The Aggregate Cost of Crime in the United States

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Abstract

Estimates of crime's burden inform public and private decisions about crime-prevention measures. More than counts of criminal offenses, the aggregate cost of crime conveys the scale of problems from crime and the value of deterrence. This article offers an estimate of the total annual cost of crime in the United States, including the direct costs of law enforcement, criminal justice, and victims' losses and the indirect costs of private deterrence, fear and agony, and time lost to avoidance and recovery. The findings update crime-cost estimates of past decades while expanding the scope of coverage to include categories missing from past studies. The estimated annual cost of crime is $4.71–$5.76 trillion including transfers from victims to criminals and $2.86–$3.92 trillion net of transfers.

1. Introduction

Estimates of the cost of crime can guide the prioritization of crime-control measures. Although crime will persist at some level despite all efforts, estimates of the total cost of crime allow policy makers to determine the value of reductions by any percentage. Citing the importance of crime-cost estimates, Congress asked the US Government Accountability Office (US GAO) to review the existing research on the cost of crime in 2016. The resulting report indicates that estimates of crime's cost, while useful, are incomplete and out of date (US GAO 2017). The purpose of this study is to provide a more comprehensive and updated picture of the aggregate cost of crime in the United States.

Early crime-cost studies focused on direct costs, particular types of crime, or specific regions of the country. Over the past 25 years, the scope of such studies has broadened substantially to cover indirect costs, all crimes, and the entire country. The present research continues that expansion of coverage and the corresponding deemphasis on counts of crimes. Counts are vulnerable to the preva-

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lence of unreported crimes, inconsistencies in crime-recording procedures across agencies, and gray areas between attempted and completed crimes. By contrast, measures of expenditures and losses can capture the severity of crimes, private responses to crime, and opportunity costs associated with criminal activity and victimization.

The present research minimizes the weight placed on counts by law enforcement agencies by using data from the National Crime Victimization Survey (NCVS) when possible. While the number of crimes known to law enforcement has decreased from 10.4 million in 2010 to 8.1 million in 2019 (US Department of Justice 2020a), the NCVS (Truman 2011; Morgan and Truman 2020) indicates a negligible change from 18.7 million to 18.6 million over the same period. Even a significant decrease in the number of victimizations does not imply a decrease in the burden of crime, which depends on the severity of victimizations as well. A smaller number of more severe crimes could bring about an overall increase in the burden of crime. Further, a large increase in expenditures on deterrence could result in a disproportionately small decrease in crime. A study of costs is needed to determine the net effect on the overall burden of crime.

Police protection is a public good with benefits that can substitute for private crime deterrence (Philipson and Posner 1996). The present study employs a dual analysis of public and private spending to capture any cost shifting that occurs when public crime-prevention expenditures replace private expenditures or vice versa. The broad scope of this study also accounts for regional shifts in crime. If a city-level program drives crime away but not out of existence, a study of the local cost of crime would obscure the increased cost in the new location for that activity. By examining the cost of crime for the entire nation, this study accounts for policies that may merely displace crime.

This study examines the costs that would not exist if all US laws were obeyed. Although many laws are controversial, the development of an alternative definition of crime with more general appeal is unlikely and beyond the scope of this paper. Perfect legal compliance would eliminate the need for expenditures on crime prevention, recovery from criminal acts, and losses due to fear and distrust. Society will never reach that ideal state of compliance, but with information about the total cost of crime, the savings from policies that would eliminate any fraction of that cost can be estimated. To accommodate needs for varying components of crime's cost, as well as disagreements over what constitutes a cost of crime, the findings are reported in disaggregated form. Readers can decide for themselves whether to include, for example, transfers from victims to criminals, indirect costs, and psychic costs among the costs of crime.

Section 2 of this article reviews the literature on the cost of crime. Section 3 identifies the four categories of cost covered in this research. Section 4 explains the estimation of each cost element. Section 5 summarizes the findings, and Section 6 concludes.

2. Literature Review

Focal measures of crime's burden began with counts. The most readily available counts are of crimes reported to authorities, as summarized by the Uniform Crime Reporting Program (UCR) of the Federal Bureau of Investigation (FBI) (US Department of Justice 2020a). Under the hierarchy rule for UCR data collection, with the exception of arson, only the most serious offense in a multiple-offense situation must be counted. In part to capture other crimes among multiple offenses and crimes that were not reported to the police, the US Census Bureau began conducting the annual NCVS (US Department of Justice 2020c). The data are collected from a nationally representative sample of about 160,000 individuals and are used in several of the calculations for the present research.

