



September 2017

COSTS OF CRIME

Experts Report
Challenges Estimating
Costs and Suggest
Improvements to
Better Inform Policy
Decisions

GAO Highlights

Highlights of [GAO-17-732](#), a report to congressional requesters

Why GAO Did This Study

Crime and society's response to it pose significant costs to the United States. The Department of Justice's Bureau of Justice Statistics reported that federal, state, and local governments collectively spent over \$280 billion in fiscal year 2012 (adjusted to 2016 dollars) on criminal justice programs such as police protection, the court system, and incarceration. There are also many other financial and nonfinancial effects of crime that researchers consider when estimating the total costs of crime in the United States. These can include tangible costs such as replacing damaged property or medical care to treat victims' injuries, and intangible costs such as changes in people's behavior to avoid crime, among many other costs. Researchers have estimated varying annual costs of crime, including totals of \$690 billion, \$1.57 trillion, and \$3.41 trillion, adjusted to 2016 dollars.

GAO was asked to examine issues related to estimating the costs of crime committed in the United States. This report examines: 1) how experts estimate the cost of crime in the United States, and the challenges they face, and 2) the actions experts have considered in order to improve the understanding and use of cost of crime research. To answer these questions, GAO worked with the National Academies of Sciences, Engineering, and Medicine to identify and survey experts in fields associated with estimating the cost of crime, including criminology, economics, public health, public policy, and statistics, among others. GAO also reviewed 27 studies that estimated the cost of crime in the United States, published from 1996 to 2017.

View [GAO-17-732](#). For more information, contact Diana Maurer at (202) 512-9627 or maurerd@gao.gov.

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Experts Report Challenges Estimating Costs and Suggest Improvements to Better Inform Policy Decisions

What GAO Found

Based on a survey of experts associated with studying the costs of crime and a literature review, GAO found that there is no commonly used approach for estimating the costs of crime, and experts face multiple challenges when making estimates. GAO identified four primary methods to estimate costs, each with limitations: 1) measuring effects on markets, 2) using jury awards, 3) surveying the public for its willingness to pay to reduce crime, and 4) calculating individual categories of cost to develop a total cost. Experts stated that current methodologies are inadequate to fully estimate costs and that they face numerous challenges in developing estimates, such as the value of intangible costs of crime. As a result, research has produced widely varying and inconsistent estimates on the costs of crime.

Experts provided five broad areas they believe warrant further study to improve understanding of the costs of crime: 1) costs of crimes not reported to law enforcement agencies, 2) costs of punishment and incarceration, 3) costs of recidivism, 4) costs of potential bias in the administration of justice, and 5) uncertainty of cost estimates. Further, experts noted that researchers could refine estimates by combining different methodological approaches. They urged researchers to consider cost of crime estimates under different policy scenarios, such as in setting sentencing guidelines, to help better inform policy decisions.

Figure: Examples of Costs of Crime and Elements to Categorize Costs

	Costs in anticipation of crime	Costs as a direct consequence of crime	Costs in response to crime
Tangible	Expenditures to reduce likelihood of victimization (e.g., purchasing security systems) Government crime prevention programs	Lost wages and productivity because of victimization Cost to recover or repair property	Criminal justice costs like police investigations and incarceration Cost to defend accused offenders in court
Intangible	Avoidance behavior (e.g., avoiding people and places) Fear of crime	Pain, suffering, lost quality of life because of victimization Second generation costs (e.g., increased likelihood of some victims becoming offenders)	Psychological cost to offender's family and community Overdeterrence costs (e.g., accusing innocent individuals, restricting legitimate activity in a community)

Victim
 Potential victim
 Victim's family
 Society
 Offender
 Offender's family
 Business/employer
 Innocent individual

Source: GAO analysis of select cost of crime research. | GAO-17-732

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Abbreviations

BJS	Bureau of Justice Statistics
CDC	Centers for Disease Control and Prevention
DOJ	Department of Justice
FBI	Federal Bureau of Investigation
FTC	Federal Trade Commission
National Academies	National Academies of Sciences, Engineering, and Medicine
NCVS	National Crime Victimization Survey
NIBRS	National Incident-Based Reporting System
NIJ	National Institute of Justice
OJP	Office of Justice Programs
SRS	Summary Reporting System
UCR	Uniform Crime Reporting Program
WSIPP	Washington State Institute for Public Policy

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September 26, 2017

Congressional Requesters

Crime and society's response to crime pose significant costs to the United States. For instance, the Department of Justice's (DOJ) Bureau of Justice Statistics (BJS) reported that federal, state, and local governments collectively spent over \$280 billion in fiscal year 2012 on criminal justice programs such as police protection, the court system, and incarceration.¹ However, in addition to the costs of the criminal justice system, there are many other financial and nonfinancial effects of crime that researchers consider when estimating the total cost of crime in the United States. These can include costs such as the replacement of damaged property, changes in people's behavior to avoid crime, and the medical care to treat victims' injuries. Research has estimated varying annual costs of crime, including totals of \$690 billion, \$1.57 trillion, and \$3.41 trillion.² While such a range indicates that researchers use various methods and information to estimate crime costs, the results all underscore the magnitude of crime's effect on society.

Research indicates that to best understand the cost of crime, estimates should consider both the financial and non-monetary effects of crime—such as the impact on quality of life, increasing fear in a community, or the indirect effects such as people's change in behavior in response to crime. Some researchers have concluded that crime's most costly factors stem from these less tangible effects. For example, an estimate published in 1996 on the cost of property loss and damage resulting from arson was almost \$35,000 per incident.³ However, once researchers considered the arson victim's injuries and lost quality of life in the aftermath of an incident, the average cost per incident increased to over \$300,000, with intangible costs accounting for about 75 percent of the total.

¹BJS estimates are based on extracts from the U.S. Census Bureau's annual surveys of government finances. This and all amounts in the report have been adjusted to reflect 2016 dollars to allow numbers to be comparable to each other.

²Ted R. Miller, Mark A. Cohen, and Brian Wiersema, *Victim Costs and Consequences: A New Look*, A Final Summary Report Presented to the National Institute of Justice (National Criminal Justice Reference Service, January 1996); David A. Anderson, "The Aggregate Burden of Crime," *Journal of Law and Economics*, vol. 42, no. 2 (October 1999); and David A. Anderson, "The Cost of Crime," *Foundations and Trends in Microeconomics*, vol. 7, no. 3 (2012).

³Miller, et al., *Victim Costs and Consequences*.

You asked us to examine issues related to estimating the costs of crime committed in the United States. This report examines two questions:

1. How do experts estimate the cost of crime in the United States, and what challenges do they face?
2. What actions have experts considered in order to improve the understanding and use of cost of crime research?

To answer our questions, we worked with the National Academies of Sciences, Engineering, and Medicine (National Academies) to identify experts in fields associated with estimating the cost of crime. The experts' fields included criminology, economics, public health, public policy, and statistics, among others. We surveyed 20 experts to obtain their views about the state of cost of crime academic research, including the challenges to estimate crime's cost and the benefits, limitations, and implications of the most widely used methods to calculate those costs, and 17 responded.⁴ However, not all experts who responded to the survey chose to answer all questions. We also reviewed literature from academic experts, think tanks, and research identified by government agencies. We analyzed 27 articles representing different analytical perspectives, such as the types of crime studied, various methods and assumptions considered, and the bearers of costs resulting from crime and its effects in the community.⁵ Our review focused exclusively on costs of crime committed in the United States or borne by victims in the United States. We limited the scope of our work by looking at studies published since 1996, which is when a key study that is frequently cited by other studies was published.⁶ To select the list of articles, we obtained input from federal officials and our group of experts, and independently assessed the articles to ensure the studies used sound and reliable methods. While we did not conduct a comprehensive study of the costs of crime, we believe that the input from our identified experts and studies is sufficient to provide an overview and identify general challenges, limitations, and benefits of the topics and general methods used when estimating the cost of crime.

We supplemented our review of expert opinion and cost of crime literature with interviews of DOJ officials. Specifically, we interviewed officials in

⁴For more information on the experts we consulted, see app. I.

⁵See app. II for a bibliography of the articles we analyzed for this report.

⁶DOJ funded this key study. See, Miller, et al., *Victim Costs and Consequences*.

DOJ's Office of Justice Programs (OJP), including the BJS and the National Institute of Justice (NIJ), to obtain their insights about identifying, estimating, and using cost of crime estimates in the federal government. During our interviews, officials provided us research that either OJP sponsored through grants or they believed to be relevant and appropriate to our review. We incorporated DOJ's insight as appropriate throughout the report. We also obtained information on BJS's relevant programs to estimate national crime victimization rates and national criminal justice expenditures. Further, we interviewed officials from the Federal Bureau of Investigation (FBI) to obtain information on its program to obtain data on violent and property crimes reported to local, state, and other law enforcement agencies. We included information on these programs to the extent that research has used these crime statistics to estimate crime costs. See appendix III for more details on our scope and methodology.

We conducted this performance audit from July 2016 through September 2017 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

The Role of Federal Agencies in Estimating Costs of Crime

The federal government is not responsible for estimating the costs of crime. However, federal agencies support the development of research either by sponsoring academic studies or conducting direct research of information used to develop cost estimates. For example, DOJ components collect and report on annual crime statistics and government criminal justice expenditures. Specifically, the FBI works with local, state, and other law enforcement agencies to obtain information on reported crime incidents, which researchers use in cost of crime estimates. Also, BJS manages programs to estimate national crime victimization trends and victims' costs. BJS also produces annual estimates of federal, state, and local governments' criminal justice costs. In addition, the NIJ has awarded grants to support academic research on the cost of crime. Further, other federal agencies have studied aspects of the cost of crime pertaining to their missions. For instance, the Centers for Disease Control and Prevention (CDC) published a study on the cost of domestic

violence,⁷ and the Federal Trade Commission (FTC) has released reports on the cost and extent of consumer fraud in the United States.⁸

Definition of Crime

What is “Street Crime?”

Researchers and law enforcement often use the term “street crime” to refer to a group of serious offenses that generally require personal contact between the offender and the victim or the victim’s property. There are eight street crimes that the Federal Bureau of Investigation reports nationally, including criminal homicide, rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson.

Source: GAO analysis of DOJ information and select cost of crime research. | GAO-17-732

For the purposes of this report, we define crime as a social harm that federal or state law makes punishable by criminal sanction or penalty.⁹ While cost of crime estimates may focus on serious “street crimes,” a broader cost of crime measure can include any illegal activities with a criminal sanction or penalty.¹⁰ Such crimes include felonies and misdemeanors, and may include both reported and unreported criminal activity. Definitions of crime may vary from jurisdiction to jurisdiction. However, the National Academies developed 11 categories to classify crimes throughout the country. See table 1 below.

⁷See CDC, National Center for Injury Prevention and Control, *Costs of Intimate Partner Violence Against Women in the United States*, (Atlanta, GA: 2003).

⁸ See K.B. Anderson, *Consumer Fraud in the United States, 2011: The Third FTC Survey*, (Washington, DC: Federal Trade Commission, 2013).

⁹Under federal law, many crimes are defined within title 18 of the United States Code. However, crimes are interspersed throughout the United States Code.

¹⁰For the purposes of our report, we excluded any research that focused on crimes where the offender and victim were outside the United States. Such crimes would include offenses adjudicated in other countries, international terrorism, or piracy on the high seas.

National Academies of Sciences, Engineering, and Medicine (National Academies)

Established by Congress as a private, non-profit society of scholars, the National Academies is charged to provide independent, objective advice to the nation on matters related to science and technology and to conduct other activities to inform public policy decisions. Members of the National Academies cover major scientific and social science branches, including statistics, criminology, and economics. In 2013, the Department of Justice tasked the National Academies to convene a panel to help the department modernize the nation's crime statistics. In response, the National Academies released a report in 2016 that included, among other things, an updated approach for classifying crime. This approach identified 11 categories of crimes, which appear in table 1.

