past 6 months Possible range: 0–1	▪ 0: Unemployed past 6 months ▪ 1: Employed past 6 months Possible range: 0–1	▪ 0: Unemployed past 6 months ▪ 1: Employed past 6 months Possible range: 0–1
Housing	▪ 0: Rent or no cash rent ▪ 1: Own Possible range: 0–1	▪ 0: Public housing ▪ 1: Non-public housing Possible range: 0–1	Not included
Possible range	0–8	0–8	0–7

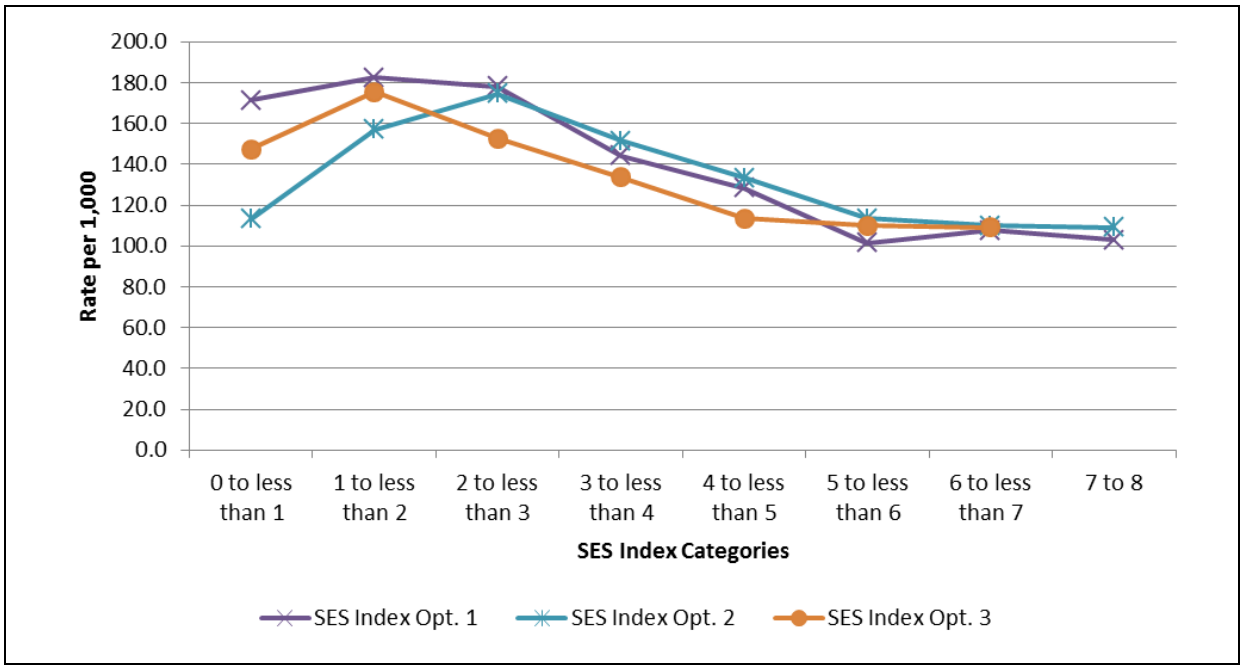
Figures 2-1 and ***2-2*** present victimization rates by the three SES options for violent and property crime, respectively. The figures show that the SES index options generally follow the same pattern in terms of their relationships with violent and property crime victimization. ***Table 2-12*** presents the weighted percent distribution and unweighted sample sizes of respondents by SES index level for each SES index option. In general, each level of the SES indexes has a large enough sample size so that suppression is not a concern. The smallest category occurs in SES index 2 for households with an index of 0 or 1 (301 respondents, 0.4% of weighted respondents).

Figure 2-1. Violent crime victimization rates by SES for three index options, 2010



Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Figure 2-2. Property crime victimization rates by SES for three index options, 2010



Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table 2-12. Unweighted sample size and weighted percent distribution of respondents by SES index options, 2010

	Index 1		Index 2		Index 3	
SES level	Unweighted sample size	Weighted percent	Unweighted sample size	Weighted percent	Unweighted sample size	Weighted percent
0–1	1,582	2.0	301	0.4	2,531	3.1
1–2	4,662	5.9	2,752	3.4	7,100	8.8
2–3	8,269	10.3	6,984	8.7	11,496	14.2
3–4	11,265	13.8	11,315	13.9	14,446	17.6
4–5	14,497	17.7	14,336	17.5	17,191	20.9
5–6	15,780	19.1	17,082	20.8	15,685	19.0
6–7	14,043	16.9	15,665	19.0	10,830	13.2
7–8	9,181	11.1	10,820	13.2	n/a	n/a
Missing	2,669	3.2	2,693	3.3	2,669	3.2

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table 2-13 presents the correlation matrix between each of the characteristics considered in one of the SES indexes. This table shows that none of these characteristics have a correlation with another characteristic greater than 0.35. Furthermore, all of the correlations are positive, except for the correlation between 6-month employment status and household tenure (which is near zero). The relatively small correlation between all of the characteristics suggests that there may be some benefit in using an index. Furthermore, the fact that no correlation between any two characteristics exceeds 0.35 indicates that none of the characteristics are redundant with each other in terms of explaining SES. In short, using all of these data in an index can capture an individual's SES better than any one of these characteristics individually.

Table 2-13. Correlation matrix between NCVS characteristics considered for an SES index

	SES characteristic				
SES characteristic	Household income (percentage of FPL)	Education level	Employment status	Household tenure	Public housing
Household income (percentage of FPL)	1.0000	0.3476	0.2021	0.3046	0.1366
Education level		1.0000	0.1920	0.1416	0.0821
Employment status			1.0000	-0.0122	0.0755
Household tenure				1.0000	0.1946
Public housing					1.0000

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table 2-14 presents the results of logistic models that regress crime victimization status on the SES index components. Separate models were run at the person level with violent crime and property crime as dependent variables. Models were run at the person level because highest level of education and 6-month employment status are person-level attributes. For the property crime model, if the reference person reported a property crime, all persons in the household were considered victims of a property crime. In both models, all four SES index components – income as a percent of the Federal poverty level, level of education, employment status, and household tenure – were significant predictors of crime victimization.

Table 2-14. Logistic regression of violent and property crime victimization by SES index characteristics

	Violent crime				Property crime[a]			
Index characteristic	**Odds ratio (OR)**	**OR lower bound**	**OR upper bound**	**Chi-square Wald p-value**	**OR**	**OR lower bound**	**OR upper bound**	**Chi-square Wald p-value**
Intercept	0.00	0.00	0.00		0.05	0.05	0.06	
Federal poverty level								
100% or less	1.58	1.28	1.95	0.0002	1.35	1.19	1.53	<0.0001
101%–200%	1.27	1.02	1.58		1.25	1.12	1.40	
201%–400%	1.09	0.90	1.33		0.97	0.88	1.07	
Greater than 400%[b]	1.00	1.00	1.00		1.00	1.00	1.00	
Education								
Less than high school	1.63	1.10	2.42	0.0004	1.31	1.16	1.49	<0.0001
High school or some college	1.69	1.19	2.39		1.19	1.07	1.32	
Bachelor's degree	1.28	0.84	1.95		1.05	0.93	1.18	
Master's, professional, or doctoral degree[b]	1.00	1.00	1.00		1.00	1.00	1.00	
Employment								
Unemployed in past 6 months	0.80	0.69	0.94	0.0057	0.75	0.70	0.79	<0.0001
Employed in past 6 months[b]	1.00	1.00	1.00		1.00	1.00	1.00	
Household tenure								
Rent or no cash rent	2.45	2.08	2.90	<0.0001	1.45	1.34	1.58	<0.0001
Own[b]	1.00	1.00	1.00		1.00	1.00	1.00	

[a] Model computed at the person level because education and employment are measured at the person level.

