U.S. Department of Justice
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Bureau of Justice Statistics

Criminal Victimization in the United States, 1995

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A National Crime Victimization Survey Report

Appendixes

Appendix I
Survey instrument

A screen questionnaire (form NCVS-1) and a crime incident report (form NCVS-2) are used to obtain information about households, individuals, and the relevant crimes they have experienced. The first form, NCVS-1, is designed to obtain demographic characteristics and to screen for any crime incidents. Each household member age 12 or older is interviewed individually, unless a proxy is used. Proxy interviews are used for children age 12 or 13 when the parents object to an individual interview, as well as for persons who are absent during the entire interviewing period and persons who are otherwise incapable of answering for themselves.

After the first form is completed, the interviewer fills out a second form, the NCVS-2 form, for each reported incident. Along with general questions about the incident, the NCVS-2 form includes questions about the extent of physical injury, economic loss, offender characteristics, and notification of police.

Appendix II
Changes to data reporting procedure

The estimates presented in this report will correspond to 1995 estimates presented in the BJS Bulletin *Changes in Criminal Victimization 1994-95*, but will differ from the 1995 estimates presented in the BJS Bulletin *Criminal Victimization 1996: Changes 1995-96 with Trends 1993-96*. Beginning with the 1996 Bulletin, all NCVS reports will be based on data collected in interviews conducted during the calendar year being estimated. Previous reports presented estimates based on crimes occurring during the given calendar year.

Reason for change

The change in data reporting procedure was undertaken in an effort to expedite the annual publication of NCVS data. NCVS respondents are interviewed every 6 months and asked to recall any crime incidents that have occurred in the 6 months since the previous interview. For this reason, 6 months of data collection beyond the end of the calendar year are needed to gather information on all incidents occurring during a calendar year.

For example, as shown below, this report required 17 months of data collection (February 1995-June 1996) to collect information on all the incidents that occurred during 1995 (figure 1). This reporting procedure is referred to as a "data year."

To publish more timely estimates from the survey, beginning with data for 1996, all NCVS publications will present estimates based upon interviews conducted during the calendar year. This reporting procedure is referred to as a "collection year." Under the collection year procedure estimates for any given year will include some incidents that actually took place during the previous calendar year and will exclude some incidents that would have been reported in interviews conducted in the following calendar year.

Collection and data years for 1995

Month of incident	1995 interviews Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	1996 interviews Jan	Feb	Mar	Apr	May	June
July 1994	x																	
August	x	x																
September	x	x	x															
October	x	x	x	x														
November	x	x	x	x	x													
December	x	x	x	x	x	x												
January 1995		x	x	x	x	x	x											
February			x	x	x	x	x	x										
March				x	x	x	x	x	x									
April					x	x	x	x	x	x								
May						x	x	x	x	x	x							
June							x	x	x	x	x	x						
July								x	x	x	x	x	x					
August									x	x	x	x	x	x				
September										x	x	x	x	x	x			
October											x	x	x	x	x	x		
November												x	x	x	x	x	x	
December													x	x	x	x	x	x

(Collection year area shown under 1995 interviews for the 1994 incident rows; Data year area shown under 1996 interviews columns Apr–May for the 1995 incident rows.)

How the change affects NCVS estimates

While 1995 data year estimates (presented in this report) differ slightly from 1995 collection year estimates (presented in the Bulletin *Criminal Victimization 1996*), the differences are not statistically significant (table 1). In general, collection year estimates will be higher than data year estimates during times of declining crime rates, and lower than data year estimates during times of increasing crime rates.

Appendix table 1. Comparison of 1995 data year to collection year estimates, by type of crime

Type of crime	Number of victimizations (1,000's)		Victimization rates (per 1,000 persons age 12 or older or per 1,000 households)	
	Collection year 1995	Data year 1995	Collection year 1995	Data year 1995
All crimes	39,926	38,452	....	
Personal crimes	10,436	9,970	48.5	46.2
Crimes of violence	10,022	9,605	46.6	44.5
Complete violence	2,960	2,786	13.8	12.9
Attempted/threatened violence	7,061	6,819	32.8	31.6
Rape/Sexual assault	363	340	1.7	1.6
Rape/attempted rape[1]	251	234	1.2	1.1
Rape	153	141	0.7	0.7
Attempted rape[1]	99	94	0.5	0.4
Sexual assault[2]	112	106	0.5	0.5
Robbery	1,171	1,142	5.4	5.3
Completed/property taken	753	745	3.5	3.5
With injury	224	218	1.0	1.0
Without injury	529	527	2.5	2.4
Attempted to take property	418	397	1.9	1.8
With injury	84	95	0.4	0.4
Without injury	335	302	1.6	1.4
Assault	8,487	8,122	39.5	37.7
Aggravated	2,050	1,883	9.5	8.7
With injury	533	507	2.5	2.3
Threatened with weapon	1,517	1,376	7.1	6.4
Simple	6,437	6,240	29.9	28.9
With minor injury	1,426	1,300	6.6	6.0
Without minor injury	5,012	4,940	23.3	22.9
Personal theft	414	365	1.9	1.7
Property crimes	29,490	28,482	290.5	279.5
Household burglary	5,004	4,822	49.3	47.3
Completed	4,232	4,070	41.7	39.9
Forcible entry	1,570	1,507	15.5	14.8
Unlawful entry without force	2,662	2,563	26.2	25.2
Attempted forcible entry	773	752	7.6	7.4
Motor vehicle theft	1,717	1,654	16.9	16.2
Completed	1,163	1,098	11.5	10.8
Attempted	554	555	5.5	5.5
Theft	22,769	22,006	224.3	216.0
Completed	21,857	21,153	215.3	207.6
Less than $50	8,652	8,240	85.2	80.9
$50-$249	7,712	7,591	76.0	74.5
$250 or more	4,270	4,163	42.1	40.9
Attempted	911	853	9.0	8.4

Note: Detail may not add to totals shown because of rounding.
[1]Includes verbal threats of rape.
[2]Include threats.