Source: GAO analysis of National Academies *Modernizing Crime Statistics: Report 1—Defining and Classifying Crime* (Washington, DC: 2016); and DOJ officials. | GAO-17-732

Table 1: Eleven Crime Categories Identified in a recent National Academies of Sciences, Engineering, and Medicine Report on Modernizing Crime Statistics

Crime Categories	Examples of included crimes
1. Acts leading to death or intending to cause death	Murder and intentional homicide, non-intentional homicide, assisting or instigating suicide
2. Acts causing harm or intending to cause harm to the person	Assault, threats, slavery and exploitation, human trafficking, acts intended to induce fear or emotional distress
3. Injurious acts of a sexual nature	Rape, sexual assault, sexual exploitation
4. Acts of violence or threatened violence against a person that involve property	Robbery, terroristic or disruptive threats to buildings or critical infrastructure
5. Acts against property only	Burglary, acts against computer systems, property damage
6. Acts involving controlled substances	Unlawful possession or use of controlled drugs for personal consumption, unlawful trafficking or distribution of controlled drugs
7. Acts involving fraud, deception, or corruption	Fraud, forgery, counterfeiting, corruption
8. Acts against public order and authority	Acts contrary to public revenue or regulatory provisions, acts related to freedom of expression or control of expression, acts related to democratic elections
9. Acts against public safety and national security	Acts involving weapons, explosives, and other destructive, acts against national security, terrorism
10. Acts against the natural environment or against animals	Acts that cause environmental pollution or degradation, acts involving the movement or dumping of waste, acts against animals
11. Other criminal acts not elsewhere classified	Violations of tribal law, piracy, torture

Source: GAO analysis of National Academies *Modernizing Crime Statistics: Report 1—Defining and Classifying Crime* (Washington, DC: 2016). | GAO-17-732

Definition of Costs and Who Bears Such Costs

A cost is a monetary value associated with the negative effect of a crime. When estimating costs of crime, researchers consider the effects that occur to individuals, households, communities, and to local and state governments, and the federal government. Researchers have developed a variety of terms to characterize the numerous effects on costs of crime. While not all researchers use the same terminology to analyze costs, studies generally consider the following elements:

- **Tangible costs:** Tangible costs are those where the effect can be valued by observing product or service transactions that arise in

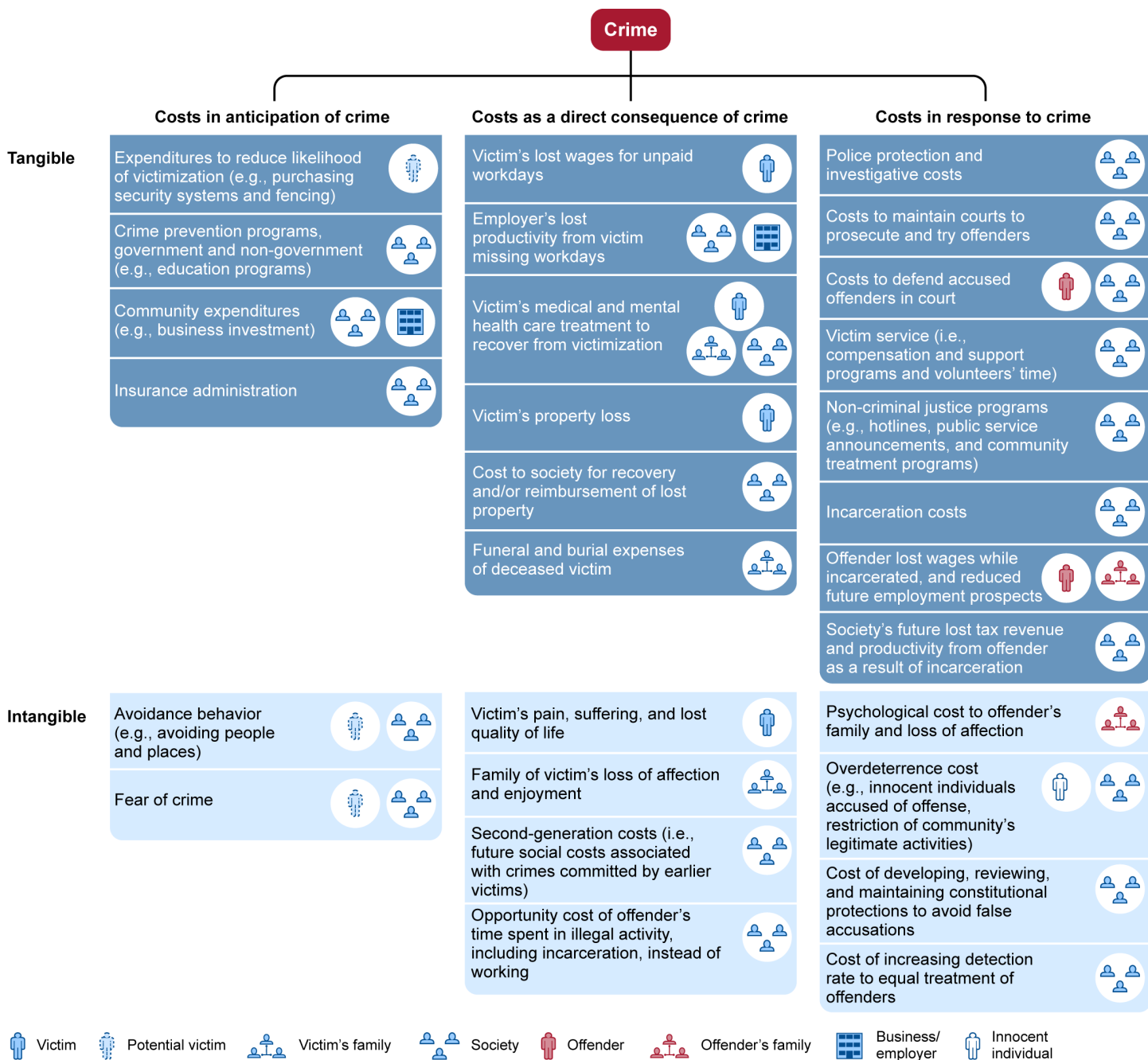
response to or in anticipation of criminal activity. Such costs include the value of damaged property, medical care to treat injuries, and costs to install alarm systems to avoid crime.

- *Intangible costs:* Intangible costs result from negative effects of crime, but the effects do not have directly observed market values. Such costs from crime include lost quality of life as a result of victimization, fear in the community, or avoidance behaviors to reduce the likelihood of being victimized.
- *Timing of the cost in relation to the crime:* While the most recognized costs of crime are those that occur as a direct consequence of the crime, such as the cost to recover from crime-related injuries, researchers consider secondary consequences of crime as well. Such consequences may occur before or after a particular crime occurs. For example, some costs of crime occur in anticipation of crime, for instance to avoid victimization. Other costs occur as a response to crime, such as the cost of judicial proceedings or the costs to incarcerate offenders.¹¹
- *Who bears the cost:* Crime costs can be borne by individuals, such as the victim or the victim's family, employers or businesses, and broader society, such as when public property is destroyed. Societal costs can also take the form of taxpayer funds for crime prevention or criminal justice system expenses. Cost estimates may also include not only victims' costs, but also costs to potential victims (such as costs associated with the fear of crime), future victims, offenders, and offenders' families.¹² See figure 1 for more information.

¹¹Similar to this approach, researchers may categorize costs as ex ante or ex post, referring to if the cost occurred before or after the crime occurred. In addition, researchers may consider whether a cost is a direct result of a crime, including most costs borne by the victim. Or, researchers may consider whether a cost is an indirect cost of crime, including fear in the community or some criminal justice costs, without necessarily considering whether a cost is in anticipation of a crime or in response to crime. Studies may not necessarily agree on whether a cost should fit into a particular category or if the studies should consider these categories separately.

¹²Researchers may refer to costs as either external or social costs, which to some extent focus on who bears the cost. For instance, external costs are those imposed by one person onto another, where the affected person does not voluntarily accept the negative consequences. Costs imposed on the victim, such as medical bills, property damage, and lost quality of life are examples of external costs. Social costs are those that reduce the aggregate well-being of society and may include not only victim costs, but also costs considered to divert resources from socially productive uses. Researchers may not agree on which costs to consider or which costs may be external versus social costs.

Figure 1: Examples of Costs of Crime and Elements of Costs Such as Tangible or Intangible, the Relationship in Time to a Crime, and Who Bears the Cost of Crime



Source: GAO analysis of select cost of crime research. | GAO-17-732

Crime Statistics in the United States

Federal Bureau of Investigation's (FBI) Uniform Crime Reporting (UCR) Program

The FBI has managed the UCR Program since its inception in 1930. According to the FBI, its UCR Program is the primary law enforcement national crime statistics program with over 18,000 city, county, university/college, state, federal, and tribal law enforcement agencies participating in the program. While participating in the UCR Program is voluntary, the FBI stated that the statistics from the program have become a vital tool for law enforcement agencies to help administer, operate, and manage their criminal justice functions.

Source: GAO analysis of FBI information. | GAO-17-732

The United States has two primary sources for measuring the magnitude of crime: the FBI Uniform Crime Reporting (UCR) Program, and the BJS National Crime Victimization Survey (NCVS).¹³

- **UCR Program:** The UCR Program compiles data on reported crime incidents from participating local, state, and other law enforcement agencies on 10 serious types of crime—criminal homicide, rape, robbery, aggravated assault, burglary, larceny theft, motor vehicle theft, arson, human trafficking-related commercial sex acts, and human trafficking-related involuntary servitude. The FBI releases national and subnational crime statistics from the UCR Program in annual publications titled *Crime in the United States*.¹⁴ To collect data for the UCR Program, the FBI uses two systems: the traditional Summary Reporting System (SRS) and the newer National Incident-Based Reporting System (NIBRS). Law enforcement agencies that use the SRS provide data on reported crime offenses in the 10 crime categories.¹⁵ Law enforcement agencies opting to use the NIBRS can provide greater detail on a wider array of reported offenses than they can through the SRS, while still having the capability to report offenses in the 10 crime categories. According to the FBI, the UCR Program covers almost 98 percent of the American population.

¹³For the purposes of this report, we refer to the collective reporting of crime statistics such as crime incidence, crime victimizations, crime rates, or crime prevalence as the magnitude of crime. However, there are important distinctions between the terms. For instance, the UCR focuses on crime incidence: the number of times in which a law enforcement agency reports a distinct crime event. The NCVS focuses on victimization rates, which measure the extent to which victimizations occur with a given time and population. When compared to incident rate, this accounts for a single incident that can have multiple victims. NCVS less frequently tracks crime prevalence, which measures the risk of experiencing at least one crime in a given period. When compared to crime incidence or victimization, prevalence does not measure the number of incidents or victimizations, but rather the chance of experiencing one crime, regardless of the count.

¹⁴The latest annual publication of crime statistics was for crime committed in 2015. As of August 2017, FBI has provided preliminary figures for 2016 data. According to the FBI, 2015 data were released in the fall of 2016. For more information on FBI's 2015 crime statistics, visit: <https://ucr.fbi.gov/crime-in-the-u.s/2015/crime-in-the-u.s.-2015>.

¹⁵The SRS also collects arrest information for an additional 20 crime types, including fraud, embezzlement, and vandalism, among others.

National Crime Victimization Survey (NCVS)

The NCVS was first administered in 1973. The Bureau of Justice Statistics (BJS) manages the survey questions in the NCVS and publishes the findings from the survey. In the most recent year, about 95,800 households and 163,900 persons 12 or older participated. Once selected, households remain in the sample for 3 years, and eligible persons in these households are interviewed every 6 months either in-person or over the phone for a total of seven interviews. BJS works in concert with the Bureau of the Census, which is the agency that administers the survey. BJS designed the survey to answer questions about the effectiveness of policing and law enforcement. It has been the basis for better understanding criminal victimization in the United States.

Over the years, NCVS has grown in its scope to collect information on different forms of victimization. For instance, in response to the Crime Victims with Disabilities Awareness Act, Pub. L. No. 105-301, 112 Stat. 2838 (1998), the NCVS began producing measures of the nature of crimes against individuals with developmental disabilities. In the latest published survey administered in 2015, the NCVS identified 34 different crime types in general categories such as violent crime and property crime.