[b] Comparison group.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Tables A-8 through ***A-15*** in ***Appendix A*** present the crosstabs for each pair of index characteristics considered. In general, these crosstabs reflect the expected relationship between the index variables. For example, as income increases, the percentage of people that live in a household-owned home increases (Appendix Table A-9). However, some relationships are not as clear. For instance, the percentage of persons who are unemployed does not vary across household tenure (Appendix Table A-15). This result could be because this bivariate relationship does not take age into account. Therefore, it is possible for a younger person with a higher education level to earn less than a person who has a lower degree but is older and has worked longer. Furthermore, the income measure is a household measure, whereas the education measure is at the person level. Therefore, a higher wage earner with a higher education level in the household could mask the presence in the household of other adults with lower education levels. Situations like this are possible explanations for why the correlations between the variables are not higher than one might expect.

As Table 2-11 shows, education, income, and employment status were measured consistently across each of the three SES index options. Education was measured with four categories and a possible range of 0–3 (0 = less than high school; 1 = high school, some college, or associate's degree; 2 = bachelor's degree; 3 = master's, professional, or doctoral degree). Income was measured as a percentage of a household's FPL with four categories (0 = 0 – 100%, 1 = 101% - 200%, 2 = 301% - 400%, 3 = 400% or more). Employment status was measured based on whether a person was employed in the past 6-months (0 = not employed, 1 = employed). Beyond education, income, and employment status, the three SES index options differ in terms of what measures they include. Namely, SES Index 1 additional includes household tenure, SES Index 2 additionally includes public housing status, and SES Index 3 does not include any housing measure. As illustrated in Figure 2-1, although the differences in the index options did not alter the relationship between SES level and victimization rates, they could have substantive differences in how the levels of SES are interpreted. Therefore, comparing the SES index options on their substantive merits is worthwhile.

SES Index 1. Option 1 measures household income using the income as a percentage of FPL categories, with a range of 0–3, being collapsed as follows: 0 = 100% or less of FPL, 1 = 101% to 200%, 2 = 201% to 400%, and 3 = 401% or more. For the index, the number of income

as a percentage of FPL categories was collapsed from seven to four to reduce the weight that income has in the index when scores are summed across measures. Index 1 also incorporates measures of education, housing tenure, and 6-month employment status. The housing tenure measure seems preferable because it represents assets held by respondents, which has been identified as an important SES context in the literature (e.g., Braveman et al., 2005; Shavers, 2007).

Table 2-15 provides the victimization rates by type of crime and SES Index 1 categories (see ***Table A-16*** in ***Appendix A*** for more detailed crime categories for SES Index 1). Index 1 has an overall range of 0–8 for SES. As shown in Table 2-15, the rates for violent crimes decrease as SES increases. Property crimes show less of a pattern, ranging from 101.5 per 1,000 population (among those in the SES category 6) to 182.4 per 1,000 population (among those classified in SES category 2).

Table 2-15. Victimization rates by type of crime and SES Index 1, 2010

SES Index 1 categories[a]	Number of households	Percentage	All violent crimes (rate per 1,000 person)	All property crimes (rate per 1,000 household)
1	2,436,200	2.0	36.6	171.2
2	7,222,600	5.9	31.2	182.4
3	12,662,800	10.3	29.7	178.1
4	17,003,500	13.8	20.4	144.2
5	21,703,300	17.7	21.5	128.5
6	23,446,500	19.1	16.4	101.5
7	20,783,400	16.9	14.0	107.7
8	13,641,300	11.1	9.3	102.8
Unknown	3,985,600	3.2	6.2	40.4

[a] Because the SES index is averaged over all adults in the household, it does not result in whole numbers. The categories represent the results as follows: 1 = 0 to less than 1, 2 = 1 to less than 2, 3= 2 to less than 3, 4 = 3 to less than 4, 5 = 4 to less than 5, 6 = 5 to less than 6, 7 = 6 to less than 7, and 8 = 7 to 8.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

SES Index 2. Index 2 measures household income in the same way as Index 1 and also incorporates education and 6-month employment status. However, rather than including housing tenure, Index 2 includes whether the household is designated as public housing. The distribution of SES levels and the victimization rates by SES category are similar to Index 1. Therefore, detailed victimization rates are presented only in ***Appendix A, Table A-17***.

SES Index 3. Index 3 includes education, household income (as defined in Indexes 1 and 2), and 6-month employment status, but measures related to housing are excluded (see ***Appendix A, Table A-18*** for the detailed victimization rates).

2.2.3 Assessing the Quality of the SES Indexes

An index that measures some sort of latent variable or a variable that cannot be directly measured through a survey question must be assessed for quality to ensure that the results generated during its development are reproducible across similar samples and are not solely a function of the data used to create the index. For some indexes or scales that are based on reflective models, it is possible to look at the "internal consistency" of the index items. In these cases, all the items used in the index are consistently measuring the latent variable—that is, if the latent variable's value is changed, all the observed variables have similar changes in response. In such instances, it is possible to use a statistic, like Cronbach's alpha, to verify that all the observed items used to measure the latent variable are internally consistent.

Unfortunately, the indicators being used to measure SES and other latent variables are not reflections of the latent variable; they are components used to construct or form the latent variable. The models for such constructs are called formative models. Constructs typically measured with formative models are stress scales and SES indexes. In these models, the observed variables drive the latent variable by constructing it, rather than the other way around. The model does not assume that the observed variables consistently reflect any change in the latent variable, resulting in high correlations. In formative models, the observed indicators need not be correlated—in fact, they generally are not. For example, there are circumstances in which a person with a high level of education does not have a high level of income (e.g., the person has not been in the workforce very long). For this reason, an alternative approach to assessing the quality of the index needs to be employed.

Measuring the quality of a formative model is difficult. The observed indicators are not assumed to be correlated, so it is not possible to use a minimum level of correlation, as Cronbach's alpha does, to evaluate the measure. There is no error term in the model, so model fit cannot be used to determine whether the model is measuring what it is thought to measure. It is possible, however, to ask whether the model—that is, the loadings of the index on the observed

indicators—is consistently estimated across random subsets of the data. Put another way, this approach would see whether the relationships between indicators and index that form the loadings in the model are largely sample dependent (and therefore not consistent enough to be considered a useful model) or sample independent (consistently demonstrating a similar relationship between indicators and the index).

By implementing such an analysis, it is possible to see whether the correlations between the index measure and the items used in the index are consistent across samples. That is, if another random sample of households was provided (e.g., a year other than 2010), would the correlations between the index value and the item characteristics be the same?