Estimates of the cost of crime in America date back at least 120 years to the estimate of Smith (1901) that crime caused losses in excess of $19 billion in 1899. This and all values are adjusted using the Consumer Price Index to reflect the purchasing power of 2020 dollars. Reviews of past studies appear in Gray (1979), Chalfin (2015), and Domínguez and Raphael (2015). The US GAO (2017) describes the benefits and limitations of four techniques used to estimate the cost of crime. The first is hedonic analysis of the effects of crime on markets. Thaler (1978) was the first to employ hedonic analysis to study the effect of crime on housing prices. The second technique is based on jury awards for victimization. For example, Miller, Cohen, and Hendrie (2017) estimate the damages from physical and sexual assault using jury awards. The third technique is the use of contingent-valuation studies of people's willingness to pay to reduce crime. Cohen (2015) uses the contingent-valuation method to examine the cost of white-collar crime and corporate crime; Atkinson, Healey, and Mourato (2005) do the same for violent crime. The fourth is a summation of the individual components of crime's cost. The present study applies this method, which Cohen (2010) discusses as the bottom-up approach, and constructs the estimate using numbers derived from a variety of approaches.

The first three techniques are useful for identifying particular types of costs but do not complete the picture on their own. Market-based estimates miss the costs of crime with no associated market. Jury awards may not represent the cost of every relevant crime. And the contingent-valuation method is subject to bias caused by the information available, the person conducting the survey, the hypothetical nature of the scenario, the type of payment mentioned in the survey, the respondents sampled, and the starting point of the values listed in the survey (Anderson 2019, p. 251).

Table 1 provides estimates from representative studies of the cost of crime in the United States. These studies have evolved in scope since the estimate by Smith (1901) of cost as the sum of crime-related tax payments and the income of criminals. Among the earlier studies that estimate the total cost of crime, the estimates increased from $14 billion in 1931 (National Commission on Law Observance and Enforcement 1931) to $3,611 billion in 2012 (Anderson 2012). The increases

Table 1
Representative Estimates of the Cost of Crime

Study	Focus	Not Included	Cost ($Billions)	% Gross Domestic Product
Anderson (2012)	General	Effects of incarceration on life, health, and income	3,611	19.8
Anderson (1999)	General	Investigation services, locksmiths, and effects of incarceration	2,739	18.9
Collins (1994)	General	Opportunity costs and some indirect costs	1,172	9.9
Miller, Cohen, and Wiersema (1996)	Victim costs of violent and property crimes	Prevention, opportunity, and indirect costs	803	6.4
U.S. News and World Report (1974)	General	Opportunity costs and some indirect costs	463	7.3
Cohen, Miller, and Rossman (1994)	Costs of rape, robbery, and assault	Prevention, opportunity, and indirect costs	294	2.5
Zedlewski (1985)	Firearms, guard dogs, victim losses, and commercial security	Residential security, opportunity costs, and indirect costs	258	2.8
Cohen (1990)	Cost of personal and household crime to victims	Prevention, opportunity, and indirect costs	183	1.8
President's Commission on Law Enforcement and Administration of Justice (1967)	General	Opportunity costs and some indirect costs	172	3.3
Klaus (1994)	National Crime Victimization Survey crimes	Prevention, opportunity, and indirect costs	31	.3
Smith (1901)	Crime-related taxes and the income of criminals	Opportunity costs and indirect costs	19	3.0
National Commission on Law Observance and Enforcement (1931)	General	Some opportunity costs and some indirect costs	14	1.3

reflect both the rising cost of crime and the inclusion of additional cost elements. Notable differences among the studies stem from the inclusion of opportunity costs, such as the value of time spent preventing crime, and indirect costs, such as the costs of locks and safety lighting. For perspective, Table 1 indicates the cost estimate as a percentage of real (inflation-adjusted) gross domestic product (GDP). The estimated cost of crime as a share of real GDP grew less than it did in proportion to the estimated cost because growth in real GDP outpaced increases in the estimated cost of crime. Section 6 compares the findings of the present study with those of similar studies in recent decades.