Source: GAO analysis of DOJ information. | GAO-17-732

- **NCVS:** The NCVS is a nationally representative household survey on crime victimization with the intent to capture those crimes not reported to police, in addition to reported crimes. To collect survey information, the BJS developed a series of questions for interviewers to ask of household members ages 12 and above. While varying definitions of certain crimes may affect how law enforcement agencies report them in the UCR Program, the NCVS avoids using crime-type labels and legalistic language as much as possible. Instead, survey respondents describe the contextual factors of an incident. BJS analysts use these contextual factors to estimate national crime victimization rates.¹⁶ Further, BJS designed the NCVS to be able to capture multiple elements of a crime, instead of information on the most severe offense. Whereas, based on the UCR SRS hierarchical coding rules, law enforcement agencies will only report a rape that occurred during a burglary as an incidence of rape in the SRS.¹⁷ However, the NCVS can identify multiple offenses that occur during one incident. Thus, the NCVS is less likely to underestimate crime rates for certain crime only because a crime occurred in conjunction with a more severe crime.¹⁸ BJS releases national crime victimization statistics from the NCVS in annual publications titled *Criminal Victimization*.¹⁹

¹⁶As an example, surveyors would ask a respondent whether an incident involved taking property and whether the perpetrator used violence to take the property. Using these responses, BJS analysts would assign a crime category based on the specific elements of the incident. The NCVS also collects information about the respondent's expenses to recover from the incident, such as medical expenses related to a recorded incident.

¹⁷This is known as the Hierarchy Rule, which is used to determine the one—and only one—offense type that is recorded for a particular offense in the SRS. This order of offenses has been in place since they were presented in 1929, and states that when several offenses are committed by one person at the same time, law enforcement officials should identify the incident as the crime that comes first in the classification. NIBRS reporting does not use the hierarchy rule. However, for reporting and publication purposes, crime data from law enforcement agencies using NIBRS are converted or simplified, to SRS format. Since 2011, DOJ has also published a separate NIBRS report. This report is limited to the crimes reported by law enforcement in NIBRS, which for 2015 was 28 percent of total reported crimes, and does not use the Hierarchy Rule.

¹⁸The public-use NCVS data file contains additional offense codes—as well as the attribute and variable data used to derive the type of crime codes—so that researchers, including cost of crime researchers, may examine and classify incidents in this flexible manner. However, for BJS reporting purposes, the single most serious offense is used for basic tabulation and presentation of the survey's results.

¹⁹The latest annual publication of crime victimization statistics was for crime committed in 2015. For more information on BJS's 2015 crime statistics, visit: <https://www.bjs.gov/index.cfm?ty=pbdetail&iid=5804>.

Researchers Use Differing Approaches and Face Numerous Challenges, Leading to Disagreement on Cost Estimates

Based on a survey of experts associated with the cost of crime and a review of literature in the field, we found that there is no commonly used approach for estimating the costs of crime. We identified four primary methods to estimate costs. However, each method has limitations in its approach or with the usefulness of the estimates. In addition, some experts told us that current methodologies are inadequate to fully estimate costs. Further, researchers face numerous challenges in developing cost of crime estimates, such as estimating a value for intangible costs of crime. As a result of these challenges, research has produced widely varying estimates on the costs of crime.

There Is No Commonly Used Approach to Estimate Costs and Experts Have Identified Limitations with Primary Approaches

According to 14 of 16 experts we surveyed that provided an opinion on the topic, there is no commonly used approach to estimate the cost of crime in the United States. In addition, experts and studies identified limitations with the primary approaches for estimating costs.²⁰

Cost Estimation Approaches

Our Approach: Surveying Experts on the Costs of Crime

To obtain expert views on different approaches and associated challenges estimating the costs of crime, we surveyed 20 experts from a range of disciplines that study crime and the costs and effects of crime, and 17 responded. We solicited information from each expert separately and did not try to arrive at a consensus of views among the experts. Based on their responses, we identified (1) viewpoints on the dominant approaches to cost of crime research, and (2) the experts' perspectives on the challenges facing cost of crime estimation efforts. We corroborated the expert's opinion with information from the studies we reviewed.

Source: GAO. | GAO-17-732

While researchers have used a variety of methods to estimate the costs of crime and overcome challenges with measuring certain costs, recent U.S. studies we reviewed focused primarily on four approaches.²¹

Research we reviewed and experts we surveyed identified examples of both benefits and limitations of each general approach, as discussed below.

Measuring crime's economic effect on markets. This approach compares property values or wages across safer and less safe environments to determine how people implicitly value risk of injury or victimization to determine the effect crime has on market prices.²²

²⁰The numbers of experts who responded to survey questions varied because some chose not to respond to certain questions.

²¹While some estimates employed a single method, studies can combine more than one approach to estimate different elements of costs. Further, studies we reviewed and experts we surveyed identified other methods to estimate costs of crime in the United States that are not as commonly mentioned. For more information about our approach to identifying cost of crime methodologies, see app. III.

²²Studies may refer to this method as the hedonic analysis, or property value approach.

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- **Benefits:** Research studies we reviewed and the experts we surveyed noted that an advantage of this approach is that by looking at what the public has actually paid for real estate property or received in wages for riskier job occupations, the study's results reflect market-based decisions. As a result, estimated costs correspond to people's actual behaviors rather than how they may respond to a hypothetical scenario in a survey.
 - **Limitations:** Critics observed that the differences in real estate values may reflect factors other than crime such as neighborhood socioeconomic status or the quality of schools, among others. In addition, they note that using this method may not estimate costs for crimes where the crime is widespread or conducted in virtual space, such as online fraud. Further, one study noted that those who select high-risk occupations may not be representative of the average individual and thus may have selected the occupation based on factors other than the risk of injury or death.²³ Therefore, wages for these occupations may not reflect the value the general population places on injury or death. Also, one expert explained that this approach assumes that people have full information about crime risks in different neighborhoods or the risks associated with different occupations and have the ability to move or change jobs given those risks.

Using jury awards to estimate victimization costs. This approach uses jury awards in civil personal injury cases to derive a monetary value of intangible harms such as pain, suffering, and lost quality of life as a result of crime victimization.²⁴

- **Benefits:** According to literature and experts, an advantage of this approach is that jury awards represent actual estimates of value to victims for specific crimes rather than responses to hypothetical scenarios.
- **Limitations:** Critics have cautioned that this approach may be unreliable because it is not clear that jury awards are consistent, unbiased across cases, or are representative of the damages incurred for every related crime. Further, they noted that jury awards are per victim and not necessarily per

²³See Patricio Dominguez and Steven Raphael, "The Role of the Cost-of-Crime Literature in Bridging the Gap Between Social Science Research and Policy Making: Potentials and Limitations," *Criminology & Public Policy*, vol. 14, no. 4 (2015).

²⁴Researchers may refer to jury award estimates as "willingness-to-accept" studies.

victimization because victims may suffer multiple crimes or a repetition of the same crime. As a result, the awarded amount may not reflect a cost for one criminal act. Critics also mentioned that estimates using jury awards may include amounts where the crime committed was accidental or not intentional, even though the events may result in similar physical harms as a premeditated or intentional act—for instance a broken bone. However, as one study noted, individuals suffering harm from certain crimes may experience more psychological trauma from an intentional act than from an unpremeditated crime.

Using surveys to estimate what the public is willing to pay to reduce crime. This approach uses surveys to estimate the monetary value that respondents are willing to pay to achieve or avoid a certain outcome such as reducing neighborhood crime or avoiding death or disability.²⁵ For example, a 2004 study asked survey respondents how much they would be willing to pay to reduce violent crimes in their community and found that households would pay an additional \$100 to \$150 per year to reduce specific violent crimes—such as assault or armed robbery—by 10 percent.²⁶

- **Benefits:** Studies and experts believe that this approach captures both tangible and intangible costs and estimates a total cost of a specific crime without the concern of overlapping cost categories (for instance, the possible overlap between pain and suffering costs and the costs related to psychological treatment after a crime). In addition, 6 of 14 experts who provided comment on this approach said it may provide accurate estimates under certain conditions when researchers design the survey carefully. Further, studies we reviewed consider this method to be closer to economic conditions because respondents are weighing their responses as they consider their own resources.
- **Limitations:** Critics of the method have stated that the approach may overestimate the cost of crime by looking at the self-reported, hypothetical preferences of the respondents rather than the actual, observable behavior where individuals must weigh their

²⁵Studies may refer to this method as a contingent valuation or willingness-to-pay.

²⁶See M. A. Cohen, R. T. Rust, S. Steen, S. T. Tidd, "Willingness-To-Pay for Crime Control Programs." *Criminology*, vol. 42, no. 1 (2004).

choices among competing demands and limited resources. In addition, according to some studies and experts, survey respondents' perception of the risk of crime in their neighborhood may not align with the actual risk. As such, the amounts they are willing to pay to reduce crime may be higher than they would be if the respondents had a better understanding of the actual risk. Finally, the studies note that individuals' willingness to pay to reduce crime may vary depending on respondents' race or income level. Specifically, one 2004 study found that the willingness to pay was lower for low-income respondents, although they are at a higher risk of becoming a crime victim.²⁷ The study concluded that the ability to pay and other factors outweighed fear of crime risk.

Calculating categories of costs separately to develop a total cost. This approach identifies the cost categories associated with one or multiple crimes—such as medical costs or criminal justice costs—and estimates a monetary value for the individual cost categories to develop a total estimate, either by crime or for all crime.²⁸ For example, researchers using this approach may estimate the cost of assault by identifying the various harms attributed to assault, such as physical injuries resulting from assaults. They then obtain data to measure the cost of identified harms, such as medical administrative data to estimate costs for treating injuries from an assault, or law enforcement agencies' caseload information to estimate the costs for police to respond to and investigate assaults.

- **Benefits:** Experts and studies stated that this approach helps develop estimates for a variety of specific cost components, and allows researchers to estimate costs by crime as well as determine the total costs of crime. For example, of the 12 experts we surveyed who provided their opinion on the use of this method, 7 stated that it provides transparency and specificity in the types of costs included in the estimates.
- **Limitations:** Critics have stated that this approach may provide a limited view of the costs of crime and may exclude intangible costs such as fear of crime. Further, of the 12 experts we surveyed who provided comment on the use of this approach, 4 said its ability to

²⁷See Cohen, et al., "Crime Control Programs."

²⁸Articles we reviewed may refer to this and related methods as a "bottom-up," accounting-based, cost-of-illness, or cost-of-injury approach, and methods that isolate smaller costs from broader expenditures or cost data as top-down.

provide accurate and reliable estimates depend on certain conditions, such as clarity on what costs are and are not included.

Experts we surveyed indicated that there are longstanding divisions in the research community on how to approach estimating the cost of crime, in part because of the limitations associated with each method. For instance, 11 of the 14 experts we surveyed who commented on the reliability of at least one of the four approaches said that they had serious concerns with the reliability of one or more approaches to estimate costs. In addition, two experts indicated that the existing methods are so limited that the field may need an entirely new approach to estimating the cost of crime.

Challenges Considering the Magnitude of Crime for Estimating Costs

According to 8 of 10 experts we surveyed who responded to a question on crime statistics, limitations with determining the magnitude of crime made it more difficult to estimate the cost of crime. For instance, four experts stated that, generally, the limited scope of crime data can pose challenges to researchers' cost of crime estimates. They also said that incomplete data on the magnitude of crime affected their ability to estimate the cost of crime.

The Department of Justice Has Taken Steps To Improve its Crime Data Collections

- In 2016, the Federal Bureau of Investigation (FBI) added two new fraud definitions—hacking and identity theft—and one new location type—cyberspace—to the National Incident-Based Reporting System (NIBRS) to address the growing concern of cybercrime.
- Bureau of Justice Statistics (BJS) officials stated the agency is developing options to build out subnational estimates for the National Crime Victimization Survey, and will identify the feasibility of publishing subnational crime estimates at the end of fiscal year 2017.
- FBI and BJS stated that they are funding the expansion of the National Crime Statistics Exchange, a program expected to help 400 of the largest law enforcement agencies in the country implement NIBRS for reporting crime data that represent the vast majority of the population. FBI stated that they plan to phase out SRS and make NIBRS the primary system for reporting crime offenses by 2021.
- Cost of crime experts stated that NIBRS provides more comprehensive crime information and expanding its usage could lead to better cost of crime estimates than using traditional UCR summary data.