In this type of analysis, the actual correlation is not as important as whether a similar correlation is produced across each of the samples. When a survey like the NCVS utilizes a panel design where households appear in multiple years, in order to ensure an independent set of comparison households, the correlation can be tested through the use of split samples. To implement this approach, the sample of households by interview (i.e., a household's two interviews during 2010 were not tied together for randomization purposes) was randomly split into two samples. Persons interviewed within a household were all assigned the same random sample. Correlations were weighted on the basis of the level of the characteristic (i.e., household income, tenure, and public housing used the household weight, whereas education level and employment status used the person-level weight).

Table 2-16 presents the results from this analysis. All indexes were tested for measuring SES in the NCVS; the correlations were consistent across both samples for all index items. For example, the correlation between household income as a percentage of FPL and SES Index 1 was 0.8546 in the first sample and 0.8571 in the second. Across all the indexes, the largest absolute difference between a pair of sample correlations was 0.0137 (employment status and SES Index 2). The small difference in the correlations leads to the conclusion that any of the three SES indexes would produce consistent results across NCVS data collection years.

Table 2-16. Correlations among SES index options and index characteristics by split sample

Characteristic	SES Index 1		SES Index 2		SES Index 3	
	Sample 1	Sample 2	Sample 1	Sample 2	Sample 1	Sample 2
Household percentage of Federal poverty level	0.8546	0.8571	0.8571	0.8586	0.8593	0.8610
Household tenure	0.4792	0.4887	--	--	--	--
Education	0.5499	0.5532	0.5750	0.5769	0.5779	0.5798
Employment	0.3495	0.3612	0.3899	0.4036	0.3903	0.4034
Public housing	--	--	0.2550	0.2608	--	--

— Not a component in the SES index.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

2.3 Conclusions and Recommendation

Both single measures and composite measures of SES in the NCVS provide advantages and disadvantages for interpreting the relationship between crime victimization and SES. Single measures offer an easily interpretable definition of SES, but they may not fully capture all aspects of SES. Composite indexes may offer a more complete representation of a household's SES, but their levels may be less interpretable. However, after considering the analyses presented in this section and the literature presented in ***Section 1***, the following conclusions and recommendations have been developed:

- Using single measures of SES increases the risk for spurious associations with outcome variables (i.e., crime victimization types) because single measures do not control for any other factors related to SES that may alter the relationship.

- If one had to identify one of the "big three" SES constructs to stand as the single measure proxy for SES, the literature suggests that occupation might be the best choice (e.g., Cirino et al., 2002; Fujishiro, Zu, & Gong, 2010). However, as noted earlier, current data restrictions limit the ability to use occupation for the NCVS.

- Using income as a single measure for SES is problematic because (1) it is age dependent; (2) it is relatively unstable compared with education or occupation; and (3) it does not necessarily account for the impact of wealth or other financial assets and resources (Shavers, 2007, p. 1014).

- It is possible to generate a household income as a percentage of FPL measure using the imputed income variable. FPL takes into account household size and, therefore, is a better measure of household wealth than an income measure that does not control for household size. It is recommended that percentage of FPL be used in any SES index for the income component.

- Myriad limitations surround education as a single measure for SES (Shavers, 2007, p. 1014). First, education has different social meanings and consequences in different cultures. Second, it is known that economic returns differ across racial/ethnic and gender groups because minorities and women realize lower returns than white men with the same educational backgrounds (Shavers, 2007; Braveman et al., 2005). Third, the relationship between SES and education is not consistently linear and may change over time (Shavers, 2007, p. 1014).

- Consistent with other studies (Braveman et al., 2005), income and education were not correlated strongly enough to justify using one as a proxy for the other (correlation of 0.3484 from Table 2-13).

- At best, the 6-month employment status and public housing status variables as they are currently identified in the NCVS survey provide a gross measure for employment. These variables are valuable to the extent that they can provide some SES context, but they are not strong or detailed enough to stand alone as SES single measures.

- None of the correlations between any two possible single measures of SES in Table 2-13 are above 0.35. This indicates that a composite measure or index that incorporates some of them may better represent SES and that no single measure is providing redundant information with another single measure.

- As seen in Table 2-14, two logistic regressions with any violent crime or any property crime occurring as the dependent variables, respectively, and the four proposed SES index characteristics as independent variables indicate that, given the other characteristics in the model, all four SES index characteristics are strongly associated

with victimization (i.e., p-values less than 0.001 for each SES index measure for both violent and property crime victimization).

- Index 2 includes public housing (public housing or not), in which only 2.1% of the 2010 sample indicated living (see Table A-7 in Appendix A for the public housing data by victimization types). The resulting analysis shows that this measure is not as meaningful as the household tenure measure and thus is not beneficial in an SES index.

- Between Index 1 and 3, Index 1 is preferable because it includes the housing tenure measure, which enables some measure of assets held by respondents, which has been identified as an important component of SES in the literature (e.g., Braveman et al., 2005; Shavers, 2007).

Therefore, the final recommendation for how a SES index should be constructed in the NCVS, given the limitations and quality of available data and assuming that the plan is to create an SES index, is SES Index 1.

As noted earlier, one key deficiency of an SES index is the interpretability of its levels. In order to alleviate this issue for the recommended index, it is possible to collapse the eight SES categories in Table 2-15 categories into low, middle, and upper SES when needed. ***Table 2-17*** presents a possible trichotomy with the 2010 data. The percentages, if graphed, would show a bell-curve, with about a fifth of all households falling into the low SES category (18.2%), 50.6% in the middle SES category, and 28.0% representing the highest SES category. Using the index in this manner will facilitate the creation of cross-tabulations and the interpretation of the relationships between various criminal victimization measures and SES.

Table 2-17. Option for reclassifying SES Index Option 1 into three categories

SES Index Option 1 categories	Percentage[a]	Collapsed income category	Combined percentage
1	2.0		
2	5.9	Low SES	18.2%
3	10.3		
4	13.8		
5	17.7	Middle SES	50.6%
6	19.1		
7	16.9	High SES	28.%
8	11.1		

Note: Because the SES index is averaged over all adults in the household, it does not result in whole numbers. The categories represent the results as follows: 1 = 0 to less than 1, 2 = 1 to less than 2, 3 = 2 to less than 3, 4 = 3 to less than 4, 5 = 4 to less than 5, 6 = 5 to less than 6, 7 = 6 to less than 7, and 8 = 7 to 8.

[a] Percentage distribution does not sum to 100 because cases with unknown SES are excluded

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2006–2010.

2.4 Operationalizing SES in Future Reports

One option is that the proposed SES Index 1 could be incorporated as a derived variable on the NCVS public use files (PUFs) available through the Interuniversity Consortium for Political and Social Research (ICPSR). As a component of the SES index, the imputed household income variables, along with a flag indicating which values were imputed, would be included on the PUF as well. This would need to be done in a two-step process: imputing household income (as described by Berzofsky et al., 2014) and creating the SES index as it was defined in ***Section 2.3***. Given that both of these steps were developed using PUFs, both of these steps could be conducted by BJS; the data collection agent, the U.S. Census Bureau; or a private contractor.

Both of these steps could be conducted during the development of the PUF. Based on the procedures developed to impute household income (Berzofsky et al., 2014) it is anticipated that implementing the imputation process for a given year's data would take about 2–3 weeks, including time for quality assurance. The derivation of the SES index could follow immediately after the imputations were complete and, therefore, would not add much time to the development schedule. Another option is that if an imputed income variable and a measure of FPL were added to the PUF, data users could independently create the SES Index.