Appendix III
Survey methodology

The survey results contained in this report are based on data gathered from residents living throughout the United States, including persons living in group quarters, such as dormitories, rooming houses, and religious group dwellings. Crew members of merchant vessels, Armed Forces personnel living in military barracks, and institutionalized persons, such as correctional facility inmates, were not included in the scope of this survey. Similarly, U.S. citizens residing abroad and foreign visitors to this country were excluded. With these exceptions, individuals age 12 or older living in units selected for the sample were eligible to be interviewed.

Data collection

Each housing unit selected for the National Crime Victimization Survey (NCVS) remains in the sample for 3 years, with each of seven interviews taking place at 6-month intervals. An NCVS interviewer's first contact with a housing unit selected for the survey is in person. The interviewer may then conduct subsequent visits, except for the fifth, by telephone.

To elicit more accurate reporting of incidents, NCVS uses the self-respondent method which calls for the direct interviewing of each person 12 years or older in the household. An exception is made to use proxy interviewing instead of direct interviewing for the following three cases: 12- and 13-year-old persons when a knowledgeable household member insists they not be interviewed directly, incapacitated persons, and individuals absent from the household during the entire field-interviewing period. In the case of temporarily absent household members and persons who are physically or mentally incapable of granting interviews, interviewers may accept other household members as proxy respondents, and in certain situations nonhousehold members may provide information for incapacitated persons.

As noted in the sample design section, about 30% of the interviews in the 1995 sample were conducted using Computer-Assisted Telephone Interviewing (CATI), a data collection mode which involves interviewing from centralized facilities and using a computerized instrument. In the CATI-eligible part of the sample, all interviews are done by telephone whenever possible, except for the first and fifth interviews, which are still primarily conducted in person. The telephone interviews are conducted by the CATI facilities (Hagerstown, Maryland, and Tucson, Arizona).

Sample design and size

Survey estimates are derived from a stratified, multi-stage cluster sample. The primary sampling units (PSU's) composing the first stage of the sample were counties, groups of counties, or large metropolitan areas. Large PSU's were included in the sample automatically and are considered to be self-representing (SR) since all of them were selected. The remaining PSU's, called non-self-representing (NSR) because only a subset of them was selected, were combined into strata by grouping PSU's with similar geographic and demographic characteristics, as determined by the 1990 census.

The 1995 NCVS sample households were drawn from both the 1980- and 1990-based sample design. The 1990 design consists of 92 SR PSU's and 153 NSR strata, with 1 PSU per stratum selected with probability proportionate to population size. The NCVS sample design continues use of both 1980- and 1990-based sample through 1997. Beginning in 1998 only 1990-based sample remains.

In the second stage of sampling, each selected stratification PSU is divided into four frames (unit, area, permit, and GQ) from which NCVS independently selects its sample. From each selected stratification PSU, clusters of approximately four housing units or housing unit equivalents are selected from each frame. For the unit and GQ frames, addresses come from the 1990 census

files. For the permit frame, addresses come from building permit data obtained from building permit offices. For the area frame, sample blocks come from the 1990 census files. Then, addresses are listed and sampled in the field.

Approximately 58,520 housing units and other living quarters were designated for the sample. In order to conduct field interviews, the sample is divided into six groups, or rotations, and each group of households is interviewed once every 6 months over a period of 3 years. The initial interview is used to bound the interviews (bounding establishes a time frame to avoid duplication of crimes on subsequent interviews), but is not used to compute the annual estimates. Each rotation group is further divided into six panels. A different panel of households, corresponding to one sixth of each rotation group, is interviewed each month during the 6-month period. Because the survey is continuous, newly constructed housing units are selected as described, and assigned to rotation groups and panels for subsequent incorporation into the sample. A new rotation group enters the sample every 6 months, replacing a group phased out after being in the sample for 3 years.

For these 58,520 sample households, complete interviews were obtained for about 47,750 households in 1995, about 94.7% of all eligible housing units. Within the interviewed households some 89,900 persons, or about 91.1%, provided responses; the other individuals for the most part either refused or were unavailable or unable to answer and no proxy was available. The remaining 10,770 housing units were not interviewed because they were ineligible — vacant, demolished, or otherwise ineligible — for the survey (about 8,110 units), or the occupants could not be reached or refused to participate (about 2,660 units).

Selection of cases for CATI

About 30% of the 47,750 households obtained in the 1995 sample were interviewed using the CATI technique. Currently, the NCVS sample PSU's fall into three groups of CATI usage: maximum-CATI PSU's, where all the segments in the PSU are CATI-eligible; half-CATI PSU's, where half of the segments in the PSU are randomly designated to be CATI-eligible; and no-CATI PSU's, where none of the segments are CATI-eligible. The level of CATI usage for each PSU was established with concern toward an optimal workload for the field interviewers. In the "half-CATI" PSU's, a random sample of about 50% of the segments in each PSU is taken and designated as CATI-eligible. The sample cases in CATI-eligible segments from the max-CATI and the half-CATI PSU's are interviewed from CATI facilities while the other sample cases are interviewed by the standard NCVS field procedures.

Estimation procedure

Annual estimates of the levels and rates of victimization are derived by accumulating four quarterly estimates, which in turn are obtained from 17 months of field interviewing, ranging from February through June of the following year. The population and household figures shown on victimization rate tables are based on an average for these 17 months, centering on the ninth month of the data collection period, in this case October 1995.

Sample data from 8 months of field interviewing are required to produce estimates for each quarter. (Quarterly estimates are not published since there may not be sufficient observations to ensure their reliability.) For example, data collected between February and September are required to estimate the first quarter of any given calendar year (see accompanying chart). Each quarterly estimate is composed of equal numbers of field observation from

Month of interview by month of reference (X's denote months in the 6-month reference period)											
Period of reference within bounded period											
Month of interview	First Quarter			Second Quarter			Third Quarter			Fourth Quarter		
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
February	x											
March	x	x										
April	x	x	x									
May	x	x	x	x								
June	x	x	x	x	x							
July	x	x	x	x	x	x						
August		x	x	x	x	x	x					
September			x	x	x	x	x	x				
October				x	x	x	x	x	x			
November					x	x	x	x	x	x		
December						x	x	x	x	x	x	
January							x	x	x	x	x	x
February								x	x	x	x	x
March									x	x	x	x
April										x	x	x
May											x	x
June												x
July												

the months during the half-year interval prior to the time of interview.