Source: DOJ agency documents and interviews with agency officials and cost of crime experts. I GAO-17-732

In a recent report on modernizing crime statistics, the National Academies identified multiple limitations in the UCR Program and the NCVS.²⁹ For example, the UCR Program and the NCVS focus on a more traditional conception of crime, and the definitions of crime used for collecting data have changed little since the programs were first established. For instance, while the National Academies report stated that the programs provide detailed information on “street crimes” – violent and property crime categories, they do not provide the same extent of information on other concepts of crime, such as white-collar or cyber-related crimes. The National Academies reported that the programs’ focus on street crime has limited the public’s perception of what constitutes a crime. Since, the UCR Program and the NCVS do not regularly report estimates on the magnitude of cybercrime, for instance, news media and policy makers may not consider cybercrime as concerning of a problem as street crime. However, our review of the research indicated that other crimes like cybercrime may occur frequently and could pose significant societal costs, but systematic information on these types of crimes is not available.

The National Academies report and experts we surveyed also identified limitations about how the UCR Program and the NCVS collect and report on crime statistics that may affect cost of crime estimates. For instance, the National Academies reported that while the UCR Program has a high overall participation rate from law enforcement agencies, individual agencies may not always provide responses for some crime types, such as arson, which makes estimates for these crimes less reliable.³⁰ Experts

²⁹The National Academies published the report at the request of the FBI and BJS for the purpose of making recommendations to help the federal government modernize its approach to collecting crime data. As a part of that report, the National Academies identified limitations with the current set of crime statistics. According to FBI officials, the agency does not plan on responding to these recommendations until the National Academies’ publishes its final report.

³⁰According to the FBI, the agency conducts analysis to reduce the effect of such nonresponse rates, such as using previous years’ estimates and estimates from similarly-sized populations to attribute crime incidence for certain jurisdictions.

we surveyed also identified some concern with the reliability of some UCR crime information.³¹

Further, the National Academies reported that while FBI's UCR NIBRS program provides greater detail on crime incidence, law enforcement agencies have been slow to adopt the program's standards. According to the FBI, only 28 percent of the total crimes reported in the UCR are from agencies using NIBRS standards.³² Therefore, researchers cannot use NIBRS data to estimate the magnitude of crime nationwide without using supplemental data sets. Specifically, the two cost of crime experts we surveyed who discussed NIBRS challenges stated that because NIBRS is not nationally generalizable, it has limited use for estimating costs.

Regarding the NCVS, the National Academies report and experts we surveyed stated that while the NCVS methodology provides national statistics, it has limited use when researchers want to develop state-level or other subnational cost estimates. This is because the NCVS is designed to provide national-level estimates, and is best suited for such analysis. However, cost of crime researchers value crime statistics that can provide more precise estimates of crime for studying state or other subnational costs.

Despite the challenges associated with determining the magnitude of crime, researchers have developed methods to use federal crime data in some cost of crime estimates. Specifically, all nine experts we surveyed who provided a response stated that the cost of crime literature has developed methods for addressing and mitigating concerns when using the crime data. Based on information from these experts and our review

³¹Seven out of nine experts who responded believed that UCR Program data on violent crime—specifically homicide—were more reliable than other crime types. Three experts attributed this greater reliability in reporting to the seriousness of the crime. Also, three experts reported that crime level data for certain crimes were less reliable when used for cost of crime estimates. For example, two experts stated that sexual assault data were unreliable due to perceived underreporting of such crimes. Another expert stated that certain misdemeanors were less reliable due to perceived discrepancies in crime definitions among different law enforcement jurisdictions and ultimately what law enforcement agencies choose to report.

³²DOJ identified several reasons why law enforcement agencies might not report crime data using NIBRS standards, including law enforcement agency's limited budgetary resources to implement a new system, a lack of training, and the perceived notion that the agency's crime count will rise.

of the cost of crime literature, we identified three general approaches to address limitations with crime data:

- **Using multiple datasets:** In our analysis of crime estimates, we found examples of researchers using multiple data sources to identify crime rate and severity. For instance, in one estimate on career criminal costs, a researcher conducted offender surveys and supplemented information from criminals' rap sheets to estimate all crimes committed for each offender in the study.³³ In another example that estimated the cost of intimate partner violence, researchers used information from the National Violence Against Woman Survey, UCR information, and U.S. Census population data to estimate crime rates.³⁴
- **Employing various methodological techniques:** Estimates may use different techniques to overcome challenges in the magnitude of crime. For instance, one expert we surveyed multiplied victimization rates estimated using victim surveys to fill perceived gaps in police-reported crime incidence data. Another study estimated fatal crimes by reviewing national vital statistics instead of UCR homicide information.³⁵ In addition, two experts we surveyed stated that some methodological approaches may not require crime magnitude data to generate estimates. For example, one expert stated that many studies that use surveys to estimate the public's willingness to pay to reduce crime develop their estimates on the basis of the public's perception of crime and not the actual magnitude of crime. For instance, researchers who conduct some public surveys may not inform the respondents about the actual crime rates. However, they ask respondents what they are willing to pay for a 10 percent decrease in crime and rely on the individual respondents to infer what the magnitude of crime may be.
- **Communicating assumptions:** Research articles regularly communicate data limitations about the approach and assumptions they used in the study. One expert we surveyed indicated that researchers must clearly communicate their assumptions when developing estimates. Doing so makes it easier for other researchers

³³Matt DeLisi and Jewel M. Gatling, "Who Pays for a Life of Crime? An Empirical Assessment of the Assorted Victimization Costs Posed by Career Criminals," *Criminal Justice Studies*, vol. 16, no. 4 (2003).

³⁴CDC, *Costs of Intimate Partner Violence*.

³⁵Miller, et al., *Victim Costs and Consequences*.

to test these assumptions and refine their methods in future cost estimates. For instance, one article studying juvenile crime costs in urban areas reported that, in order to use a specific dataset to estimate crime among children ages 7 to 17, researchers assumed that the severity of assaults committed by juveniles is equal to the average severity of assaults in general, including assaults committed by adults.³⁶ However, the authors point out evidence that the severity for younger children may be more limited compared to other age groups and adults. By providing the assumptions underlying cost of crime estimates, future researchers can test accuracy of the estimates and determine how limitations may be overcome.

Challenges Monetizing Costs

We identified various challenges with estimating the costs of the effects of crime. Specifically, 5 of 16 experts we surveyed argued and the research we reviewed confirmed that the lack of reliable data is a key issue that challenges researchers' ability to monetize costs. For instance, our review found that often researchers focused on certain costs because data were available to estimate them. However, the studies often stated that the estimated monetized value excluded certain crimes or certain types of costs because researchers believed they could not estimate such costs reliably. As a result, much of the research noted that the identified costs were likely underestimates of the total monetized value of crime.

Distinction Between Tangible and Intangible Costs of Crime

Tangible costs: A measure of the negative effect of crime where the amount represents a good or service with an existing market value. Examples of tangible costs include medical treatment from injuries, the value of replacing damaged or stolen property, or lost wages because of missed workdays.

Intangible costs: A measure of the negative effect of crime for which there is no existing market to buy or trade such effects. Examples of intangible costs include pain and suffering, lost quality of life, and avoiding otherwise enjoyable activities or places.

Source: GAO. | GAO-17-732

Based on both our review of the literature and information provided by experts, estimating the intangible costs of crime is conceptually more difficult than estimating the tangible costs. For instance, 8 of 15 experts we surveyed agreed that estimates of tangible costs are more accurate and reliable compared to intangible costs. However, a common concern in our review of cost estimate studies was that research must consider the intangible costs of crime because they are likely much greater than the tangible costs.

While researchers believed that estimating intangible costs is important, we found that the research community is divided about which methods to use and whether identified methods may accurately estimate intangible costs. For example, we found in our literature review objections to using jury awards altogether because awards from juries did not adequately conform to market rules. For instance, jury awards did not consider

³⁶Brandon C. Welsh, Rolf Loeber, Bradley R. Stevens, Magda Southamer-Loeber, Mark A. Cohen, and David P. Farrington, "Cost of Juvenile Crime in Urban Areas: A Longitudinal Perspective," *Youth Violence and Juvenile Justice*, vol. 6, no. 3 (2008).

scarcity of resources like a common market would. Researchers have also criticized using jury awards because awards are likely not determined when the crime occurred or may have been awarded to have a punitive effect rather than just to compensate victims. Further, of the 13 experts surveyed who provided their opinion on the use of this method, 8 stated that jury awards are not generalizable and may be biased based on factors that are not related to the crime—for instance, the race of the victim or defendant, or the expertise of the defense or prosecution. They said that such bias should be excluded when estimating the cost of a victim’s pain and suffering.³⁷

³⁷One expert noted that while estimates from jury award methods may be biased because of these factors, researchers attempt to control for these factors using regression analysis and other methods to arrive at more typical “average” awards.

Limited data to estimate the cost of psychological injury

Studies we reviewed identified psychological injury as a cost that is difficult to estimate and needs additional research. Often, research found that available estimates exclude certain psychological effects where available data are limited or nonexistent.

Example of limitation estimating intangible costs:

- **Pain and suffering.** Researchers have raised concerns that cost estimates of victim pain and suffering may exclude certain psychological harms of crime, such as fear in the community. One article noted that fear in the community might be one of the largest costs of crime.

Examples of limitations estimating tangible costs:

- **No national database.** Studies suggested that there is no national database that collects information on psychological harm. In addition, while the National Crime Victimization Survey collects medical cost information for physical injuries, it does not cover mental health treatment.
- **Excluding certain affected populations.** Studies may rely on non-representative sampling and self-reported information that may affect the reliability of the estimate. For example, one 2003 study we reviewed focused only on the cost of intimate partner violence to women, because the study determined such data for the cost to men was unreliable. Therefore, the total costs were likely an underestimate.

Source: GAO analysis of selected studies and survey of subject matter experts. | GAO-17-732

Our literature review found that certain tangible costs can be a challenge to estimate because of the lack of sufficiently reliable data. For example, one study found that there is limited information about victims' out-of-pocket expenses resulting from crime they experienced.³⁸ Specifically, the study found that the NCVS was the primary source of information for researchers to estimate victims' out-of-pocket expenses. However, the NCVS only collects information on victim expenses incurred over the course of the 6 months prior to the time being surveyed. As a result, NCVS reports would likely only include short-term expenses and would not capture costs such as long-term mental health care or expenses incurred to avoid further victimization, which could be substantial. Thus, researchers would need to identify additional sources of information to calculate longer term out-of-pocket expenses for victims.

To mitigate the various challenges and limitations with certain methods and data sources, researchers conduct numerous steps and use differing approaches to estimate difficult costs, such as psychological injury (see text box). As researchers increase steps and assumptions in their methodologies, they add more complexity and wider levels of uncertainty. As a result of this uncertainty, researchers may develop cost estimates with wide ranges that are highly sensitive to changes in those assumptions. For example, one study estimated the annual cost of premature death from methamphetamine usage at about \$4.9 billion.³⁹ However, the research indicates that the costs could be between \$876 million and \$14.3 billion when considering uncertainties with each assumption in the estimate. In other words, while the study found the cost of premature death from methamphetamine usage was \$4.9 billion, the real cost could be about 20 percent of this amount, or it could be almost 3 times larger than estimated. See figure 2 below.

³⁸Mark A. Cohen, "Measuring the Costs and Benefits of Crime and Justice," *Criminal Justice 2000*, vol. 4: *Measurement and Analysis of Crime and Justice*, (Washington, DC: Department of Justice, Office of Justice Programs, July 2000).

³⁹Nancy Nicosia, Rosalie Liccardo Pacula, Beau Kilmer, Russell Lundberg, and James Chiesa, *The Economic Cost of Methamphetamine Use in the United States, 2005* (Santa Monica, CA: Rand Corporation, 2009).