2.5 How to Use the SES Index When Analyzing Crime Victimization Data

The derived SES index is a household level variable with the same value being applied to all persons residing in that household during a given interview wave (i.e., the SES index could change for a household across interview waves on an annual file). This variable could be merged onto the person file and incident file by household ID and year/quarter of interview, or it could be included during the creation of the PUFs.

If having eight levels of SES is too cumbersome for the analysis being conducted, the proposed index can be collapsed into three levels, as suggested in Table 2-17. Collapsing SES into these levels may make the interpretation of any crosstabs more easily understood by readers.

SECTION 3. IMPROVING THE MEASUREMENT OF SOCIOECONOMIC STATUS IN THE NATIONAL CRIME VICTIMIZATION SURVEY

The recommendations outlined in this section are put forth with the understanding of the current data restrictions. The section includes a summary of recommendations for modifying the current NCVS instrument, with an eye toward changes that would improve data elements related to SES and enhance the reporting of SES information in the future. The scope and cost of these recommendations vary widely, from simply moving a question (e.g., Recommendation 2) to conducting a field test (e.g., Recommendation 1).

Recommendation 1: Conduct a Field Test of Procedures That Would Yield a Revised and Improved Income Variable.

As noted earlier, the NCVS is not unique in its relatively high level of nonresponse to the question about household income. In 2006, the Centers for Disease Control and Prevention, conducted a field test of approaches for improving income response rates in the National Health Interview Survey (NHIS), a Federal household survey with income nonresponse rates exceeding 30%. For the test a sample of the NHIS respondents was selected to receive a new set of income questions, redesigned to reduce item nonresponse (Pleis & Cohen, 2007). The following paragraphs draw heavily from Pleis and Cohen's methodological report on this field experiment, which may be accessed at http://www.cdc.gov/nchs/data/nhis/income.pdf.

NHIS Field Test. As Pleis and Cohen (2007) describe, the original income question in the 1997–2006 NHIS instrument was, "*Now I am going to ask about the total combined income {for you/of your family} in {last calendar year}, including income from all sources we have just talked about such as wages, salaries, Social Security or retirement benefits, help from relatives, and so forth. Can you tell me the amount before taxes?*" In the 1997-2006 surveys, when respondents initially refused to answer the first exact income amount question a series of follow-up questions asking about income ranges. The closed-ended questions were designed so that each successive question homed in on a smaller range for the family's total income and identified whether families were reporting income below the poverty threshold. Specifically, if the respondent did not provide an answer to the exact amount question, the respondent was asked to provide the family' income in relation to $20,000 (greater or equal to $20,000 or less than $20,000). If an answer was given to this question, the respondent was provided with a list of

income intervals and asked to report the appropriate income interval. If the family's income was less than $20,000, the respondent was shown a list of intervals in $1,000 increments from $0 to $19,999. If the family's income was $20,000 or more, the respondent was shown a list of income intervals in $1,000 increments from $20,000 to $34,999 and in $5,000 increments starting at $35,000, up to a final category of $75,000 or more.

As part of the experiment, the follow-up questions used in the 1997-2006 NHIS were replaced with a different series of unfolding bracket questions with closed-ended income ranges when the respondent did not answer the exact income amount question. Rather than starting with $20,000, the experimental questions began with $50,000. Respondents who reported incomes of less than $50,000 were then asked if their income was less than $35,000. Among respondents reporting family income below $35,000, the poverty threshold for the family was prefilled by the computer-assisted instrument using the information on the family's size collected earlier in the interview. Respondents were then asked about the family's income in relation to the prefilled poverty threshold dollar amount. When the reported income was greater than $50,000, respondents were asked if it exceeded $100,000; if not, then respondents were asked if it exceeded $75,000 and the series of questions ended for the higher incomes.

The NHIS research team compared the percentages of unknown responses when calculating the poverty ratio, the percentage distributions of the poverty ratio for selected sociodemographic characteristics, and the percentage distributions of selected sociodemographic characteristics by poverty ration category, comparing results from the fourth quarter of the 2006 NHIS and the first quarter of the 2007 NHIS. The findings suggest that the weighted percentage of unknown responses for income for the "as usual" NHIS group was 29.6%, whereas the experimental group had a weighted percentage of 16.0%. The positive results from the experiment hastened the implementation of these revised questions starting with the 2007 NHIS.

The most current NHIS survey asked respondents who did not know or refused to state an income amount if their family's combined income in the previous calendar year was $50,000 or more, or less than $50,000. If they refused to answer or indicated that they did not know, they were not asked any additional income questions. If they answered the $50,000 question, then the survey followed the pattern described above as experimental (Sondik, Madans, & Gentleman,

2012). Thus, NHIS respondents were categorized into one of four income categories (Sondik et al., 2012): (1) those who supplied a dollar amount (83% of sample adults in 2011), (2) those who indicated a range for their income by answering all of the applicable follow-up questions (11% of sampled adults), (3) those who indicated a less precise range for their family's income by answering only some of the applicable follow-up questions (2% of sampled adults), and (4) those who provided no information about their income (4% of sampled adults). Based on these data, the Centers for Disease Control and Prevention is able to provide a poverty rate as defined by the Census Bureau.

Notably, the NHIS income questions are not analogous to what is currently in the NCVS. The current NCVS instrument has one income question, which asks the respondent to choose from 14 different income response categories. BJS may consider revising this lead-in question altogether, following up refusals with questions that that mirror the types of questions that the NHIS eventually adopted (e.g., *Was your total family income from all sources less than $50,000 or $50,000 or more?*), or both.

Implementing a similar experiment within the NCVS might be fruitful in light of the high item nonresponse rates. Given the importance of this variable and the high-profile nature of the NCVS, merely changing the income variable without testing the response is not recommended. It is possible to design and implement an effective experiment that reflects this recommendation.

Recommendation 2: Move the Income Question to Follow the Employment Section.

Currently, the income question is located near the beginning of the survey (question #12 on page 1). The current placement of income is far from ideal; the question is asked too early in the interview. A best practice in survey methodology is to ask sensitive questions like income toward the end of the survey, the rationale being that this provides interviewers ample time to develop rapport with the respondent and for the respondents to gain some comfort with the process and their responses (Sudman & Bradburn, 1982). For example, on the 2013 ACS and the 2013 National Survey on Drug Use and Health (NSDUH) surveys, the income questions are

last.[2] The rationale for moving the income question to follow the employment section is based on the following.

- The respondents will already be thinking of potential income sources as they think about their past employment, and this line of questions naturally follows this topic.
- The employment questions are located toward the back of the instrument, starting with question 47b; thus, any gains made in the rapport-building efforts by the interviewer and the related comfort levels of the respondents might have some positive effect on the item response rate.

Implementing this recommendation would presumably require some minor survey methodological work, training of the interviewers, and possibly overhauling some existing infrastructure at the Census Bureau. However, this may be one of the lowest-cost strategies to reduce the item nonresponse rate for income.

Recommendation 3: Expand the Upper-Bound Income Category.

Currently, the upper household income category in the NCVS is $75,000 or more. This category is the most common, and the distribution is highly skewed to the right, as demonstrated by Berzofsky and colleagues (2014). Unfortunately, the top tier income category does not provide much usable context given the wide range of SES that could be present at that income level. One-person households reporting an income of $75,000 or more may be very different from a five-person household reporting that same income. Thus, splitting this tier into additional categories to allow for finer grained analysis of victimization by income level, as well as a more accurate SES index measure, is strongly recommended.