Several studies look closely at the repercussions of particular types of crime rather than the cost of crime to the nation as a whole. Cohen (1990) estimates a $182.6 billion cost to victims of rape, robbery, assault, auto theft, burglary, and larceny, including the costs of pain, suffering, and risk of death. Klaus (1994) estimates a cost of $30.6 billion for the nonfatal personal crimes and household property crimes included in the NCVS. Cohen, Miller, and Rossman (1994) estimate that rape, robbery, and assault impose a $294.3 billion annual burden on victims. Miller, Cohen, and Wiersema (1996) estimate an $802.8 billion annual cost of violent and property crimes to victims including pain, suffering, and reduced quality of life.

There are numerous studies of the cost of particular offenses that do not endeavor to estimate burdens at the national level. For example, McCollister, French, and Fang (2010) estimate the tangible and intangible per-offense cost of 13 crimes. Using jury awards in personal injury cases less the direct economic loss to victims, they find a $10.6 million cost per murder. DeLisi et al. (2010) combine the costs to victims with the costs of justice, offenders' lost productivity, and society's willingness to pay to avoid crime to estimate an average cost of $20.7 million per murder.

Elsewhere, I couple a comprehensive array of existing data with new data collected for the purpose of the study to form a broader measure of the aggregate burden of crime (Anderson 1999). In that study, I estimate a $2.7 trillion annual cost of crime in the United States, including $968.8 billion worth of transfers from victims to criminals. Using the same approach, I updated those numbers and estimated a $3.6 trillion annual cost of crime including $1.8 trillion worth of transfers (Anderson 2012). The present study represents both an update of the aggregate cost of crime and an expansion of the approach to include significant elements requested by the US GAO (2017), among other entities. The results of this study are broken down to allow comparisons between specific cost elements over any period for which cost estimates exist.

3. Cost Categories

The crime-cost elements are divided among four broad categories: expenditures on the goods and services purchased only because of crime, referred to as crime-induced production; the opportunity cost of time spent on crime-related

activities; the implicit costs associated with risks to life and health; and transfers of assets from victims to criminals. This section provides details on each of these categories.

3.1. Crime-Induced Production

In a crime-free society, all resources could be used to create benefit rather than to avoid harm. The threat of crime shifts the allocation of resources toward defensive and restorative expenditures. When crime increases, more resources are devoted to the production of goods such as burglar alarms, protective firearms, security cameras, locks, and safes. Increases in the apprehension and conviction of criminals require growth in expenditures on the criminal justice system and correctional facilities. Property crimes necessitate repair and replacement, while violent crimes necessitate medical care and mental health services. All such forms of crime-induced production take resources away from goods and services that would carry society forward, and spending on that production therefore represents a net loss.

3.2. Opportunity Costs

As individuals who are clearly risk takers and instigators, criminals might have become entrepreneurs or other contributors to society in the absence of crime. Additional opportunity costs result from the time spent planning and conducting crime, which for some is an occupation. Society forgoes the goods and services that criminals would have produced in the time consumed by crime and subsequent incarceration. In 2019, there were an estimated 1,430,800 people in US prisons (US Department of Justice 2020d) and 758,420 people in US jails (Kang-Brown et al. 2019), for a total incarcerated population of 2.2 million.

Additional time is lost to crime prevention and victimization. Doors on everything from homes and cars to gym lockers and workspaces are routinely locked and unlocked, and time is spent looking for keys. Time is spent on crime prevention by members of neighborhood-watch groups, and crime victims forgo work time to recover from the physical injuries and mental trauma that result from violent crime.

3.3. The Value of Risks to Life and Health

The psychic costs of crime include the fear of being harmed and the agony of victimization. Expenditures on crime prevention may reduce these costs, but the costs remain as long as fear or harm persist. The costs of risks to life and health are not straightforward, but as explained in Section 4 the existing literature provides well-researched and often-applied estimates of these values.

3.4. Transfers

Common crimes including burglary, theft, and fraud transfer assets from victims to criminals. A transfer via theft may have little or no net effect on society because one party has lost an asset and another party has gained the same asset. The transfer does not necessitate additional production if it means the criminal no longer needs to purchase the item and the victim abruptly needs to replace it. If the criminal or third-party purchaser places greater value on the stolen item than did the victim, the crime may be efficient in that it produces a net gain for society. The crime creates a net loss if the victim places a higher value on an irreplaceable item than does the recipient.