Figure 2: Complexity of Estimating the Cost of Premature Death from Methamphetamine Use

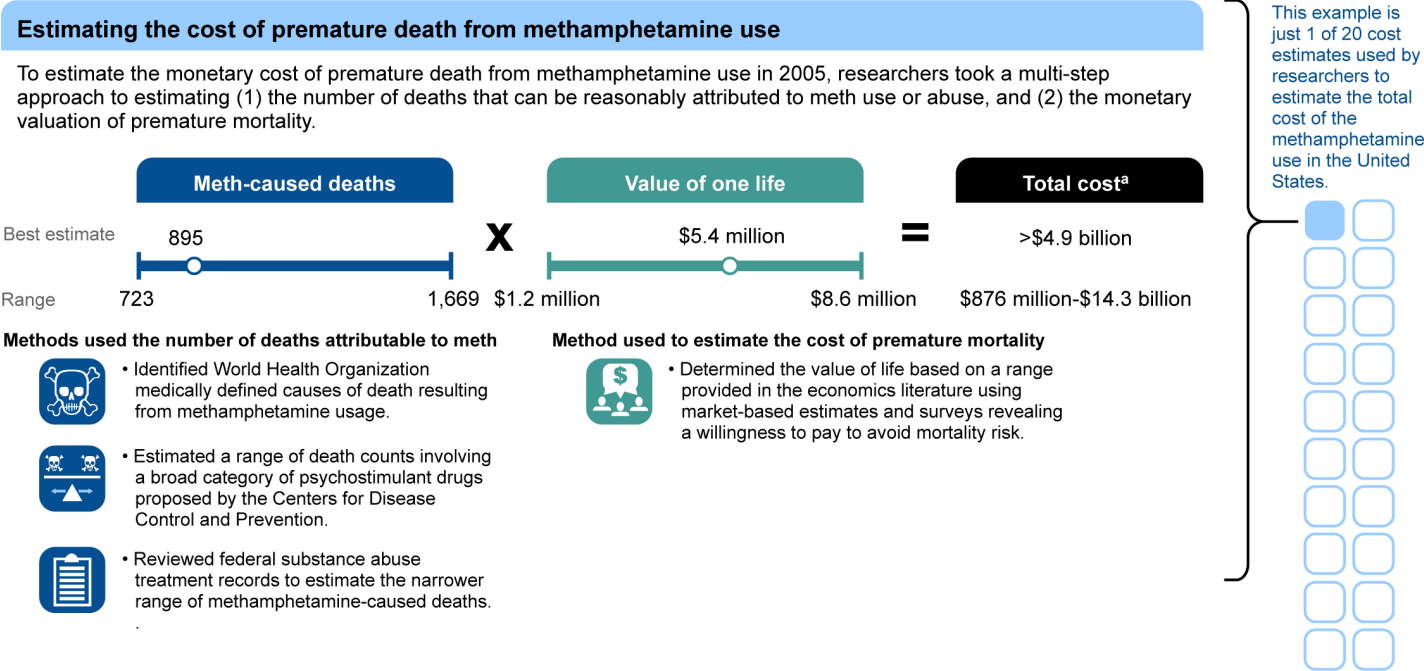


Figure 3: Cost Estimates, Methodology, and Focus of Who Bears the Cost of Fatal Crimes in Select Research

Authors	Cost of Crime and unit of analysis	Overall cost estimation methodology	Estimated Cost ^a (converted to 2016 dollars)		Who bears the cost?
			Tangible	Intangible	
Cohen, M.A., et al. (2004)	Average national willingness to pay to reduce risk of murder by 10 percent per victimization ^b	 National contingent valuation survey	\$13,201,590 ^c		   
DeLisi, M., Gatling, J. (2003)	Victimization cost of murder committed per career criminal	  Used previous estimates of a value of statistical life and conducted survey of career criminals in a metropolitan area	\$580,036		  
DeLisi, M., Kosloski, A., et al. (2010)	Cost of murder per victimization	   Aggregated tangible costs, value of statistical life, and public willingness-to-pay to reduce crime	\$19,379,998		   
McCollister, K., French, M., Fang, H. (2010)	Cost of murder per victimization	  Summed tangible costs for murder and associated criminal justice system costs; for intangible used mean value of statistical life	\$1,436,060	\$9,482,943	  
Miller, T., Cohen, M., Wiersema, B. (1996)	Fatal crime losses (excluding arson and drunk driving) per victimization	  Identified six major tangible cost categories by crime type; for intangible used a mean value of a statistical life	\$1,572,036	\$2,928,303	  
Roman, J. (2011)	Cost of murder and non-negligent manslaughter per victimization	 Used civil jury awards to estimate victimization costs	\$1,623,696		
Article developing an estimate for an individual cost category of fatal crime					
Cohen, M., Miller, T. (1998)	Cost of mental healthcare associated with witnessing a murder or losing a loved one to murder per victim	  Surveyed mental health professionals to estimate average cost to treat victims	\$2,991	not applicable	 

Methodology	 Economic effect on markets	 Using jury awards	 Public willingness to pay to reduce crime	 Calculating categories of costs separately to develop a total cost			
Who bears the cost	 Victim	 Potential victim	 Victim's family	 Society	 Offender	 Offender's family	 Business/employer

Source: GAO analysis of select research. | GAO-17-732

^aTangible costs are those where one can estimate an amount by observing a product or service transaction in response or in anticipation of criminal activity. Intangible costs are negative effects of

crime but where there are no directly observed market values, such as lost quality of life. If an estimate only calculated tangible costs, the amount appears in the left-hand portion of the estimated cost column.

^bPer victimization costs refer to the effects of crime imposed on one victim during one incident. One crime may have multiple victims or offenders. Per career criminal costs refer to costs imposed by one criminal in the span of his or her life as a criminal. Per victim costs refer to costs imposed on a victim, regardless of incidents or crimes.

^cFor those estimates where the study methodology identified a total cost that did not distinguish between tangible and intangible costs—such as with contingent valuation surveys—the calculated amount is listed as a single figure that includes both tangible and intangible costs.

Experts GAO surveyed generally agreed that it is difficult to measure the cost of crime precisely. However, in response to our findings on the differing estimates on the costs of crime, two experts noted that while cost of crime estimates vary widely, the range in estimates does not necessarily indicate that the studies are either flawed or unreliable for their purposes or for policymaking. For instance, estimates on the cost per homicide vary, as noted above. However, the estimated costs for homicide generally confirm that cost per crime is in the millions of dollars, even when researchers use unrelated methodologies to develop their estimates. Additionally, one expert noted that despite using different methods to estimate the costs of crime, he believes there is general agreement about which crimes cost more based on their severity—that is crimes like murder, aggravated assault, and rape, are generally more expensive than crimes like burglary and vehicle theft. Moreover, another expert stated that estimates of certain costs of crime such as intangible costs are subjective in nature. One expert also indicated that, although cost estimates can vary widely, they can still be useful for researchers and other users, as long as the estimates carefully describe what the costs represent—including the units of analysis—and users are mindful of the limitations associated with the methodologies and assumptions used to develop the estimates.

Experts Identified Approaches that Could Improve the Understanding of the Cost of Crime and Its Use in Policy Discussions

Experts we surveyed for this report provided five broad topic areas that may help improve the understanding of the cost of crime. They stated that there is growing interest in researching additional topics, such as the costs of incarceration. Further, experts noted that researchers could refine their estimates by combining different methodological approaches. Experts also stated that researchers and policymakers should avoid viewing the cost of crime in isolation from specific policy goals or scenarios. Rather, experts stated that researchers and policymakers should view the cost of crime under different policy scenarios to help policymakers determine how to achieve the desired outcomes and efficiently use limited resources.

Experts Identified Additional Topics and Methods that Cost of Crime Researchers Should Explore

As part of our survey, we asked all 17 experts to independently identify topics of interest that they believed needed additional research or methods to improve estimates of the cost of crime. The experts we surveyed have expertise in a range of disciplines and fields of study and, as such, volunteered topics of interest based on their own unique perspectives of the cost of crime. We did not try to arrive at a consensus among the experts.

These additional topics included the following:

Cost of crimes not traditionally reported in the FBI's UCR.

According to studies we reviewed, researchers have primarily studied the costs associated with street crimes reported in the traditional UCR SRS. One expert noted that the standardized definition of these crimes across the United States helps improve the accuracy of the cost estimates for these crimes. However, six experts we surveyed said that cost of crime research should expand to study the costs of other crimes not captured in the traditional UCR system, such as unlawful drug use, regulatory offenses, cybercrime, and white-collar crime.⁴⁰ Three of these experts said that the challenge estimating the cost of these crimes is the lack of data on the magnitude of these crimes. For instance, while one researcher conjectured that white-collar crime could cost more than all street crime, according to studies we reviewed, little is known about the cost of white-collar crimes. One study indicated that while such economic crimes have serious consequences that far exceed the financial dollar loss, there is little systematic evidence about the magnitude of these losses.⁴¹ Further, according to another study we reviewed, criminal activity

⁴⁰Regulatory crimes include acts against financial or environmental regulations. Cybercrimes include computer and network intrusions and ransomware attacks. White collar crimes include fraud and identity theft. According to DOJ, NIBRS has had the means to report on some white collar crimes since its inception, such as wire fraud, extortion, and bribery, among others. In 2015, FBI updated the white collar crimes collected in FBI's NIBRS to include new categories of cybercrime such as identity theft (e.g., wrongfully obtaining and using another person's personal data like name, date of birth, Social Security number, driver's license, credit card number); and hacking (e.g., wrongfully gaining access to another person's or institution's computer software, or networks without authorized permissions or security clearances).

⁴¹Mark A. Cohen, *Willingness to Pay to Reduce White Collar and Corporate Crime*, (SSRN, May 20, 2015), accessed July 20, 2017, <https://ssrn.com/abstract=2486220>; and Mark A.R. Kleiman, Jonathan P. Caulkins, and Peter Gehred, *Measuring the Costs of Crime*, (National Criminal Justice Reference Service, April 2014).

has evolved with technological advancements, such as the widespread use of the Internet.⁴² Internet-perpetrated crimes like credit card theft and cyber attacks on computer infrastructure present unique challenges that require researchers to develop different approaches to analyzing the magnitude of these crimes and estimating their cost. For example, Internet-perpetrated crimes may require separate counts of offenders, victims, and financial losses because a few offenders can potentially affect millions of victims in one coordinated attack, such as when a security breach occurs and personal information is stolen.⁴³

Cost of punishment and incarceration. Seven experts we surveyed identified the cost of punishment and incarceration upon the offender, the offender's family, and the offender's children as a significant cost to society that needs to be better understood. Experts also identified these costs as a growing area of interest to researchers. In our review of research studies, we found that researchers have historically focused on estimated costs that were a direct consequence of a crime, such as victimization costs or the amount spent on the corrections system. According to one of the studies, previous estimates of the cost of incarceration have only included the cost of administering the corrections systems, such as how much it costs to run a prison. Only recently have researchers turned to estimating additional categories of costs associated with incarceration, including

- Costs to the offender: these include the effects of incarceration on an offender's health, employment, and earnings after being released from prison;
- Costs to the offender's family: these include the loss of income due to incarceration and the impact upon the offender's family in terms of housing stability and reliance on public assistance; and
- Costs to the offender's children: these include the intergenerational costs such as potential increased criminal

⁴²Maria Tcherni, Andrew Lucas Blaize Davies, Giza Lopes, and Alan Lizotte. "The Dark Figure of Online Property Crime: Is Cyberspace Hiding a Crime Wave?" *Justice Quarterly*, vol. 33, no. 5 (2016).

⁴³According to the FBI, as part of its crime data modernization efforts, it intends to include white collar crime and cybercrime in future crime publications.

activity and lowered educational attainment for children who had incarcerated parents.

According to six experts we surveyed and studies we reviewed, these spillover costs of incarceration may be substantial, and ignoring them can lead to underestimating the cost of crime and the cost of incarceration.⁴⁴ Further, these studies and two of the experts mentioned that policymakers should incorporate the full cost of incarceration, which includes the cost to offenders and the offender's families, while weighing the costs and benefits of criminal justice policies and alternatives, such as setting prison-sentencing guidelines.

Defining Recidivism

Recidivism refers to a person's relapse into criminal behavior, often after the person received sanctions or undergoes intervention for a previous crime, such as imprisonment. Recidivism is measured by criminal acts that resulted in rearrest, reconviction, or return to prison with or without a new sentence during a three-year period following the prisoner's release.

Department of Justice studies have found high rates of recidivism among released prisoners. For example, one study found that about two-thirds of released prisoners were rearrested within 3 years of release. Non-violent offenders were the most likely to be rearrested.