Some Federal surveys (e.g., ACS) ask respondents to enter their total income rather than select a category, which means that, hypothetically, there is no upper-bound income level for those surveyed. As another example, the top two income categories on the 2013 NSDUH were (1) $75,000 to $99,999 and (2) $100,000 or more.

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[2] To see these surveys, access the 2013American Community Survey at http://www.census.gov/acs/www/Downloads/questionnaires/2013/Quest13.pdf; see question 47at the end of the survey. The 2013 NSUDH survey may be accessed at http://www.samhsa.gov/data/2k12/NSDUH2013MRB/NSDUHmrbCAIquex2013.pdf; see pages 426–433 for the income variables.

Should BJS decide to stay with the current income question as it is currently worded, adding at least one and possibly two or three additional income categories above the current top tier of $75,000 or more is recommended. The inclusion of more income categories at the top may also correct the skewed distribution so that it moves closer to the ideal bell-shaped curve. Because estimating the number of households is not a main goal of the NCVS, moving toward the categories currently being used by NSDUH is recommended, because it would be useful for comparability.

Recommendation 4: Ask the Census Bureau to Create Flags Indicating When Income Has Been Carried Over From Previous Survey Waves.

As noted in Berzofsky and others (2014), it is not currently possible to identify with certainty the household income values that came from a carried-forward value (i.e., the income value from the previous wave was inserted for a wave in which the household was not asked about income). Thus, it is recommended that these values be imputed in a manner similar to those who do not provide an income when asked. Furthermore, because an implicit imputation is being conducted, it is important that users of the data be made aware of which responses were populated through this process. For these reasons, it is recommended that a flag be included on the PUF allowing users and those imputing income data the ability to identify which income values were actually reported by a household during that interview and which income values were not actually reported in that particular wave.

Recommendation 5: Continue to Consider Household Size and Federal Poverty Level If and When Improvements to the Income Question Are Implemented.

As demonstrated in ***Section 2,*** as FPL increased, the rate of violent and property crime victimization decreased. Given the impact that household size can have on income, it is recommended that any SES measure that may be derived from an improved future income question should include household size and FPL. Therefore, it is further recommended that how the FPL changes based on household size be taken into account to the extent possible in any revised income question.

Recommendation 6: Add a Question That Asks for Number of Days of Unemployment During the Most Recent Reference Period.

The NCVS does not currently have a question that asks for the number of days of unemployment. This might be an important construct that could provide some interesting

insights into unemployment patterns among victims, given research that shows an association between victimization and unemployment (Aaltonen, Kivivuori, Martikainen, and Salmi, 2012; Faergemann et al., 2009). More data on unemployment might also inform future imputation methods.

Recommendation 7. Revise the Occupation Questions.

As described above, the occupation data gleaned from the current NCVS question are not producing usable data; thus, it is not possible to use occupation as a factor in the proposed SES index. However, occupation represents one of the "big three" parts of SES, and the importance of being able to use occupation data for any analyses or imputations related to SES cannot be overstated. To that end, it is recommended that BJS make changes to the occupation question so that it will yield better data.

Recommendation 8: Ask for Additional Sources of Income Such as Food Stamps, Medicare, Medicaid, Disability, Pension, Other Measures of Wealth, etc.

The NCVS is one of the few national surveys that do not ask for additional sources of income (see Table A-1 in ***Appendix A*** for examples of surveys that include additional sources of income, including program participation). Adding these sources could provide a fuller picture of the economic status of respondents. Should BJS be interested in adding such questions to the NCVS, it would be preferable to add the questions that are on the Census Bureau and Labor Statistics surveys for comparability. However, given the volume of questions surrounding these sources of income, adding such a series of questions would be expensive and it is unclear whether doing so is feasible at this time.

A less expensive and less burdensome alternative would be to add one question that captures information on respondents' usage of or need for various social services or safety net sources. For example, Nilsson and Estrada (2006) describe a yes-or-no question that asked respondents whether they would need to borrow money (from friends or family, a bank, or another source) if an unexpected expense in the amount of €1,500 arose. Clearly, this does not provide a comprehensive picture of the resources the respondents have, but it does provide a glimpse into the financial struggles faced by some respondents.

Recommendation 9: Ask the Census Bureau to Create a File That Could Be Used to Create a Macro-Level SES to Add to the Public Use Files.

Census tract information from the NCVS have been previously examined, with notable findings related to neighborhood disadvantage and police notification behaviors (Baumer, 2002) and to identifying those at greatest risk for experiencing violence (Lauritsen, 2001). Should the Census Bureau release a special file that contains Census tract information, macro-level neighborhood information could enhance BJS's ability to study the seemingly complex relationships between SES and criminal victimization. Moreover, micro- and macro-level SES indicators could be added to PUFs in a way that maintains the confidentiality of NCVS respondents.

Recommendation 10: Revise the Educational Attainment Question So That It Separates High School Graduates and Recipients of Equivalent Diplomas.

Currently, question 25a of the NCVS asks respondents to provide the highest grade they attained, and question 25b asks whether that year was completed. Thus, there is no distinction between those who completed high school and those who earned a high school equivalent diploma. Although many Federal agencies combine these two groups in surveys (e.g., see this presentation from the Department of Health and Human Services, slides 10–11: http://www.cdc.gov/nchs/ppt/nchs2012/SS-34_QUEEN.pdf), this practice may change in the coming years because recent studies show that these two groups' earnings and educational pursuits are very different. In short, GED recipients tend to earn less than high school graduates, and they are also less likely to pursue higher education. In light of reports at the Census Bureau (e.g., Crissey & Bauman, 2012; Ewert, 2012) and the Department of Labor (e.g., "Precis: Labor market returns of the GED," 2010) that acknowledge these differences, it may behoove BJS to recalibrate the NCVS educational attainment questions such that GED can be selected as an option and therefore a finer grained measure for education can be used in future analyses.

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APPENDIX A: REFERENCED TABLES

Table A-1. Description of how socioeconomic status is measured in selected studies

Survey agency	Panel design?	Description of the socioeconomic status data that are used
Current Population Survey (CPS) *Bureau of Labor Statistics; Census Bureau*	Y	**Overview:** The CPS focuses on "poverty status," which is derived by examining the data from a series of questions from more than 50 sources of income during the previous calendar year.[a] Under the Office of Management and Budget's (OMB's) Statistical Policy Directive 14 guideline, the CPS uses a set of money income thresholds that vary by family size and composition to detect who is poor. **Poverty Status Measures:** Income includes earnings, unemployment compensation, workers' compensation, Social Security, Supplemental Security Income (SSI), public assistance, veterans' payments, survivor benefits, pension or retirement income, interest, dividends, rents, royalties, income from estates, trusts, educational assistance, alimony, child support, assistance from outside the household, and other miscellaneous sources.[b] Noncash benefits (e.g., food stamps) do not count, and income is measured before taxes and excludes capital gains and losses. The questionnaire provides categorical responses for total income spanning 16 different income ranges, beginning with "Less than $5,000" and ending with "$150,000 or more." Poverty thresholds are the dollar amounts used to determine poverty status that do not vary geographically but are updated annually for inflation with the Consumer Price Index for All Urban Consumers (CPI-U). Each person or family is assigned one of 48 possible poverty thresholds.[b] **Computation:** If total family income is less than the threshold appropriate for that family, the family is in poverty, and all family members have the same poverty status. If total family income equals or exceeds the threshold, the family is not in poverty. For more information about the poverty measure, access http://www.census.gov/hhes/www/poverty/about/overview/measure.html. **Other Approaches:** Recently, the Census Bureau has begun reporting the "Supplemental Poverty Measure," which derives poverty thresholds from the Consumer Expenditure Survey on basic necessities (food, shelter, clothing, and utilities) and is adjusted for geographic differences in the cost of housing.[c] It is not intended to replace the official poverty measure but is supposed to provide an additional indicator of economic well-being and provide a better understanding of economic conditions and policy impacts.[c] For more information on the Supplemental Poverty Measure, access http://www.census.gov/hhes/www/poverty/SPM_TWGObservations.pdf.