Therefore, incidents occurring in January may be reported in a February interview (1 month between the crime and the interview), in a March interview (2 months), and so on up to 6 months ago for interviews conducted in July. This arrangement minimizes expected biases associated with the tendency of respondents to place victimizations in more recent months of a 6-month reference period rather than the month in which they actually occurred.[1]

The estimation procedure begins with the application of a base weight to the data from each individual interviewed. The base weight is the reciprocal of the probability of each unit's selection for the sample, and provides a rough measure of the population represented by each person in the sample. Next, an adjustment is made to account for households and individuals in occupied units who were selected for the survey but unavailable for interview.

[1]As described in Appendix II, the annual estimation procedure changes with the publication of 1996 estimates.

In addition to adjusting for unequal probabilities of selection and observation, the final weight also includes a ratio adjustment to known population totals based on the adjusted counts from the 1990 Decennial Census. Specifically, the final person weight is the product of the values of the following six component weights; the final household weight is the product of all components except the within-household non-interview adjustment component detailed below:

Probabilities of selection

• Base weight: the inverse of the sampling rate of that unit (person or household) within the stratum.

• Weighting control factor: adjusts for any subsampling due to unexpected events in the field, such as unusually high growth in new construction, area segments larger than anticipated, and other deviations from the overall stratum sampling rate.

*Probabilities of observation
(Nonresponse)*

• Household non-interview adjustment: adjusts for nonresponse at the house-hold level by inflating the weight assigned to interviewed households so that they represent themselves and non-interviewed households.

• Within-household non-interview adjustment: adjusts for nonresponse at the person level by inflating the weight assigned to the interviewed persons so that they represent themselves and the missed interviews.

Post-stratification ratio adjustment to known population totals

The distribution of the sample population may differ somewhat from that of the total population in terms of age, race, sex, residence, and other characteristics. Because of this, two stages of ratio estimation are employed to bring the two distributions into closer agreement, thereby reducing the variability of the sample estimates.

• First-stage factor: the first stage of ratio estimation is applied only to non-self-representing PSU's. Its purpose is to reduce sampling error caused by selecting one PSU to represent an entire stratum. It adjusts for race and zone of residence differences between the sample non-self-representing PSU's and the population non-self-representing PSU's. (For self-representing PSU's this factor is set to 1.)

• Second-stage factor: the second stage of ratio estimation is applied on an individual basis to bring the distribution of individuals in the sample into closer agreement with independent current estimates of the population according to age, sex, and racial characteristics.[2] This factor is defined for each person to adjust for the

difference between weighted counts of persons (using the above five weight components) and independent estimates of the number of persons, within the defined cells. These independent estimates are projections based on the 1990 Census population controls adjusted for the undercount.

For household crimes the characteristics of the wife in a husband-wife household and the characteristics of the head of household in other types of households are used to determine the ratio adjustment factors. This procedure is considered more precise than simply using the characteristics of the head of household because sample coverage is generally better for females than males.

For estimates involving *incidents* rather than *victimizations*, further adjustments are made to those cases where an incident involved more than one person. These incidents have more than one chance of being included in the sample so each multiple-victimization is reduced by the number of victims. Thus, if two people are victimized during the same incident, the weight assigned to that incident is the person weight reduced by one-half so that the incident cannot be counted twice. However, the details of the event's outcome as they related to the victim are reflected in the survey results. No adjustment is necessary in estimating data on household crimes because each separate crime is defined as involving only one household.

Series victimizations

A series victimization is defined as six or more similar but separate crimes which the victim is unable to recall individually or describe in detail to an interviewer. These series crimes have been excluded from the tables in this report because the victims were unable to provide details for each event. Data on series crimes are gathered by the calendar quarter(s) of occurrence, making it possible to match the time

frames used in tabulating the data for non-series crimes.

Appendix table 1 shows the counts of regular and series victimizations for 1995, as well as the results of combining the two, with each series tallied as a single event. A total of 622,350 personal series crimes and 312,260 property series crimes were measured in 1995. Series crimes tended to be crimes of violence.

The effect of combining series and non-series crimes, counting each of the series crimes as a single victimization based on the details of the most recent incident, was included in the initial release of the 1980 data.[3] The report showed that victimization counts and rates were higher in 1979 and 1980 when the series crimes were added. However, rate changes between these 2 years were basically in the same direction and significantly affected the same crimes as those affected when only non-series crimes were analyzed.

Accuracy of estimates

The accuracy of an estimate is a measure of its total error, that is, the sum of all the errors affecting the estimate: sampling error as well as nonsampling error.

The sample used for the NCVS is one of a large number of possible samples of equal size that could have been obtained by using the same sample design and selection procedures. Estimates derived from different samples would differ from one another due to sampling variability, or sampling error.

The standard error of a survey estimate is a measure of the variation among that estimate from all possible samples. Therefore, it is a measure of the precision (reliability) with which a particular estimate approximates the average

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[2]Armed Forces personnel who are eligible to be interviewed are not included in the second-stage estimate and receive a factor of 1.