Source: U.S. Department of Justice, National Institute of Justice. I GAO-17-732

Cost of recidivism. According to the research we reviewed on the cost of recidivating offenders, there are few studies available on the monetary costs of crimes committed by released inmates.⁴⁵ However, other aspects of recidivism are more well known, such as predictors of recidivism and options to improve the outcomes of former inmates to reduce recidivism. One expert we surveyed said it is important to understand the cost of recidivating offenders within the context of what type of conditions the recidivating offender was released (e.g., parole supervision or unconditional release) to help evaluate the effectiveness of interventions. Another expert said that estimating recidivism costs is important to help measure the effect that different interventions may have on reintegrating former inmates into society and reducing the costs of further criminal activity from released inmates. Further, one expert said it is important to understand common characteristics among offenders that lead to higher crime costs over the course of their lives so that society can intervene early and prevent these costs from occurring. For example, we identified in our literature review that some repeat offenders, referred to as career criminals, are

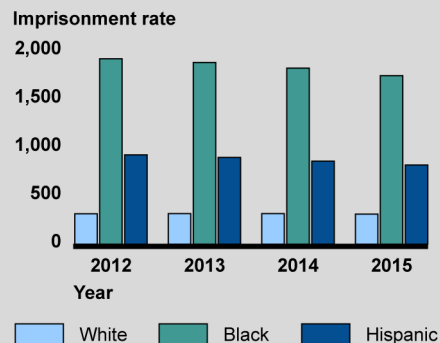
⁴⁴Michael McLaughlin, Carrie Pettus-Davis, Derek Brown, Chris Veeh, and Tanya Renn. *The Economic Burden of Incarceration in the U.S.* Concordance Institute for Advancing Social Justice Working Paper #CI072016. St. Louis, Mo: Washington University, 2016; and Executive Office of the President of the United States, Council of Economic Advisers. *Economic Perspectives on Incarceration and the Criminal Justice System* (Washington, D.C.: April 2016).

⁴⁵To consider recidivism in our study, we asked DOJ officials and experts to provide articles that estimate costs associated with recidivism. We identified two articles to include in our analysis. See DeLisi and Gatling, "Who Pays for a Life of Crime?"; and M. Ostermann and J. Caplan, "How Much do the Crimes Committed By Released Inmates Cost?" *Crime & Delinquency*, vol. 62, no. 5 (2016).

Incarceration Rates Among Different Racial Groups

According to Department of Justice data, there are differences in the incarceration rates for black, Hispanic, and white people. The National Academies of Sciences reported that there are several factors contributing to the difference, including higher rates of poverty and urbanization and a younger age distribution for black and Hispanic communities. In addition, research suggests that racial and ethnic bias persists, and that small but systematic biases at several stages of the criminal justice system have contributed to higher incarceration rates. For example, research studies show that even with comparable criminal records and criminal offenses, blacks have higher arrest rates for drug offenses and are charged and sentenced more severely than whites.

Incarceration rate of persons under the jurisdiction of state or federal correctional authorities per 100,000 U.S. residents age 18 or older, by race and Hispanic origin



Note: White and Black categories exclude people of Hispanic origin or those of two or more races.

Source: Bureau of Justice Statistics; GAO analysis of selected research studies. | GAO-17-732

responsible for a significant portion of the cost of crime compared to first-time offenders.⁴⁶

Cost of potential bias in the administration of justice. Four experts we surveyed independently identified the need to better understand the cost of potential racial and socioeconomic bias in the administration of justice, such as the cost to society of racial bias in who is incarcerated or comes into contact with the criminal justice system. Research studies identified by DOJ or experts we surveyed indicate that there is a significant cost resulting from such bias. For example, according to these studies, racial minorities—namely black and Hispanic people—disproportionately come into contact with police and are incarcerated compared to non-Hispanic white people.⁴⁷ These research studies also stated that increased criminal justice system contact is associated with lower levels of political participation, family stability, high school completion, and future earnings, which can further marginalize these minority groups.

Uncertainty of cost of crime estimates. Three experts we surveyed said that the research community should exert greater effort into estimating the uncertainty of cost of crime estimates, such as confidence intervals or standard error estimates. According to studies we reviewed, most cost of crime estimates are a single dollar value without a range to show the associated uncertainty of the estimate. However, both experts and our review of research point to considerable uncertainty for some cost estimates, such as the estimated dollar value of a victim's pain and suffering. One expert said that a cost of crime estimate without a range—such as a confidence interval—gives a false appearance of accuracy.

⁴⁶DeLisi and Gatling, "Who Pays for a Life of Crime?"

⁴⁷See Executive Office of the President, Council of Economic Advisors, *Economic Perspectives on Incarceration and the Criminal Justice System*, (Washington, D.C.: April 2016); and National Research Council, Committee on Causes and Consequences of High Rates of Incarceration, *The Growth of Incarceration in the United States: Exploring Causes and Consequences*, (Washington, D.C.: National Academies Press, 2014).

The experts we surveyed also described data and methods to improve estimates of the cost of crime:

Better incorporating existing data in approaches to estimate costs. Three experts we surveyed pointed out existing available data sets, such as the National Survey on Drug Use and Health, which could be used for further research on the costs of drug-related crime and the health costs of incarceration. Two experts also suggested that researchers could make better use of government and organizational administrative data, such as budgets for police departments, prisons, and courts, to estimate the taxpayer and government costs of crime. These data provide direct estimates of the costs of crime related to government spending.

Improving existing methods. Experts we surveyed identified ways to improve upon existing methods currently used to estimate the cost of crime. Specifically, two experts described new survey approaches such as leveraging federal jury pools as survey respondents or adding questions to existing national surveys to better understand the effect of crime and recidivism on offenders' health and the utilization of the public health systems. Another expert suggested combining methods and data, such as combining survey information with government budget data, to improve the accuracy of cost of crime estimates. Another expert suggested that researchers should take advantage of studying states or other jurisdictions as they change criminal justice policies or when they start new crime reduction or prevention programs in order to help refine estimates of the cost of crime. For instance, researchers could measure the effects and associated costs when a municipality establishes a new prisoner reentry program. Last, three experts suggested establishing a process, such as a federal agency initiating a competition or commissioning a broad group of experts, to develop new ideas and methods for estimating the cost of crime.

Establishing an authoritative organization. Two experts we surveyed suggested establishing an authoritative organization, such as a standing science advisory committee or an ongoing panel of experts, to provide guidance and best practices on estimating the cost of crime or to rethink and improve upon the current standards for estimating the cost of crime. One of these experts indicated that this type of authoritative organization may

be able to help resolve the debate, as mentioned previously, over the validity of methods used to estimate the costs of crime.

Experts Identified the Need to Link Cost of Crime Estimates to Specific Policies

According to experts we surveyed and studies we reviewed, estimating the cost of crime without a specific policy context may not be especially helpful. Rather, three experts stressed the importance of using estimates of the cost of crime within the context of comparing alternative policies to achieve public policy outcomes, such as comparing the costs and benefits of releasing inmates to paroled supervision versus unconditional release to help reintegrate former inmates into society. Of the 12 experts who discussed the utility of cost of crime research to policymaking, 10 experts believed that comparing the costs or costs and benefits of criminal justice policies could be useful to policymakers. However, three experts expressed reservations due to the lack of accuracy or omission of certain costs of crime, such as estimates of the intangible costs of crime or the cost of incarceration.

One expert discussed how the state of Washington has funded researchers to estimate costs of crime and use these costs to help evaluate criminal justice policy alternatives.⁴⁸ Policymakers then used the evaluation results to inform their decision on which programs to fund in order to achieve the desired policy outcome, such as reducing juvenile crime, among others. This expert stressed the importance of using a standardized, consistent method to estimate the costs of crime and program benefits because it allows policymakers to review internally consistent estimates, or do an “apples-to-apples” comparison among the programs in question, when deciding on how to allocate limited government funds. See figure 4 below for information on how the state of Washington has used cost of crime estimates to evaluate policy alternatives.

⁴⁸According to one expert, other research studies where cost of crime estimates have been used to evaluate criminal justice policies include: John Donohue, “Assessing the Relative Benefits of Incarceration: The Overall Change Over the Previous Decades and the Benefits on the Margin,” *Do Prisons Make Us Safer? The Benefits and Costs of the Prison Boom*, eds. Steven Raphael and Michael Stoll (New York: Russell Sage Foundation, 2009); and John Donohue and Peter Siegleman, “Allocating Resources Among Prisons and Social Programs in the Battle Against Crime,” *The Journal of Legal Studies*, vol. 27, no. 1 (January 1998).

Figure 4: Using Cost of Crime Estimates to Evaluate the Costs and Benefits of Criminal Justice Policy for the State of Washington

The Washington State Institute of Public Policy (WSIPP) is an example of an organization that routinely uses cost of crime estimates to help policymakers decide upon criminal justice policies. Experts we surveyed cited the WSIPP’s work estimating state costs of crime and noted it is one of the few organizations in the U.S. that plays this role. The WSIPP conducts research primarily at the request of the state legislature. Since the 1990s, the WSIPP has analyzed and identified evidence-based public policies with the goal of improving statewide outcomes and efficiently using taxpayer dollars. Crime reduction has been one of the key outcomes of interest.^a

For example, in response to a rise in juvenile crime in the early 1990s, the state legislature asked WSIPP to identify programs that reduce juvenile crime. To do this, the WSIPP compared the cost to administer the program against any benefits resulting from the program. This type of analysis is known as a “cost-benefit analysis”.^b

- To estimate program benefits, the WSIPP reviewed research on juvenile delinquency interventions and

estimated their benefits. The monetary value of avoided crime and the associated avoided costs, such as victimization and criminal justice system costs, are considered one of the program’s benefits.

- To estimate program costs, the WSIPP estimated the cost of implementing and administering the program.
- To evaluate the net benefit or cost of the program, WSIPP determined whether a program’s benefits would likely outweigh its costs and, as such, determined whether a program would likely be an efficient use of taxpayer money and could reduce juvenile crime.

According to a WSIPP official, the Washington State legislature used WSIPP’s cost-benefit analysis directly in state law that authorized and funded programs to reduce juvenile crime. Since then, the state legislature has asked the WSIPP to use the same process for other criminal justice topics, such as prison sentencing and probation and parole programs.

Washington State Institute for Public Policy Cost-Benefit Analysis of Programs to Reduce Juvenile Crime in Washington State as of May 2017 (2016 dollars per program participant)

Scared Straight

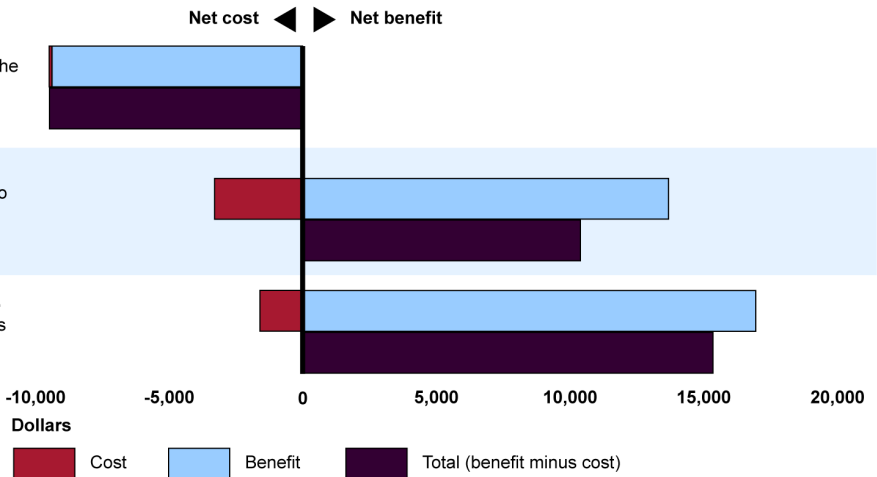
A prison awareness program where youth visit adult prisons and prisoners attempt to scare youth into living a life without crime. The negative benefit amount indicates that the program led to higher criminality among participants and imore social costs than if participants had not participated in the program.

Mentoring

Youth in the juvenile justice system are assigned to a mentor who helps youth engage in pro-social relationships, such as gaining access to reentry resources, and positive decision-making.

Aggression Replacement Training (youth on probation)

An intervention that treats chronically aggressive youth and helps improve social skills, better manage anger, and reduce aggressive behavior.



Source: GAO analysis of Washington Institute of Public Policy publication and interviews with officials. | GAO-17-732

^aWSIPP is governed by directors representing both major political parties in the state legislature, the governor, and state public universities.