(continued)

Table A-1. Description of how socioeconomic status is measured in selected studies (continued)

Survey agency	Panel design?	Description of the socioeconomic status data that are used
Survey of Income and Program Participation (SIPP) *Census Bureau*	Y	**Overview:** The SIPP collects monthly income for up to 81 sources of income and up to 73 individual income values.[d] SIPP estimates of annual income and annual poverty can be obtained by summing 12 months of family income and monthly poverty thresholds, both of which may vary month to month. Like the CPS, the SIPP uses a set of thresholds that vary by family size and composition to determine the poverty status of a household. If a family's total income is less than that family's threshold, then the family and every individual within it are considered to be in poverty.[e] **Poverty Status Measures:** At the individual level, income includes earned income, unearned or property income, and transfer program income.[f] Earned income comprises wage and salary income, self-employed earnings, and earnings from other work arrangements. Unearned or property income refers to all income generated from interest, dividends, lump-sum payments from insurance claims, and payments from annuities and retirement, as well as payments from trusts, estates, and royalties. Transfer program income refers to cash payments from social welfare programs, SSI, Temporary Assistance to Needy Families, and general assistance. Poverty thresholds are the dollar amounts used to determine poverty status. Each person or family is assigned one of 48 possible poverty thresholds. Thresholds vary according to the size of the family and the ages of the members. The same thresholds are used throughout the United States (i.e., they do not vary geographically) and are updated annually using the CPI-U. **Computation:** In the SIPP, because income is reported multiple times a year, annual poverty rates are calculated using the sum of family income over the year divided by the sum of poverty thresholds, which can change from month to month if one's family composition changes.[g] Notably, in one recent SIPP study,[h] the small portion of families reporting zero average monthly income for the year were excluded from the analysis because of concerns that "fixing it" would introduce bias because of the small proportion of households reporting zero income and the unlikelihood of a family with no annual income. **Other Approaches:** Beyond the computation that would be derived under OMB's Directive 14 (as described above), the Census Bureau (Anderson, 2011) has also examined poverty in other ways using the SIPP panel data, including the following: *Monthly Poverty Rate*—Percentage in poverty in a given month using monthly income and a monthly threshold. *Episodic Poverty Rate*—Percentage in poverty for 2 or more consecutive months. *Chronic Poverty Rate*—Percentage in poverty every month of the time frame being considered. *Length of Poverty Spell*—Number of months in poverty. The minimum spell length is 2 months, and spells are separated by 2 or more months of not being in poverty. Individuals can have more than one spell. Spells under way in the first interview month of the panel are excluded. *Poverty Entry*—On the basis of the annual poverty measures, people who were not in poverty in the first year of the panel but in poverty in one or more subsequent years. *Poverty Exit*—On the basis of the annual poverty measure, people who were in poverty in the first year of the panel but not in poverty in one or more subsequent years.

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Table A-1. Description of how socioeconomic status is measured in selected studies (continued)

Survey agency	Panel design?	Description of the socioeconomic status data that are used
Panel Study of Income Dynamics (PSID) *National Science Foundation, National Institute on Aging, and Eunice Kennedy Shriver National Institute of Child Health & Human Development*	Y	**Overview:** Like the CPS, the PSID uses threshold poverty values to assess socioeconomic well-being on the basis of combined family income, family size, the number of persons in the family under age 18, and the ages of the household members.[i] **Poverty Status Measures:** The "Total Family Income" variable is created for each data collection wave and represents an aggregation of all labor, asset, and government transfer income (cash welfare, Social Security, etc.) for the head, spouse, and all others living in the family unit at any point during the calendar year (Institute for Social Research, 2012). PSID family income reflects the income of all persons living in the family unit during calendar year *t*, regardless of whether that person was living in the family at the time of the interview in year *t+1*. Income for each family member includes only the amount accrued during the months that the person resided with the other family members. Notably, the PSID defines "family" more broadly and includes unrelated people who live together and share resources (like cohabiting partners). The broad income categories include head and wife taxable income; head and wife transfer income; other family member taxable income; other family member transfer income; head and wife Social Security income; and other family member Social Security income. In addition, respondents are asked to provide detailed information for each of the head's and wife's jobs. The employment data are combined with the income data to compute a wage rate for both the head and wife, and may also be used for imputing labor income when needed (Institute for Social Research, 2012). **Computation:** Variables representing the total value of wealth and its major subcomponents are used to derive an overall wealth indicator (Institute for Social Research, 2012).
American Community Survey (ACS) *Census Bureau*	N	**Overview:** Using a series of eight questions, the ACS asks about money income, plus one type of noncash benefit (food stamps), during the previous 12 months. ''Total income'' is the sum of the amounts reported separately for wage or salary income; net self-employment income; interest, dividends, net rental or royalty income, or income from estates and trusts; Social Security or railroad retirement income; SSI; public assistance or welfare payments; retirement, survivor, or disability pensions; and all other income. The estimates are adjusted for inflation using the Consumer Price Index.[j] **Poverty Status Measures.** Poverty statistics in ACS products adhere to the standards specified by OMB Directive 14. The Census Bureau uses a set of dollar value thresholds that vary by family size and composition to determine who is in poverty. Furthermore, poverty thresholds for people living alone or with nonrelatives (unrelated individuals) vary by age (under 65 years or 65 years and older). The poverty thresholds for two-person families also vary by the age of the householder. If a family's total income is less than the dollar value of the appropriate threshold, then that family and every individual in it are considered to be in poverty. Similarly, if an unrelated individual's total income is less than the appropriate threshold, then that individual is considered to be in poverty (Bishaw, 2012). **Computation.** In determining the poverty status of families and unrelated individuals, the Census Bureau uses thresholds (income cutoffs) arranged in a two-dimensional matrix. The matrix consists of family size (from one person to nine or more people) cross-classified by presence and number of family members under 18 years old (from no children present to eight or more children present). Unrelated individuals and two-person families are further differentiated by age of reference person (under 65 years old and 65 years old and over).

(continued)

Table A-1. Description of how socioeconomic status is measured in selected studies (continued)

Survey agency	Panel design?	Description of the socioeconomic status data that are used
		To determine a person's poverty status, the person's total family income in the last 12 months is compared with the poverty threshold appropriate for that person's family size and composition. If the total income of that person's family is less than the threshold appropriate for that family, then the person is considered "below the poverty level," together with every member of his or her family. If a person is not living with anyone related by birth, marriage, or adoption, then the person's own income is compared with his or her poverty threshold. The total number of people below the poverty level is the sum of people in families and the number of unrelated individuals with incomes in the last 12 months below the poverty threshold (Bishaw, 2012).