[3]See *Criminal Victimization in the United States; 1979-80 Changes, 1973-80 Trends,* BJS Technical Report, NCJ 80838, July 1982

Appendix table 2. Number and percent distribution of series victimizations and of victimizations not in series, by type of crime

Type of crime	Total victimizations		Series victimizations		Victimizations not in series	
	Number	Percent	Number	Percent	Number	Percent
Personal crimes	**10,592,290**	**100.0%**	**622,350**	**5.9%**	**9,969,940**	**94.1%**
Crimes of violence	10,225,170	100.0%	620,600	6.1%	9,604,570	93.9%
Completed violence	2,935,410	100.0	149,850	5.1	2,785,570	94.9
Attempted/threatened violence	7,289,760	100.0	470,760	6.5	6,819,000	93.5
Rape/sexual assault	365,420	100.0%	25,040	6.9%*	340,380	93.1%
Rape/attempted rape[1]	247,620	100.0	13,450	5.4*	234,170	94.6
Rape	149,510	100.0	8,690	5.8*	140,820	94.2
Attempted rape[1]	98,110	100.0	4,760	4.9*	93,350	95.1
Sexual assault[2]	117,800	100.0	11,600	9.8*	106,210	90.2
Robbery	1,171.03	100.0%	29,210	2.5%	1,141,820	97.5%
Completed/property taken	768,920	100.0	24,100	3.1*	744,810	96.9
With injury	226,280	100.0	8,510	3.8*	217,780	96.2
Without injury	542,630	100.0	15,600	2.9*	527,040	97.1
Attempted to take property	402,110	100.0	5,100	1.3*	397,010	98.7
With injury	99,660	100.0	5,100	5.1*	94,560	94.9
Without injury	302,450	100.0	0	0.0*	302,450	100.0
Assault	8,688,720	100.0%	566,350	6.5%	8,122,370	93.5%
Aggravated	1,983,690	100.0	100,880	5.1	1,882,810	94.9
With injury	553,200	100.0	46,310	8.4	506,890	91.6
Threatened with weapon	1,430,490	100.0	54,570	3.8	1,375,910	96.2
Simple	6,705,030	100.0	465,470	6.9	6,239,560	93.1
With minor injury	1,365,840	100.0	65,140	4.8	1,299,700	95.2
Without minor injury	5,340,190	100.0	400,330	7.5	4,939,870	92.5
Purse snatching/pocket picking	367,120	100.0%	1,750	0.5%*	365,370	99.5%
Completed purse snatching	66,520	100.0	0	0.0*	66,520	100.0
Attempted purse snatching	21,000*	100.0*	0	0.0*	21,000	100.0*
Completed pocket picking	279,600	100.0	1,750	0.6*	277,850	99.4
Property crimes	**28,794,610**	**100.0%**	**312,260**	**1.1%**	**28,482,360**	**98.9%**
Household burglary	4,886,610	100.0%	64,120	1.3%	4,822,480	98.7%
Completed	4,129,860	100.0	59,700	1.4	4,070,160	98.6
Forcible entry	1,524,660	100.0	17,890*	1.2*	1,506,770	98.8
Unlawful entry without force	2,605,210	100.0	41,820	1.6	2,563,390	98.4
Attempted forcible entry	756,740	100.0	4,420*	0.6*	752,320	99.4
Motor vehicle theft	1,653,820	100.0%	0*	0.0*	1,653,820	100.0%
Completed	1,098,280	100.0	0*	0.0*	1,098,280	100.0
Attempted	555,540	100.0	0*	0.0*	555,540	100.0
Theft	22,254,190	100.0%	248,130	1.1%	22,006,050	98.9%
Completed	21,392,260	100.0	239,070	1.1	21,153,190	98.9
Less than $50	8,372,710	100.0	132,710	1.6	8,240,000	98.4
$50-$249	7,638,920	100.0	48,000	0.6	7,590,920	99.4
$250 or more	4,192,340	100.0	29,180	0.7	4,163,170	99.3
Amount not available	1,188,290	100.0	29,190	2.5	1,591,700	97.5
Attempted	861,920	100.0	9,060*	1.1*	852,860	98.9

Note: Detail may not add to totals shown because of rounding.
*Estimate is based on about 10 or fewer sample cases.
[1]Includes verbal threats of rape.
[2]Includes threats.

result of all possible samples. The estimate and its associated standard error may be used to construct a confidence interval. A confidence interval is a range of numbers which has a specified probability that the average of all possible samples, which is the true unknown value of interest in an unbiased design, is contained within the interval. About 68% of the time, the survey estimate will differ from the true average by less than one standard error. Only 10% of the time will the difference be more than 1.6 standard errors, and just 1 time in 100 will it be greater than 2.5 standard errors. A 95% confidence interval is the survey estimate plus or minus twice the standard error, thus there is a 95% chance that the result of a complete census would fall within the confidence interval.

In addition to sampling error, the estimates in this report are subject to nonsampling error. While substantial care is taken in the NCVS to reduce the sources of nonsampling error through out all the survey operations, by means of a quality assurance program, quality controls, operational controls, and error-correcting procedures, an unquantified amount of nonsampling error remains still.

Major sources of nonsampling error are related to the inability of the respondents to recall in detail the crimes which occurred during the 6 months prior to the interview. Research based on interviews of victims obtained from police files indicates that assault is recalled with the least accuracy of any crime measured by the NCVS. This may be related to the tendency of victims to not report crimes committed by offenders who are not strangers especially if they are relatives. In addition, among certain groups, crimes which contain elements of assault could be a part of everyday life, and are therefore forgotten or not considered important enough to mention to a survey interviewer. These recall problems may result in an understatement of the actual rate of assault.

Another source of nonsampling error is the inability of some respondents to recall the exact month a crime occurred, even though it was placed in the correct reference period. This error source is partially offset by interviewing monthly and using the estimation procedure described earlier.

Telescoping is another problem in which incidents that occurred before the reference period are placed within the period. The effect of telescoping is minimized by using the bounding procedure previously described. The interviewer is provided with a summary of the incidents reported in the preceding interview and, if a similar incident is reported, it can be determined whether or not it is a new one by discussing it with the victim. Events which occurred after the reference period are set aside for inclusion with the data from the following interview.

Other sources of nonsampling error can result from other types of response mistakes, including errors in reporting incidents as crimes, misclassification of crimes, systematic data errors introduced by the interviewer, errors made in coding and processing the data. Quality control and editing procedures were used to minimize the number of errors made by the respondents and the interviewers.

Since field representatives conducting the interviews usually reside in the area in which they interview, the race and ethnicity of the field representatives generally matches that of the local population. Special efforts are made to further match field representatives and the people they interview in areas where English is not commonly spoken. About 90% of all NCVS field representatives are female.