^bCost-benefit analysis is a method used in public policy to identify effective policy options and to decide between policy alternatives. Cost-benefit analysis calculates the dollar value of the benefits and costs of a program, so that the net economic benefit (or cost) of a program is known. Another method used in public policy is called a “cost-effectiveness analysis”. The cost-effectiveness method estimates the cost of achieving an outcome, such as the cost per avoided crime and can help determine the cheapest way to achieve a desired outcome.

Agency Comments and Our Evaluation

We provided a draft of this report to DOJ for review and comment. DOJ provided technical comments, which we incorporated where appropriate.

We are sending copies of this report to the Attorney General, appropriate congressional committees and members, and other interested parties. In addition, this report is available at no charge on GAO's website at <http://www.gao.gov>.

If you or your staff have any questions, please contact Diana Maurer at (202) 512-8777 or maurerd@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff that made significant contributions to this report are listed in appendix V.



Diana Maurer
Director, Homeland Security and Justice Issues

List of Addressees

The Honorable Charles E. Grassley
Chairman
Committee on the Judiciary
United States Senate

The Honorable Tom Cotton
United States Senate

The Honorable Orrin Hatch
United States Senate

The Honorable David Perdue
United States Senate

The Honorable Bob Goodlatte
Chairman
Committee on the Judiciary
House of Representatives

The Honorable Steve King
House of Representatives

Appendix I: Experts Consulted to Provide Views on Cost of Crime Research

Name	Affiliation	Discipline
Steve Aos	Washington State Institute of Public Policy (retired)	Public policy, economics, national and state benefit cost analysis
Mark A. Cohen, Ph.D.	Vanderbilt University	Economics, costs of crime and justice, benefit cost analysis
Paul Heaton, Ph.D.	University of Pennsylvania Law School	Economics, application of economics to criminal law, policy evaluation
Michael Jacobson, Ph.D.	City University of New York Institute for State and Local Governance	Mass incarceration and crime reduction, public safety and justice, public finance
Charles F. Manski, Ph.D.	Northwestern University	Economics and public policy
Michelle L. Maroto, Ph.D.	University of Alberta	Sociology, inequality and social policy, quantitative and qualitative methods
Daniel S. Nagin, Ph.D.	Carnegie Mellon University	Public policy and statistics, criminology, deterrent effect of criminal and non-criminal penalties on illegal behavior
Stan Orchowsky, Ph.D.	Justice Research and Statistics Association	Sociology and Psychology, Statistics
Michael Ostermann, Ph.D.	Rutgers University	Criminal justice, evidence-based crime policy, program evaluation of post-incarceration programs and recidivism
Emily G. Owens, Ph.D.	University of California, Irvine	Criminology, economics of crime (e.g., policing, sentencing, and local policies' effect on criminal behavior)
Steven Raphael, Ph.D.	University of California, Berkeley	Economics, public policy, crime and corrections, mental health and corrections
Josiah D. Rich, MD, MPH	Brown University	Medicine, epidemiology, public health, criminal justice, disadvantaged populations and substance abuse
Sally S. Simpson, Ph.D.	University of Maryland	Corporate and white-collar crime, willingness to pay for white collar crime control
Bryan L. Sykes, Ph.D.	University of California, Irvine	Criminology, demography, sociology, law and society, long term consequences of criminal justice contact
Emily Wang, MD	Yale School of Medicine	Public health, effects of incarceration on health
Brandon C. Welsh, Ph.D.	Northeastern University	Criminology, prevention of delinquency and crime, evidence-based social policy
Christopher Wildeman, Ph.D.	Cornell University	Sociology, demography, policy analysis, child welfare and mass incarceration.

Source: GAO. | GAO-17-732

Appendix II: Bibliography of Research on the Cost of Crime

We reviewed and analyzed 27 research studies on estimating the cost of crime in the United States, published from 1996 to April 2017.¹ We used these studies to identify commonly used approaches and methodologies for estimating cost of crime as well as the benefits, challenges, and limitations associated with estimating costs.

Anderson, David A. "The Cost of Crime." *Foundations and Trends in Microeconomics*, vol. 7 no. 3 (2012): 209-265.

Caulkins, Jonathan P., and Mark A.R. Kleiman. *How Much Crime Is Drug-Related? History, Limitations, and Potential Improvements of Estimation Methods*. National Criminal Justice Reference Service, April 2014. Accessed July 20, 2017.
<https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=268491>.

Centers for Disease Control and Prevention. National Center for Injury Prevention and Control. *Costs of Intimate Partner Violence Against Women in the United States*. Atlanta, GA: 2003.

Chalfin, Aaron. "The Economic Costs of Crime." *The Encyclopedia of Crime and Punishment*, 2015: 1-12.

Cohen, Mark A. "Measuring the Costs and Benefits of Crime and Justice." *Criminal Justice 2000, Volume 4: Measurement and Analysis of Crime and Justice*. U.S. Department of Justice. Office of Justice Programs. Washington, DC: July 2000, 263-315.

Cohen, Mark A. *The "Cost of Crime" and Benefit-Cost Analysis of Criminal Justice Policy: Understanding and Improving Upon the State-of-The-Art*. SSRN. September 2016. Accessed July 20, 2017.
<https://ssrn.com/abstract=2832944>.

Cohen, Mark A. *Willingness to Pay to Reduce White Collar and Corporate Crime*. May 2015. SSRN. Accessed July 20, 2017.
<https://ssrn.com/abstract=2486220>.

¹We conducted our original literature search in October 2016. We also requested research from the experts identified in app. I. We received their literature recommendations by April 2017.

Cohen, Mark A. and Ted R. Miller. "The Cost of Mental Health Care for Victims of Crime." *Journal of Interpersonal Violence*, vol. 13, no. 1 (February 1998): 93-110.

Cohen, Mark A., Roland T. Rust, Sara Steen, and Simon T. Tidd. "Willingness-To-Pay for Crime Control Programs." *Criminology*, vol. 42, no. 1 (2004): 89-109.

DeLisi, Matt, and Jewel M. Gatling. "Who Pays for a Life of Crime? An Empirical Assessment of the Assorted Victimization Costs Posed by Career Criminals." *Criminal Justice Studies*, vol. 16, no. 4 (2003): 283-293.

DeLisi, Matt, Anna Kosloski, Molly Sween, Emily Hachmeister, Matt Moore, and Alan Drury. "Murder by Numbers: Monetary Costs Imposed by a Sample of Homicide Offenders." *The Journal of Forensic Psychiatry & Psychology*, vol. 21, no. 4 (2010): 501-513.

Dominguez, Patricio, and Steven Raphael. "The Role of the Cost-of-Crime Literature in Bridging the Gap Between Social Science Research and Policy Making: Potentials and Limitations." *Criminology & Public Policy*, vol. 14, no. 4 (2015): 589-632.

Executive Office of the President of the United States. Council of Economic Advisers. *Economic Perspectives on Incarceration and the Criminal Justice System*. Washington, D.C.: April 2016.

Finklea, Kristin M. "Organized Retail Crime." *Journal of Current Issues in Crime, Law and Law Enforcement*, vol. 5, no. 3 (2012): 163-187.

Hunt, Priscillia, James Anderson, and Jessica Saunders. "The Price of Justice: New National and State-Level Estimates of the Judicial and Legal Costs of Crime to Taxpayers." *American Journal of Criminal Justice*, vol. 42, no. 2 (June 2017): 231-254.

Kleiman, Mark A.R., Jonathan P. Caulkins, and Peter Gehred. *Measuring the Costs of Crime*. National Criminal Justice Reference Service. April 2014. Accessed July 20, 2017.
<https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=268492>.

Linden, Leigh L., and Jonah E. Rockoff. *There Goes the Neighborhood? Estimates of the Impact of Crime Risk on Property Values from Megan's Laws*. Working Paper 12253 Cambridge, MA: National Bureau of Economic Research, May 2006.

McLaughlin, Michael, Carrie Pettus-Davis, Derek Brown, Chris Veeh, and Tanya Renn. *The Economic Burden of Incarceration in the U.S. Concordance Institute for Advancing Social Justice Working Paper #CI072016*. St. Louis, MO: Washington University, 2016.

McCollister, Kathryn E., Michael T. French, and Hai Fang. "The Cost of Crime to Society: New Crime Specific Estimates for Policy and Program Evaluation." *Drug and Alcohol Dependence*, vol. 108, no. 1-2 (2010): 98-109.

Miller, Ted R., Mark A. Cohen, and Brian Wiersema. *Victim Costs and Consequences: A New Look. A Final Summary Report Presented to the National Institute of Justice*. National Criminal Justice Reference Service, January 1996. Accessed July 20, 2017.
<https://www.ncjrs.gov/app/publications/abstract.aspx?id=155282>.

Nicosia, Nancy, Rosalie Liccardo Pacula, Beau Kilmer, Russell Lundberg, and James Chiesa. *The Economic Cost of Methamphetamine Use in the United States*, 2005. Santa Monica, CA: Rand Corporation, 2009.

Ostermann, Michael, and Joel M. Caplan. "How Much do the Crimes Committed By Released Inmates Cost?" *Crime & Delinquency*, vol. 62, no. 5 (2016): 563-591.

Roman, John K. "How Do We Measure the Severity of Crimes? New Estimates of the Cost of Criminal Victimization." *Measuring Crime and Criminality: Advances in Criminological Theory*, Volume 17, edited by John MacDonald, 37-70. New Brunswick, NJ: Transaction Publishers, 2011.

Soares, Rodrigo R. "Welfare Costs of Crime and Common Violence." *Journal of Economic Studies*, vol. 42, no. 1 (2015): 117-137.

Tcherni, Maria, Andrew Lucas Blaize Davies, Giza Lopes, and Alan Lizotte. "The Dark Figure of Online Property Crime: Is Cyberspace Hiding a Crime Wave?" *Justice Quarterly*, vol. 33, no. 5 (2016): 890-911.

Welsh, Brandon C., Rolf Loeber, Bradley R. Stevens, Magda Southamer-Loeber, Mark A. Cohen, and David P. Farrington. "Costs of Juvenile Crime in Urban Areas: A Longitudinal Perspective." *Youth Violence and Juvenile Justice*, vol. 6, no. 3 (January 2008): 3-27.

Wickramasekera, Nyantara, Judy Wright, Helen Elsey, Jenni Murray, and Sandy Tubeuf. "Cost of Crime: A Systematic Review." *Journal of Criminal Justice*, vol. 43, no. 3 (May-June 2015): 218-228.

Appendix III: Objectives, Scope, and Methodology

Objectives

Our report examines the following questions about the cost of crime:

(1) How do experts estimate the cost of crime in the U.S., and what challenges do they face?

(2) What actions have experts considered in order to improve the understanding and use of cost of crime research?

Scope of Crimes and Costs

For purposes of this report, we focused on crimes committed in the United States. Specifically, we included crimes where the victim was in the United States and U.S. courts would be the primary jurisdiction. We excluded any crimes that would be adjudicated in other countries, such as international terrorism or piracy on the high seas. To identify various categories of crime, we relied on information from Department of Justice's (DOJ) Office of Justice Programs (OJP), the Federal Bureau of Investigation (FBI), and a study released by the National Academies of Sciences, Engineering, and Medicine (National Academies), which FBI and OJP commissioned in 2013.¹ We also interviewed DOJ officials to obtain information about which crimes that researchers consider in their estimates. Further, we analyzed the methods, benefits, limitations, and challenges of any cost category that we identified during our review of the cost of crime research.

Selecting and Surveying Cost of Crime Experts

To answer our research questions, we surveyed 20 experts on the cost of crime. Seventeen of those experts responded to the survey. We contracted with the National Academies to select our participants. Staff from the National Academies chose experts by soliciting nominations from its membership, including those that represent the Committee on Law and Justice, Committee on National Statistics, Computer Science and Telecommunications Board, and Population Health and Public Health Practice Board. National Academies staff also attended the American Society of Criminology annual meeting in November 2016 and solicited nominations from select attendees and presenters at the meeting. The survey participants were selected based on the following:

¹National Academies, *Modernizing Crime Statistics*.