The treatment of transfers among other gains to criminals is a gray area in crime-cost research. The hedonic analysis, jury award, and contingent-valuation methods of estimating the cost of crime discussed in Section 2 generally measure harm to victims and not gains to criminals. Some previous studies, such as Rajkumar and French (1997), exclude transfers unless property was damaged in the process. McCollister, French, and Fang (2010) include transfers to criminals as a proxy for costs borne by victims, including the inconvenience of losing an item and searching for a replacement. The present study allows for any of the above approaches by reporting each type of transfer separately for inclusion only when it serves the reader's interests.

Most crimes impose costs that fall into multiple categories. A robbery transfers an asset from the victim to the criminal, levies health and psychic costs on the victim and the community, and exacts the opportunity costs of lost time on the criminal and the victim. Section 4 details how each crime-cost element is attributed to one of the four nonoverlapping categories. Cohen (2005) offers an expanded discussion of crime-cost assessments.

4. Data and Methods

The cost estimates are based on the most recent data available, except that none of the figures that might be affected by the unique circumstances of the COVID-19 pandemic are taken from 2020. The data are primarily from refereed journal articles or US government agencies. Industry sources are considered on the basis of their data collection methods and corroboration from similar studies. When multiple credible estimates exist, the values are averaged.

4.1. Crime-Induced Production

Police, the Justice System, and Corrections. The US Bureau of Justice Statistics (Hyland 2019) details expenditures on police protection of $153.0 billion, crime-related state and local expenditures on judicial and legal services of $51.9 billion, and expenditures on corrections of $95.0 billion. Over the previous decade, expenditures rose 21 percent on policing and 8 percent on corrections while falling 13 percent on judicial and legal services (Perry 2008).

Drugs and Alcohol. Drug trafficking accounts for an estimated $151.3 billion in annual expenditures (Midgette et al. 2019). The cost of drug-related activities includes $21.9 billion budgeted for federal drug control programs (Executive Office of the President 2019), not including less targeted expenditures by federal agencies that deal with drug crimes among others as specified in Section 5.1. Medical care for illicit drug users is part of the medical care cost category, and expenditures on policing, criminal justice, and corrections expenditures necessitated by drug use are counted in the cost category for police, the justice system, and corrections.

The more than 600 US chapters of Mothers against Drunk Driving spent $38 million in 2018 to limit casualties from the crime of driving under the influence of alcohol (DUI) (Mothers against Drunk Driving 2018). Drivers who are pulled over while driving drunk pay fines, fees, penalties, higher auto insurance premiums, and attorney's fees that amount to an average of $8,966.[1] This excludes the value of any lost pay, injuries, or vehicle damage, some of which are captured in other categories of this study. With 1,024,508 DUIs reported in 2019 (US Department of Justice 2019a), the estimated total cost of DUI arrests is $9.2 billion.

Strahan et al. (2020) report that 6.7 of 1,000 babies born in the United States suffer from neonatal abstinence syndrome (NAS), which results from prenatal exposure to opioids and other drugs. The average of the estimated range for the lifetime cost of care for individuals with prenatal exposure to drugs or alcohol in Kalotra (2002) is $1.54 million. Of the 3,745,540 births in 2019 (Hamilton, Martin, and Osterman 2020), the NAS rate indicates an estimated 25,095 births of drug-exposed babies. The product of the average lifetime cost and the 2019 NAS births yields an estimated $38.7 billion total lifetime cost of NAS births in 2019.

Malicious Cyber Activity. The Council of Economic Advisors (Executive Office of the President 2018) estimates that data breaches cost $61.3 billion annually and that the total cost of adverse cyber events, including distributed denial-of-service attacks, ransomware attacks, and destructive malware attacks, is $116.6 billion annually. These estimates are based on the likelihood of attacks, firms' loss of market value due to attacks, and the estimated spillover effects on associated firms. The attacks necessitate expenditures on, for example, credit monitoring for affected customers, security upgrades, added staff to handle the repercussions, investigations, and legal fees (Executive Office of the President 2018, p. 23). Other computer-related crimes, such as Internet fraud and identity fraud, are included elsewhere in the present study.