Standard errors measure only those nonsampling errors arising from transient factors affecting individual responses completely at random (simple response variance); they do not reveal any systematic biases in the data. As calculated in the NCVS, the standard errors would partially measure nonsampling error arising from some of the above sources, such as transient memory errors and accidental errors in recording or coding answers.

Computation and application of standard errors

The results presented in this report were tested to determine whether or not the observed differences between groups were statistically significant. Differences were tested for significance at the 90% confidence level, or roughly 1.6 standard errors. Most of the comparisons in this report were significant at the 95% confidence level (about 2.0 standard errors, meaning that the difference between the estimates is greater than twice the standard error of the difference). Comparisons which failed the 90% test were not considered statistically significant. Comparisons qualified by the phrase "some evidence" or "slightly different" had a significance level between 90% and 95%.

Deriving standard errors which are applicable to a wide variety of items and which can be prepared at a moderate cost requires a number of approximations. Therefore, three generalized variance function (gvf) constant parameters (identified as "a", "b", and "c" in the following section) were developed for use in calculating standard errors. The parameters provide an indication of the order of magnitude of the standard errors rather than the precise standard error for any specific item.

The *gvf* represents the curve fitted to the individual standard errors, which were calculated using the Jackknife Repeated Replication technique on 1994 data. The 1995 *gvf* values for the "a", "b", and "c" parameters remain the same as 1994 since the sample design and size did not change.

GVF parameters from 1995 data year estimates

Generalized variance functions	a	b	c
1995 parameter set			
Overall person crime estimates	-.00004144	2008	1.612
Person crime domain estimates	-.00006269	2278	1.804
Overall property crime estimates	-.00008894	1501	1.276
Property crime domain estimates	-.00005292	2185	1.153
1994 parameter set			
Overall person crime estimates	-.00004144	2008	1.612
Person crime domain estimates	-.00006269	2278	1.804
Overall property crime estimates	-.00008894	1501	1.276
Property crime domain estimates	-.00005292	2185	1.153
1993 parameter set			
Overall person crime estimates	-.00005221	2530	2.031
Person crime domain estimates	-.00007899	2870	2.273
Overall property crime estimates	-.00011206	1891	1.608
Property crime domain estimates	-.00006668	2753	1.453

Parameter set # 1 is used for the overall person crime estimates (table 1). These are the person crime estimates by crime category for the whole population, not disaggregated by any victim, offender, or incident characteristics, nor any variable related to reporting to police.

Parameter set # 2 is used for the person crime domain estimates. These are the person crime estimates disaggregated by victim, offender, or incident characteristics, or any variable related to reporting to police.

Parameter set # 3 is used for the property crime estimates for the whole population (table 1). These are the property crime estimates by crime category for the whole population, not disaggre-gated by any household characteristics, nor any variable related to reporting to police.

Parameter set # 4 is used for the property crime domain estimates. These are the property crime estimates disaggregated by household characteristics, or any variable related to reporting to police.

For the statistic from table 1 that corresponds to the crime category "all crimes" (person and property crimes together), parameter set # 3 should be used. When the person and property estimates are combined (all crimes) and disaggregated by victim, household, incident characteristics, as well as any variable related to reporting to police, parameter set # 4 should be used for the best estimate of the corresponding variance.

NOTATION

x = the estimated number (level) of personal or household victimizations or incidents

y = the base; either the total number of persons or households (for victimization rates) or the total of all victimizations (for incident characteristics)

p = the estimated proportion, resulting from dividing the number of victimizations into the base. Also, the percentage or rate expressed in decimal form. The percentage is *100p* and the rate per thousand is *1000p*.

$s(p)$ = the estimated standard error of

It follows that:

s(percentage) = *s(100p) = 100 s(p)*

s(rate) = *s(1000p) = 1000 s(p)*

a,b,c = the generalized variance function parameters (see chart)

Formula 1. Levels: Standard errors for the estimated number of victimizations or incidents may be calculated by using the following formula:

$$s(x) = \sqrt{ax^2 + bx + cx^{3/2}}$$

The following example illustrates the proper use of Formula 1. Table 1 (page 8) shows 744,810 completed robberies in 1995; this estimate and the appropriate parameters are substituted in the formula as follows:

$$s(x) = \sqrt{(-0.00004144)(744,810)^2 + (2008)(744,810)}$$
$$\overline{+(1.612)(744,810)^{3/2}} = 50,088$$

Therefore, the 95% confidence interval around the estimated number of robbery victimizations is about equal to 744,810 plus or minus twice (1.96) the standard error, or plus or minus 98,172: an interval of 646,638 to 842,982.

Formula 2. Proportions, Percentages, and Rates: Standard errors for the estimated victimization rates or percentages are calculated using the following formula:

$$s(x) = \sqrt{\frac{bp(1.0-p)}{y} + \frac{cp(\sqrt{p}-p)}{\sqrt{y}}}$$

The following example demonstrates the use of Formula 2. Table 3 (page 10) shows an estimated robbery rate of 10.8 per 1,000 persons between the ages of 20 and 24, based on a total of 17,813,630 persons in this age range. Substituting the appropriate values into the formula yields:

$$s(p) =$$
$$\sqrt{\frac{2278(.0108)(1.0-.0108)}{17,813,630} +}$$

$$\frac{(1.084)(.0108)(\sqrt{.0108}-.0108)}{\sqrt{17,813,630}} = 0.0013 \text{ or } 1.3$$

per thousand

Thus, the 95% confidence interval is 10.8 per 1,000 plus or minus 2.6: an interval of 8.2 to 13.4 per 1,000.

Formula 3. Difference in rates or percentages with different bases: The standard error of *a difference between two* rates or percentages having differ-ent bases is calculated using the formula:

$$s(p_1-p_2) = \sqrt{var(p_1) + var(p_2) - 2ps(p_1)s(p_2)}$$

where:

rho is the year-to-year correlation between p_1 and p_2 (see chart, page 151); and var (p_1) and var (p_2) are the square of the standard error of p using Formula 2 for each rate and substituting:

p_1 = first percent or rate (expressed as a proportion in decimal form)

y_1 = base from which first percent or rate was derived

p_2 = second percent or rate (expressed as a proportion in decimal form)

y_2 = base from which second percent or rate was derived

If estimates are uncorrelated, *rho* = 0. Hence, omitting the term containing *rho* in the formula will provide an accurate standard error for the difference between uncorrelated estimates. On the other hand, if the two estimates have a strong positive correlation, omitting the last term will cause overestimation of the true standard error. If the numbers have a strong negative correlation, this will cause underestimation of the actual standard error.