- Expertise in a range of fields that focus on aspects of crime and its costs and effects. These fields include economics, criminology, demography, sociology, public health, and computer science;
- Knowledge on specific or technical aspects of estimating various costs of crime, such as statistics on the prevalence of crime, methods used to estimate the cost of crime, and experience or knowledge of the full range of crimes and challenges estimating costs for these crimes; and
- For participants with criminology expertise, experience with different aspects of assessing various costs of crime, such as the effects of crime on offenders, victims, and communities, corporate and white-collar crime, recidivism, substance abuse, mental illness, juvenile delinquency, policing, and mass incarceration.

The experts we surveyed collectively represented a broad set of viewpoints and knowledge, including experts from state government agencies, academia, and nonprofit research institutions. Experts who participated and their institutions are listed in appendix I.

Before surveying the experts, we evaluated them for possible conflicts of interest. We considered conflicts of interest to be any current financial or other interest that might conflict with the service of an individual because it (1) could impair objectivity, and (2) could create an unfair competitive advantage for any person or organization. Further, we used a methodology that deemphasized the opinion of any one individual to support a significant finding, instead using the 17 experts' questionnaire responses as a collective body of information to answer our research objectives.

The structured questionnaire included questions about existing research studies, methods used to estimate the cost of crime and the advantages and challenges of each method, challenges creating estimates for certain costs and certain crimes, challenges identifying the magnitude of crime, how cost of crime estimates can be used in criminal justice policy decisions, and what can be done to improve cost of crime estimates. We conducted one pretest of the questionnaire and made appropriate changes based on the pretest. Thirteen of 17 experts submitted written responses. Four experts chose to be interviewed, and we used the structured questionnaire to obtain responses over the phone.

We did not attempt to generate consensus among the experts, as the experts' background and expertise varied. In some cases, experts skipped questions as they felt it was appropriate. For example, some

experts were not familiar with certain methods used to estimate the cost of crime, and they chose not respond to those questions. Further, while the results of our questionnaire cannot be used to generalize all expert opinions about the cost of crime, we believe the chosen experts and their responses are a reasonable basis for discussing prevalent cost of crime methodologies and the general state of information across the different fields represented.

Selecting and Analyzing Cost of Crime Literature

To address information in both objectives, we conducted a literature review and analyzed 27 cost of crime research articles. Our initial selection requirements excluded any article published prior to 1996, which is when a key study cited by other studies was published, and whether the research focused on costs of crime in countries other than the United States.² Based on these criteria, we then identified articles from four sources. First, we identified an article that conducted a review of recent cost of crime literature.³ Second, we obtained a bibliography of recommended cost of crime research articles from relevant DOJ officials. Third, we conducted a search of several bibliographic databases, such as ProQuest, Dialog, and Scopus to identify books and academic, government, think tank and trade literature using related search terms on the cost of crime.⁴ The search looked for studies published during or after 1996. Fourth, we asked our experts to comment on a select list of articles and to recommend additional articles for us to include in our review.

We screened articles based on the following questions: (1) Did the research article employ a novel method for estimating costs; (2) If the article did not estimate the cost of crime, did it discuss challenges, limitations and policy implications of approaching the estimating of the cost of crime; (3) Was the article often cited by other studies; (3) On which crimes and costs did the research article focus; and (5) Did the article use generally reliable methods in its study?⁵ Two of our analysts independently screened these studies and determined whether it met the scope of our review. A third analyst reconciled any differences in the

²Miller, Cohen, and Wiersema, *Victim Costs and Consequences*.

³Nyantara Wickramasekera, et al., "Cost of Crime: A Systematic Review," *Journal of Criminal Justice*, vol. 43, no. 3 (2015).

⁴We conducted this search in October 2016.

⁵For the list of articles we included, see app. II.

screening process. An economist and methodologist on our staff independently assessed the studies to ensure that the chosen articles used sound and reliable methods. Based on this process, we chose 27 articles to analyze for our review. While these articles do not represent the universe of crime cost estimates, we believe they are suitable for our purposes to provide an overview of the general cost estimation methods; highlight various limitations, challenges, and disagreements among researchers; and are a reasonable basis for discussing the general state of the cost of crime literature.

To analyze the selected 27 articles, we developed a data collection instrument. One analyst coded and another analyst reviewed this coding to ensure consistency. An economist reconciled any differences that the coders could not address. Articles were coded to identify (1) the various estimates in the document, (2) the crimes associated with the estimate, (3) the cost category as identified in the estimate, (4) the bearer of the cost, (5) the methodologies used generally in the article and for the separate cost categories, (6) the mentioned challenges and limitations with the estimates and methods, (7) any challenges and limitations with other identified estimates and methods, and (8) the mentioned implications of the research and areas for future study. To analyze the challenges, limitations, and implications, we created various categories based on themes in the research using an iterative process. We assigned each sentence or group of sentences to one of these categories. We analyzed the information within these themes to obtain insight on broader concepts identified throughout the literature. To ensure consistency, a second analyst also assigned themes separately. A third analyst addressed any disagreements.

Identifying the Methods, Benefits, and Limitations to Estimate Costs

To address our first objective on how experts estimate the cost of crime, we identified key approaches used by reviewing the estimates and methods present in the cost of crime literature. We then characterized these methods and presented them to our experts in the survey. We asked in the questionnaire if there were other methods we should include in our analysis. Experts generally agreed with our characterization of the approaches. However, experts did identify less frequently used methods that we excluded. For example, experts identified a method used by other

countries that focus on physical harm from injury⁶ as well as a budget-based method that was consistent with an approach we identified in this report.⁷

To identify the benefits, challenges, and limitations associated with each approach, we surveyed the experts to obtain their opinion. We supplemented expert responses with examples we identified from our analysis of the literature research. We focused our discussion of the benefits, challenges, and limitations to those that experts identified most frequently.

During our review, experts and the cost of crime literature highlighted two federal programs that measure the magnitude of crime, the FBI's Uniform Crime Reporting (UCR) Program and the DOJ's Bureau of Justice Statistics (BJS) National Crime Victimization Survey (NCVS). We reviewed documentation about these data collection efforts and interviewed FBI and BJS officials to obtain information about their purposes, and the challenges and limitations associated with the methodologies each uses. While these programs long preceded the beginning date for our literature review, we focused on FBI's and BJS's recent efforts to measure crime. For instance, we identified current efforts that FBI and BJS have taken to encourage fuller participation in the UCR National Incident-Based Reporting System (NIBRS). Further, we asked BJS and FBI about the study they recently commissioned the National Academies to conduct on modernizing crime statistics.

For the purposes of this report, we focused our analysis on the key characteristics of each data collection effort, rather than the actual data itself. We performed this work to understand the potential effect, if any, of federal crime level data's structure and composition on cost of crime

⁶Two experts identified Quality Adjusted Life Years (QALY) as a common public health measure that may be used to estimate costs. However, they noted that using the QALY does not estimate all costs caused by crimes, since it focuses primarily on the extent of physical harm from injury. Further, we found that while QALY appears often in cost of crimes research for other countries, it is not as frequently used for cost estimates for crime in the United States.

⁷Budget-based estimates that focus only on a subset of costs that have a budget or total already associated with it are by definition not trying to estimate larger costs of crime. As a result, we decided not to include it as a separate cost estimate approach. For more information on the bottom-up approach that is consistent with the budget-based methodology, see objective 1.

estimates.⁸ We compiled a set of characteristics of the federal data collection efforts in our review. We then matched these characteristics to associated expert comments and conclusions drawn in the literature in order to understand the benefits and challenges of using such data for cost of crime estimates.

Identifying Additional Topics and Methods for Future Research

To respond to the second objective to identify actions experts considered to improve the understanding and use of costs of crime research, we analyzed expert responses from our survey. Specifically, we reviewed expert responses that expressed opinions on the state of the cost of crime research and ways to improve estimates and methods. To do this, we identified thematic categories in the experts' responses and assigned each sentence or group of sentences to one of these categories. We analyzed the experts' responses within these themes to obtain insight on a specific questionnaire question or to obtain information on a broader crosscutting concept. To ensure consistency, a second analyst also assigned themes separately. A third analyst addressed any disagreements.

We did not report on every topic or methodology mentioned by the experts. Instead, we focused on those opinions that experts mentioned more frequently. We also did not include suggestions where we had already discussed specific challenges and limitations. For instance, two experts mentioned improving federal data collection efforts such as the UCR Program and the NCVS. However, we dedicated a section of the report to discuss the concerns using these data in cost of crime estimates and determined it was unnecessary to highlight these suggestions a second time. For a complete list of expert suggestions, see appendix IV.

We conducted this performance audit from July 2016 through September 2017 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

⁸Such characteristics included data collection methodology and the scope of the data.

Appendix IV: Expert Responses of Additional Topics to Consider and Suggested Ways to Improve Cost of Crime Estimation Methods

We surveyed 17 experts to obtain their opinion about the state of cost of crime research and ways it could improve. Expert responses fell into two general categories: Additional topics to research and suggestions for improved data collection and estimation methods. The descriptions in table 3 below are the characterization of all expert comments provided to us on the topics, regardless of how many experts mentioned them in our responses. We did not independently assess the expert suggestions for feasibility or how effective they would be in addressing limitations in current cost of crime research.

Table 2: Expert Responses of Additional Topics and Suggested Ways to Improve Cost of Crime Estimation Methods

	Experts making the suggestion
Additional topics of research	
Cost of punishment and incarceration, including the effects on future earnings of offenders and offender families, and costs to communities that have high incarceration rates	7
Cost of crimes not in the Federal Bureau of Investigation (FBI) Uniform Crime Reporting (UCR) Program index of crimes. Specific categories mentioned include (1) white-collar and corporate crime, (2) regulatory offenses, (3) victimless crime, (4) cybercrime (5) unreported crime, (6) petty crime, and (7) terrorism	6
Cost of racism and bias in the administration of criminal justice	4
Costs associated with recidivism, including the effects of interventions and release programs and the effect of recidivism on an offender's health	3
Evaluation of the statistical uncertainty in cost of crime research estimates	3
Factors that affect crime rates such as second generation costs (where victims become perpetrators of crime), addiction, and mental illness	3
Factors affecting the criminal justice system costs to the government, including restitution and fines from convicted offenders, and savings from changes in criminal justice policies	2
Costs to deter and prevent crime	1
Heterogeneity in costs, including how costs vary by geography, severity, and victim types	1
Improved data collection and estimation methods	
Create and make available national databases that link criminal justice data with other federal data, such as tax data and use of public benefits	3
Develop a standardized approach for researchers and governments to estimate costs of crime to facilitate the evaluation of criminal justice policies and comparison of costs from other areas of public policy, such as education and health care	3
Expand UCR and National Incidence-Based Reporting System collection of information on recidivism and improve the collection of crime incidence data	3
Incorporate additional datasets to estimate costs of crime. Datasets mentioned include (1) National Survey on Drug Use and Health, (2) National Health and Nutrition Examination Survey, and (3) Census of Governments	3
Develop new methods or approaches for estimating costs by either establishing a body of experts or having the government initiate a competition among researchers	3

**Appendix IV: Expert Responses of Additional
Topics to Consider and Suggested Ways to
Improve Cost of Crime Estimation Methods**

	Experts making the suggestion
Establish a body of experts to act as an advisory committee to identify best practices and gaps in the research on costs of crime	2
Refine the use of government budget and administrative data to improve estimates of criminal justice system costs	2
Add questions to existing surveys to determine whether individuals have had contact with the criminal justice system to understand the effect on health	1
Combine information from multiple methodologies, such as surveys and government budget data, to estimate costs of crime	1
Develop and maintain a database of unit estimates of costs of crime with state and county price adjustments	1
Encourage estimating costs when changes in criminal justice policy or other external events may affect crime and people's behavior in response to the change	1
Encourage states to collect data on the race and gender of people stopped by police	1
Give cost of crime researchers access to federal jury pools that are already randomly selected to use waiting jurors as survey respondents	1
Publish an annual report on the cost of crime in the United States	1
Refine how an existing method—surveys to estimate what the public is willing to pay to reduce crime—is used to estimate the cost of crime	1

Source: GAO analysis of expert responses to administered survey. | GAO-17-732

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgements

In addition to the contact named above, Dawn Locke (Assistant Director) and Jeremy Manion (Analyst-in-Charge) managed this body of work. In addition, David Alexander, Benjamin Bolitzer, Susan Czachor, Eric Hauswirth, Winchee Lin, Amanda Miller, Adrian Pavia, and Adam Vogt made key contributions to this report.

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