[a] U.S. Census Bureau. (2012a). *Description of income and poverty data sources*. Washington, DC: Author. Retrieved from http://www.census.gov/hhes/www/poverty/about/datasources/description.html#sippbckgrnd.

[b] U.S. Census Bureau. (2012b). *How the Census Bureau measures poverty*. Washington, DC: Author. Retrieved from http://www.census.gov/hhes/www/poverty/about/overview/measure.html

[c] U.S. Census Bureau. (2010, March). *Observations from the Interagency Technical Working Group on developing a supplemental poverty measure*. Washington, DC: Author. Retrieved from http://www.census.gov/hhes/www/poverty/SPM_TWGObservations.pdf

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[h] Hisnanick, J. J. (2007). The dynamics of low income and persistent poverty among U.S. families. *Journal of Income Distribution*, *16*(1), 116–132.

[i] Institute for Social Research, University of Michigan. (2012). PSID main interview user manual (Release 2012.1). Ann Arbor, MI: Author. Retrieved from http://psidonline.isr.umich.edu/data/Documentation/UserGuide2009.pdf

[j] Bishaw, A. (2012). *American Community Survey research briefs: Poverty: 2010 and 2011*. Washington, DC: United States Census Bureau. Retrieved from http://www.census.gov/prod/2012pubs/acsbr11-01.pdf

Table A-2. Victimization rates by type of crime and household income, 2010

Household income	Number of households	Percentage	Rape and sexual assault	Robbery	Aggregated assault	Simple assault	All violent crimes	Household burglary	Motor vehicle theft	All property crimes
Less than $15,000	17,185,600	14.0%	1.6	4.0	5.6	17.2	28.4	45.6	4.4	159.3
$15,000–$34,999	30,206,400	24.6	0.8	3.0	4.2	14.9	22.9	29.0	5.5	132.2
$35,000–$49,999	19,406,900	15.8	0.8*	1.9	4.5	11.0	18.2	25.2	4.6	121.6
$50,000–$74,999	20,965,200	17.1	1.6	2.2	2.2	11.6	17.6	18.5	5.5	109.8
$75,000 or more	35,121,200	28.6	0.8*	1.2	2.0	10.9	14.9	18.2	4.5	114.4

Note: Rate per 1,000.

*Interpret with caution; estimate based on 10 or fewer sample cases or coefficient of variation is greater than 50%.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-3. Victimization rates by type of crime and household income as percentage of Federal poverty level, 2010

Household income (percentage of Federal poverty level)	Number of households	Percentage	Rape and sexual assault	Robbery	Aggregated assault	Simple assault	All violent crimes	Household burglary	Motor vehicle theft	All property crimes
100% or less	16,979,800	13.8%	1.8	5.0	5.8	16.8	29.5	45.4	6.3	179.8
101%–150%	12,226,600	10.0	0.7*	3.3	4.5	15.1	23.6	37.5	7.3	166.6
151%–200%	11,842,100	9.6	1.1*	1.9	3.2	16.3	22.5	29.7	4.0	129.9
201%–300%	21,132,500	17.2	0.7*	2.6	4.1	12.3	19.6	23.3	4.0	117.2
301%–400%	15,335,100	12.5	1.8*	1.0	2.2	14.0	19.0	18.9	4.4	103.6
401%–500%	10,564,000	8.6	--*	0.7*	2.3	14.6	17.8	14.0	6.4	97.1
Greater than 500%	34,805,100	28.3	0.9*	1.3	2.1	7.5	11.7	19.1	4.1	106.0

Note: Rate per 1,000. *Interpret with caution; estimate based on 10 or fewer sample cases or coefficient of variation is greater than 50%.

*Interpret with caution; estimate based on 10 or fewer sample cases or coefficient of variation is greater than 50%.

— Number less than 0.5.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-4. Victimization rates by type of crime and education level, 2010

Education level	Number of persons	Percentage	Rape and sexual assault	Robbery	Aggregated assault	Simple assault	All violent crimes	Household burglary	Motor vehicle theft	All property crimes
Less than high school	59,533,500	23.3%	1.5	2.5	5.6	14.2	23.8	43.5	5.7	211.7
High school, some college, or associate's degree	128,207,600	50.1	1.2	2.6	3.0	13.8	20.6	27.7	5.3	128.0
Bachelor's degree	43,868,200	17.1	—*	1.6	2.1	10.6	14.5	16.9	4.5	89.5
Master's, professional, or doctoral degree	18,609,800	7.3	0.5*	1.0*	2.6*	6.6	10.7	16.8	2.8*	103.5
Unknown	5,742,800	2.2	—*	0.8*	—*	7.0*	7.8	12.1	3.2*	53.2

Note: Rate per 1,000.

*Interpret with caution; estimate based on 10 or fewer sample cases or coefficient of variation is greater than 50%.

— Number rounds to less than 0.5.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-5. Victimization rates by type of crime and 6-month employment status, 2010

Employment status	Number of persons	Percentage	Rape and sexual assault	Robbery	Aggregated assault	Simple assault	All violent crimes	Household Burglary	Motor vehicle theft	All property crimes
Employed	146,617,000	57.3%	1.1	2.3	2.9	14.3	20.6	51.6	11.8	265.8
Unemployed	90,474,400	35.4	0.7	2.2	3.6	9.5	16.0	14.6	1.9	58.3
Unknown†	18,870,500	7.4	2.4*	1.6*	6.1	14.8	24.9	16.9*	2.1*	391.5

Note: Rate per 1,000.

*Interpret with caution; estimate based on 10 or fewer sample cases or coefficient of variation is greater than 50%.

†Includes those under 18 years old.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-6. Victimization rates by type of crime and housing tenure, 2010

Tenure	Number of households	Percentage	Rape and sexual assault	Robbery	Aggregated assault	Simple assault	All violent crimes	Household burglary	Motor vehicle theft	All property crimes
Own	82,203,700	66.9%	0.6	1.0	2.0	8.4	12.0	21.1	3.7	103.6
Rent or no cash rent	40,681,400	33.1	2.0	5.1	6.4	22.6	36.1	35.5	7.5	169.4

Note: Rate per 1,000.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-7. Victimization rates by type of crime and public housing status, 2010

Public housing	Number of households	Percentage	Rape and sexual assault	Robbery	Aggregated assault	Simple assault	All violent crimes	Household burglary	Motor vehicle theft	All property crimes
No	120,201,600	97.9%	1.0	2.2	3.3	12.5	19.0	25.4	4.9	125.0
Yes	2,630,200	2.1	1.7*	5.9*	3.3*	25.4	36.2	46.8	5.7*	143.6

Note: Rate per 1,000.

*Interpret with caution; estimate based on 10 or fewer sample cases or coefficient of variation is greater than 50%.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 010.