The following example illustrates the use of Formula 3. Table 4 (page 11) lists the victimization rate for aggravated assault for males as 11.8 per 1,000 and the rate for females as 5.9 per 1,000. The total number of males in the population is 104,268,820 and the total of females, 111,709,450. Noting that $\rho = 0$ because the two estimates are for the same year and placing the appropriate values in the formulas yields:

$var(p_1) =$

$$\frac{2278(.0118)(1.0-.0118)}{104,268,820} +$$

$$\frac{1.804(.0118)(\sqrt{.0118}-.0118)}{\sqrt{104,268,820}}$$

$= 0.000000457$

$var(p_2) =$

$$\frac{2278(.0059)(1.0-.0059)}{111,709,450} +$$

$$\frac{1.804(.0059)(\sqrt{.0059}-.0059)}{\sqrt{111,709,450}}$$

$= 0.000000191$

Standard error of the difference =

$$\sqrt{0.000000457+0.000000191}$$

$= .00080$ or .80 per thousand

The 95% confidence interval around the difference of 5.9 per thousand is approximately the difference plus or minus 1.6 per thousand (a difference between 4.3 and 7.5 per thousand).

The ratio of a difference to the standard error of the difference is the "z score," which is associated with a given statistical level of significance. For example, a ratio with an absolute value of 2.0 (1.96, to be exact) or greater indicates that the difference is significant at the 95% confidence level (or greater); a ratio with an absolute value between 1.6 and 2.0 indicates the difference is significant at a confidence level between 90% and 95%; a ratio with an absolute value less than 1.6 denotes a confidence level less than 90%. In the previous example, the ratio of the difference (.0059) to the standard error (.00080) is 7.38. Thus the aggravated assault rate for males and females was significantly different at a confidence level exceeding 95%.

Formula 4. Differences in percentages of a single response variable with the same base: The standard error of the difference between two percentages derived from a single response variable with the same base is calculated using the formula:

$$s\,(p_1\text{-}p_2) = \sqrt{var(p_1)+var(p_2)-2ps(p_1)s(p_2)}$$

where

$$p = -\sqrt{\frac{p_1 p_2}{q_1 q_2}}\ ;\ and$$

$q = 1 - p$; and all other terms are as defined in Formula 3, except that y_1 and y_2 are the same common base, y.

The following example, which uses Table 43 (page 51), illustrates the use of Formula 4. The proportion of single-offender violent crime victimizations involving relatives was 11.6% and the proportion involving acquaintances (well-known or casual) was 42.7%, out of a total of 7,287,440 single-offender violent crime victimizations. Substituting the appropriate values into the formula gives:

$var(p_1)=$

$$\frac{2278(0.116)(1.0-0.116)}{7,287,440} +$$

$$\frac{1.804(0.116)(\sqrt{0.116}-0.116)}{\sqrt{7,287,440}}$$

$= 0.000049$

$var(p_2)=$

$$\frac{2278(0.427)(1.0-0.427)}{7,287,440} +$$

$$\frac{1.804(0.427)(\sqrt{0.427}-0.427)}{\sqrt{7,287,440}}$$

$= 0.000141$

Standard error of the difference $=$
$\sqrt{0.000049+0.000141}$ $+$

$\sqrt{2\sqrt{0.0978}\,(0.007)(0.01187}$

$= 0.016$ or 1.6 percent

The confidence interval around the difference at one standard error is from -32.7% to -29.5% (-31.1% plus or minus 1.6%). The ratio of the difference (-0.311) to its standard error (0.016) is -19.44. Since 19.44 is greater than 2.0, the difference between these two percentages is statistically significant at a confidence level exceeding 95%.

Year-to-year correlation between estimates

Because of the year-to-year overlap in the sample, the same households and persons contribute to annual estimates for different years. This year-to-year correlation between estimates is measured by *rho*. In general:

$rho = 0$ when estimates are for the same year

rho 0 for year-to-year comparisons

When comparing estimates that are 1 year apart, use *rho* as shown below.
When comparing estimates that are 2 year apart, multiply *rho* by ½.
When comparing estimates that are more than 2 years apart, assume *rho*=0.

Following are NCVS year-to-year correlation values for major crime categories for 1993-95.

Type of crime	1994-95 correlation	1993-95 correlation
Total crimes	0.41	0.20
Total personal crimes	0.30	0.15
Crimes of violence	0.31	0.15
Rape/Sexual assault	0.04	0.02
Robbery	0.04	0.02
Assault	0.30	0.15
Purse snatching/Pocket picking	0.03	0.01
Total property crimes	0.38	0.19
Burglary	0.21	0.10
Motor vehicle theft	0.08	0.04
Theft	0.34	0.17

Appendix IV
Glossary

Age — The appropriate age category is determined by the respondent's age on the last day of the month before the interview.

Annual household income — The total income of the household head and all members of the household for the 12 months preceding the interview. Includes wages, salaries, net income from businesses or farms, pensions, interest, dividends, rent, and any other form of monetary income.

Aggravated assault — Attack or attempted attack with a weapon, regardless of whether or not an injury occurred and attack without a weapon when serious injury results.

With injury — An attack without a weapon when serious injury results or an attack with a weapon involving any injury. Serious injury includes broken bones, lost teeth, internal injuries, loss of consciousness, and any unspecified injury requiring two or more days of hospitalization.

Threatened with a weapon — Threat or attempted attack by an offender armed with a gun, knife, or other object used as a weapon, not resulting in victim injury.

Assault — An unlawful physical attack or threat of attack. Assaults may be classified as aggravated or simple. Rape, attempted rape, and sexual assaults are excluded from this category, as well as robbery and attempted robbery. The severity of assaults ranges from minor threat to incidents which are nearly fatal.

Household burglary — Unlawful or forcible entry or attempted entry of a residence. This crime usually, but not always, involves theft. The illegal entry may be by force, such as breaking a window or slashing a screen, or may be without force by entering through an unlocked door or an open window. As long as the person entering has no legal right to be present in the structure a burglary has occurred. Furthermore, the structure need not be the house itself for a burglary to take place; illegal entry of a garage, shed, or any other structure on the premises also constitutes household burglary. If breaking and entering occurs in a hotel or vacation residence, it is still classified as a burglary for the household whose member or members were staying there at the time the entry occurred.

Completed burglary — A form of burglary in which a person who has no legal right to be present in the structure successfully gains entry to a residence, by use of force, or without force.

Forcible entry — A form of completed burglary in which force is used to gain entry to a residence. Some examples include breaking a window or slashing a screen.

Unlawful entry without force — A form of completed burglary committed by someone having no legal right to be on the premises, even though no force is used.

Attempted forcible entry — A form of burglary in which force is used in an attempt to gain entry.

Collection year — The set of victimizations reported to NCVS in interviews conducted during the same calendar year. This set may include victimizations which occurred in the previous calendar year, due to the retrospective nature of the NCVS interview. See "Data year" and Appendix II.

Commercial crimes — Crimes against commercial establishments of any type are not included in the survey. Commercial establishments include stores, restaurants, businesses, service stations, medical offices or hospitals, or other similiar establishments. For victimizations occurring in commercial establishments, the crime is included or not included depending upon whether the survey respondent was threatened or harmed in some way or personal property was taken.

Crime classification — Victimizations and incidents are classified based upon detailed characteristics of the event provided by the respondent. Neither victims nor interviewers classify crimes at the time of interview. During data processing, a computer program classifies each event into one type of crime, based upon the entries on a number of items on the survey questionnaire. This ensures that similar events will be classified using a standard procedure. The glossary definition for each crime indicates the major characteristics required to be so classified. If an event can be classified as more than one type of crime, a hierarchy is used which classifies the crime according to the most serious event that occurred. The hierarchy is: rape, sexual assault, robbery, assault, burglary, motor vehicle theft, theft.

Data year — The set of victimizations reported to NCVS all of which occurred within the same calendar year. Data presented in this report are for data year 1995. See "Collection year" and Appendix II.

Ethnicity — A classification based on Hispanic culture and origin, regardless of race.

Head of household — A classification which defines one and only one person in each housing unit as the head. Head of household implies that the person rents or owns (or is in the process of buying), the housing unit. The head of household must be at least 18, unless all members of the household are under 18, or the head is married to someone 18 or older.

Hispanic — A person who describes himself as Mexican-American, Chicano, Mexican, Mexicano, Puerto Rican, Cuban, Central American, South American, or from some other Spanish culture or origin, regardless of race.

Household — A person or group of people meeting either of the following criteria: (1) people whose usual place of residence is the same housing unit, even if they are temporarily absent (2) people staying in a housing unit who have no usual place of residence elsewhere.

Incident — A specific criminal act involving one or more victims and offenders. For example, if two people are robbed at the same time and place, this is classified as two robbery victimizations but only one robbery incident.

Marital status — Every person is assigned to one of the following classifications: (1) married, which includes persons in common-law unions and those who are currently living apart for reasons other than marital discord (employment, military service, etc.); (2) separated or divorced, which includes married persons who are legally separated and those who are not living together because of marital discord; (3) widowed; and (4) never married, which includes persons whose marriages have been annulled and those who are living together and not in a common-law union.

Metropolitan area — See "Metropolitan Statistical Area."

Metropolitan Statistical Area (MSA) — The Office of Management and Budget (OMB) defines this as a population nucleus of 50,000 or more, generally consisting of a city and its immediate suburbs, along with adjacent communities having a high degree of economic and social integration with the nucleus. MSA's are designated by counties, the smallest geographic units for which a wide range of statistical data can be attained. However, in New England, MSA's are designated by cities and towns since these subcounty units are of great local significance and considerable data is available for them. Currently, an area is defined as an MSA if it meets one of two standards:

(1) a city has a population of at least 50,000 (2) the Census Bureau defines an urbanized area of at least 50,000 people with a total metropolitan population of at least 100,000 (or 75,000 in New England). The Census Bureau's definition of urbanized areas, data on commuting to work, and the strength of the economic and social ties between the surrounding counties and the central city determine which counties not containing a main city are included in an MSA. For New England, MSA's are determined by a core area and related cities and towns, not counties. A metropolitan statistical area may contain more than one city of 50,000 and may cross State lines.

Motor vehicle — An automobile, truck, motorcycle, or any other motorized vehicle legally allowed on public roads and highways.

Motor vehicle theft — Stealing or unauthorized taking of a motor vehicle, including attempted thefts.

Completed motor vehicle theft — The successful taking of a vehicle by an unauthorized person.

Attempted motor vehicle theft — The unsuccessful attempt by an unauthorized person to take a vehicle.

Multiple offenders — Two or more persons inflicting some direct harm to a victim. The v*ictim-offender relationship* is determined by the offender with the closest relationship to the victim. The following list ranks the different relationships from closest to most distant: spouse, ex-spouse, parent, child, other relative, nonrelative well-known person, casual acquaintance, or stranger. (See *Nonstranger* and *Stranger.*)

Non-Hispanic — Persons who report their culture or origin as something other than "Hispanic" as defined above. This distinction is made regardless of race.

Nonstranger — A classification of a crime victim's relationship to the offender. An offender who is either related to, well known to, or casually acquainted with the victim is a nonstranger. For crimes with more than one offender, if any of the offenders are nonstrangers, then the group of offenders as a whole is classified as nonstranger. This category only applies to crimes which involve contact between the victim and the offender; the distinction is not made for crimes of theft since victims of this offense rarely see the offenders.

Offender — The perpetrator of a crime; this term usually applies to crimes involving contact between the victim and the offender.