Table A-8. Crosstab of persons by income level and employment status, 2010

Income (percentage of Federal poverty level)	Employment status	
	No (%)	Yes (%)
100% or less	53.2	46.8
101% to 200%	46.4	53.7
201% to 400%	35.4	64.6
401% or greater	26.3	73.7

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-9. Crosstab of persons by income level and household tenure, 2010

Income	Household tenure	
	Rent (%)	Own (%)
100% or less	58.5	41.5
101% to 200%	41.0	59.0
201% to 400%	26.2	73.8
401% or greater	17.0	83.0

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-10. Crosstab of persons by income level and public housing status, 2010

Income	Public housing	
	Yes (%)	No (%)
100% or less	6.0	94.0
101% to 200%	2.4	97.6
201% to 400%	0.7	99.3
401% or greater	0.3	99.7

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-11. Crosstab of persons by income level and education level, 2010

Income	Education			
	Less than high school (%)	High school, some college, or associate's degree (%)	Bachelor's degree (%)	Master's, professional, or doctoral degree (%)
100% or less	32.4	57.3	8.0	2.3
101% to 200%	24.7	63.0	9.8	2.6
201% to 400%	13.4	62.7	18.1	5.9
401% or greater	6.8	47.9	29.9	15.4

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-12. Crosstab of persons by education level and employment status, 2010

Education	Employment status	
	No (%)	Yes (%)
Less than high school	55.3	44.7
High school, some college, or associate's degree	37.1	62.9
Bachelor's degree	24.6	75.4
Master's, professional, or doctoral degree	23.6	76.4

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-13. Crosstab of persons by education level and household tenure, 2010

Education	Household tenure	
	Rent (%)	Own (%)
Less than high school	41.1	58.9
High school, some college, or associate's degree	31.1	68.9
Bachelor's degree	23.0	77.0
Master's, professional, or doctoral degree	17.3	82.7

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-14. Crosstab of persons by education level and public housing status, 2010

Education	Public housing	
	Yes (%)	No (%)
Less than high school	3.9	96.1
High school, some college, or associate's degree	1.6	98.4
Bachelor's degree	0.4	99.6
Master's, professional, or doctoral degree	0.2	99.8

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-15. Crosstab of persons by household tenure and employment status, 2010

Household tenure	Employment status	
	No (%)	Yes (%)
Rent	35.7	64.3
Own	37.0	63.0

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-16. Victimization rates by type of crime and SES Index 1, 2010

SES Index 1 categories†	Number of households	Percentage	Rape and sexual assault	Robbery	Aggregated assault	Simple assault	All violent crimes	Household burglary	Motor vehicle theft	All property crimes
1	2,436,200	2.0	0.9*	1.0*	15.8	18.9	36.6	49.4	9.6*	171.2
2	7,222,600	5.9	1.8*	5.3	5.1	19.0	31.2	49.3	5.9	182.4
3	12,662,800	10.3	1.3*	5.2	5.0	18.2	29.7	39.7	6.5	178.1
4	17,003,500	13.8	1.3	2.4	3.9	12.9	20.4	33.0	5.1	144.2
5	21,703,300	17.7	1.6	2.1	3.5	14.2	21.5	27.7	4.9	128.5
6	23,446,500	19.1	--*	1.7	1.7	12.8	16.4	16.5	5.0	101.5
7	20,783,400	16.9	1.1*	0.8	3.2	8.9	14.0	19.9	4.3	107.7
8	13,641,300	11.1	--*	0.8*	1.3*	6.7	9.3	14.8	3.6	102.8
Unknown	3,985,600	3.2	--*	1.8*	--*	3.9*	6.2	8.7	2.4*	40.4

Note: Rate per 1,000.

†The Socioeconomic Status (SES) Index does not result in whole numbers. The categories represent the results as follows: 1 = 0 to less than 1, 2 = 1 to less than 2, 3 = 2 to less than 3, 4 = 3 to less than 4, 5 = 4 to less than 5, 6 = 5 to less than 6, 7 = 6 to less than 7, and 8 = 7 to 8.

*Interpret with caution; estimate based on 10 or fewer sample cases or coefficient of variation is greater than 50%.

— Number less than 0.5.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2006–2010.

Table A-17. Victimization rates by type of crime and SES Index 2, 2010

SES Index 2 categories†	Number of households	Percentage	Rape and sexual assault	Robbery	Aggregated assault	Simple assault	All violent crimes	Household burglary	Motor vehicle theft	All property crimes
1	466,700	0.4	2.4*	2.5*	--*	14.0*	19.0*	28.0*	11.5*	113.1
2	4,148,200	3.4	1.3*	2.1*	9.8	17.7	30.8	49.0	7.4*	157.1
3	10,628,100	8.7	1.1*	4.3	5.9	15.1	26.3	48.5	5.2	174.5
4	17,103,400	13.9	1.2	3.6	3.1	13.2	21.1	32.2	5.3	151.4
5	21,475,200	17.5	1.0	2.2	3.8	14.5	21.6	27.4	5.6	133.3
6	25,504,200	20.8	1.3*	1.7	2.5	14.3	19.8	21.8	3.8	113.4
7	23,336,500	19.0	1.1*	1.5	2.1	10.3	15.0	18.9	5.2	110.0
8	16,200,600	13.2	0.5*	1.0	2.9	8.2	12.7	16.6	4.8	108.9
Unknown	4,022,200	3.3	--*	2.2*	0.8*	3.8*	6.8	8.7	2.3*	43.2

Note: Rate per 1,000.

†The Socioeconomic Status (SES) does not result in whole numbers. The categories represent the results as follows: 1 = 0 to less than 1, 2 = 1 to less than 2, 3 = 2 to less than 3, 4 = 3 to less than 4, 5 = 4 to less than 5, 6 = 5 to less than 6, 7 = 6 to less than 7, and 8 = 7 to 8.

*Interpret with caution; estimate based on 10 or fewer sample cases or coefficient of variation is greater than 50%.

— Number less than 0.5.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.

Table A-18. Victimization rates by type of crime and SES Index 3, 2010

SES Index 3 categories†	Number of households	Percentage	Rape and sexual assault	Robbery	Aggregated assault	Simple assault	All violent crimes	Household burglary	Motor vehicle theft	All property crimes
1	3,810,100	3.1	0.9*	1.2*	10.0	16.4	28.5	42.1	7.0*	147.2
2	10,795,900	8.8	1.3*	4.2	5.6	15.5	26.6	50.7	6.0	175.5
3	17,389,400	14.2	1.2	3.9	3.3	13.4	21.7	31.4	5.2	152.7
4	21,643,700	17.6	1.0	2.2	3.9	13.5	20.6	28.6	5.5	133.7
5	25,676,900	20.9	1.3*	1.6	2.5	15.1	20.6	21.7	3.7	113.4
6	23,368,200	19.0	1.1*	1.5	2.1	10.3	15.0	18.9	5.2	110.0
7	16,215,300	13.2	0.5*	1.0	2.9	8.2	12.7	16.6	4.8	108.9
Unknown	3,985,600	3.2	--*	1.8*	--*	3.9*	6.2	8.7	2.4*	40.4

Note: Rate per 1,000.

†The Socioeconomic Status (SES) does not result in whole numbers. The categories represent the results as follows: 1 = 0 to less than 1, 2 = 1 to less than 2, 3 = 2 to less than 3, 4 = 3 to less than 4, 5 = 4 to less than 5, 6 = 5 to less than 6, and 7 = 6 to 7.

* Interpret with caution; estimate based on 10 or fewer sample cases or coefficient of variation is greater than 50%.

— Number less than 0.5.

Source: Bureau of Justice Statistics National Crime Victimization Survey (NCVS), 2010.