Offense — A crime. When referring to personal crimes, the term can be used to refer to both victimizations and incidents.

Personal crimes — Rape, sexual assault, personal robbery, assault, purse snatching and pocket picking. This category includes both attempted and completed crimes.

Place of occurrence of crime — The location at which a crime occurred, as specified by the victim. Survey measures of crimes occurring in commercial establishments, restaurants, nightclubs, public transportation and other similar places include only those crimes involving NCVS measured crimes against persons, not the establishments. Crimes against commercial establishments and other places are not measured by the survey.

Property crimes — Property crimes including burglary, motor vehicle theft, or theft. This category includes both attempted and completed crimes.

Purse snatching/Pocket picking — Theft or attempted theft of property or cash directly from the victim by stealth, without force or threat of force.

Race — Racial categories for this survey are white, black, and other. The "other" category is composed mainly of Asian Pacific Islanders, and American Indian, Aleut, and Eskimo. The race of the head of household is used in determining the race of the household for computing household crime demographics.

Rape — Forced sexual intercourse including both psychological coercion as well as physical force. Forced sexual intercourse means vaginal, anal or oral penetration by the offender(s). This category also includes incidents where the penetration is from a foreign object such as a bottle. Includes attempted rapes, male as well as female victim and both heterosexual and homosexual rape. Attempted rape includes verbal threats of rape.

Rate of victimization — see "Victimization rate."

Region — The States have been divided into four groups or census regions:

Midwest — Includes the 12 States of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

Northeast — Includes the 9 States of Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

South — Includes the District of Columbia and the 16 States of Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

West — Includes the 13 States of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Robbery — Completed or attempted theft, directly from a person, of property or cash by force or threat of force, with or without a weapon, and with or without injury.

Completed/property taken — The successful taking of property from a person by force or threat of force, with or without a weapon, and with or without injury.

Completed with injury — The successful taking of property from a person, accompanied by an attack, either with or without a weapon, resulting in injury.

Completed without injury — The successful taking of property from a person by force or the threat of force, either with or without a weapon, but not resulting in injury.

Attempted to take property — The attempt to take property from a person by force or threat of force without success, with or without a weapon, and with or without injury.

Attempted without injury — The attempt to take property from a person by force or the threat of force without success, either with or without a weapon, but not resulting in injury.

Attempted with injury — The attempt to take property from a person without success, accompanied by an attack, either with or without a weapon, resulting in injury.

Rural area — A place not located inside the Metropolitan Statistical Area. This category includes a variety of localities, ranging from sparsely populated rural areas to cities with populations less than 50,000.

Sample — The set of housing units selected by the U. S. Census Bureau to be interviewed for the survey. All occupants of the household age 12 or older are interviewed. See Appendix III, page 144 for sample inclusions and exclusions.

Series — Six or more similar but separate events, which the respondent is unable to describe separately in detail to an interviewer.

Sexual assault — A wide range of victimizations, separate from rape or attempted rape. These crimes include attacks or attempted attacks generally involving unwanted sexual contact between victim and offender. Sexual assaults may or may not involve force and include such things as grabbing or fondling. Sexual assault also includes verbal threats.

Simple assault — Attack without a weapon resulting either in no injury, minor injury (for example, bruises, black eyes, cuts, scratches or swelling) or in undetermined injury requiring less than 2 days of hospitalization. Also includes attempted assault without a weapon.

With minor injury — An attack without a weapon resulting in such injuries as bruises, black eyes, cuts or in undetermined injury requiring less than 2 days of hospitalization.

Without injury — An attempted assault without a weapon not resulting in injury.

Stranger — A classification of the victim's relationship to the offender for crimes involving direct contact between the two. Incidents are classified as involving strangers if the victim identifies the offender as a stranger, did not see or recognize the offender, or knew the offender only by sight. Crimes involving multiple offenders are classified as involving nonstrangers if any of the offenders was a nonstranger. Since victims of theft without contact rarely see the offender, no distinction is made between strangers and nonstrangers for this crime.

Suburban areas — A county or counties containing a central city, plus any contiguous counties that are linked socially and economically to the central city. On data tables, suburban areas are categorized as those portions of metropolitan areas situated "outside central cities."

Tenure — The NCVS recognizes two forms of household tenancy: (1) owned, which includes dwellings that are mortgaged, and (2) rented, which includes rent-free quarters belonging to a party other than the occupants, and situations where rental payments are in kind or services.

Theft — Completed or attempted theft of property or cash without personal contact. Incidents involving theft of property from within the sample household would classify as theft if the offender has a legal right to be in the house (such as a maid, delivery person, or guest). If the offender has no legal right to be in the house, the incident would classify as a burglary.

Completed — To successfully take without permission property or cash without personal contact between the victim and offender.

Attempted — To unsuccessfully attempt to take property or cash without personal contact.

Urban areas — The largest city (or grouping of cities) in a Metropolitan Statistical Area (see definition of Metropolitan Statistical Area).

Victim — The recipient of a criminal act, usually used in relation to personal crimes, but also applicable to households.

Victimization — A crime as it affects one individual person or household. For personal crimes, the number of victimizations is equal to the number of victims involved. The number of victimizations may be greater than the number of incidents because more than one person may be victimized during an incident. Each crime against a household is assumed to involve a single victim, the affected household.

Victimization rate — A measure of the occurrence of victimizations among a specified population group. For personal crimes, this is based on the number of victimizations per 1,000 residents age 12 or older. For household crimes, the victimization rates are calculated using the number of incidents per 1,000 households.

Victimize — To commit a crime against a person or household.

Violence, crimes of — Rape, sexual assault, personal robbery or assault. This category includes both attempted and completed crimes. It does not include purse snatching and pocket picking. Murder is not measured by the NCVS because of an inability to question the victim.

Completed violence — The sum of all completed rapes, sexual assaults, robberies, and assaults. See individual crime types for definition of completed crimes.

Attempted/threatened violence — The unsuccessful attempt of rape, sexual assault, personal robbery or assault. Includes attempted attacks or sexual assaults by means of verbal threats. See individual crime types for definition of attempted crimes.