Security Systems, Security Guards, and Patrol Systems. The US Census Bureau (2019) estimates expenditures of $24.2 billion on security systems. This includes spending on alarm systems and the installation, repair, and remote monitoring of security alarm systems. It also reports that $30.6 billion is spent annually on security guards and patrol services to deter malfeasance in locations vulnerable to crime.

[1] OneDUI Insurance, Costs for DUI (https://onedui.com/dui-costs/).

Medical Care. The estimated values of risks to health and life used in this study are primarily from wage-risk trade-offs in the labor market. The medical care for victims of employment-related injuries is generally paid for by workers' compensation or the employer, which means those costs are not part of the values assigned to the risks. For that reason, the cost of crime-related medical care is added separately to the estimates in this study.

The NCVS (US Department of Justice 2020c) collects data on the total medical expenses resulting from crimes including rape, robbery, and assault. Miller, Cohen, and Wiersema (1996) estimate the cost of social and victim services resulting from incidents of crime. They also estimate medical expenses for crimes such as arson and drunk driving that are not in the NCVS data set. The present study uses the latest NCVS data and fills in with the Miller, Cohen, and Wiersema data as needed. The cost figures are updated for inflation and multiplied by the number of injuries and deaths caused by 15 types of crime in the NCVS (Morgan and Truman 2020) and the US Department of Health and Human Services (2020) to yield an estimated cost of medical care due to violence of $19.1 billion.

Quantified Ventures (2017) estimates that drug abuse results in $79.5 billion worth of lost productivity each year. This includes both lost market productivity and lost household productivity due to drug-related morbidity. The National Drug Intelligence Center (US Department of Justice 2011b) estimates that medical care for illicit drug users costs $11.7 billion annually. This includes detoxification treatments, emergency room visits, and hospital care. Losses due to prenatal drug exposure and drug-related homicides are counted elsewhere in the present study.

Locksmiths, Locks, Safes, and Vaults. The US Census Bureau (2017) reports annual expenditures of $2.1 billion on locksmiths. With the assumption of a 50 percent retail margin, an estimated $7.5 billion is spent on door locks and locksets (IBISWorld 2020a), and $956 million is spent on safes and vaults (IBISWorld 2020c) each year.

Recovery from Vandalism. There are several studies of the cost of vandalism from the early 2000s. On the basis of estimates from the mid-2000s by the US Bureau of Justice Statistics (US Department of Justice 2007a), Klaus (2007), NoGraf Network (2005), and other sources, elsewhere I estimate a total vandalism cost of $9.3 billion (Anderson 2012). Although a few more recent studies of vandalism are available, the FBI tracks incidents of vandalism and reports 191,005 in 2016 (US Department of Justice 2019d), a 27.5 percent drop from 263,295 incidents in 2005 (US Department of Justice 2007b). The cost of recovery from vandalism may involve the cost of replacing broken windows, signs, and other goods or the cost of repainting property defaced by graffiti. The costs are assumed to increase at the rate of inflation. On the basis of this information, the total cost of vandalism has fallen to an estimated $6.7 billion per year.

Firearms, Fences, and Lighting. For small arms and ammunition, fences, and outdoor lighting, there is an uncertain split between use to deter crime and use for alternative reasons. Firearms and ammunition are used to deter or commit

crime but also for sport; fences provide security but also privacy; outdoor lighting is sometimes for security and sometimes for ambience. For this study, I assume that half of the purchases relate to crime and that the retail margin is 50 percent. The estimated $10.7 billion expenditure on small arms and ammunition is from the 2018 Annual Survey of Manufactures (US Census Bureau 2020). The $3.5 billion estimate for the cost of fencing is from IBISWorld (2020b).

Electricity for outdoor lighting costs an estimated $10 billion per year,[2] half of which is assumed to be for security purposes. The estimate for security lighting fixtures comes from half of the $23.1 billion in global expenditures on outdoor lighting fixtures (Centre for Industrial Studies 2019) multiplied by the proportion of electricity used in the United States, 17.7 percent (Enerdata 2020), which yields $4.1 billion.

Armored-Car Services and Investigation Services. The Service Annual Survey (US Census Bureau 2019) reports expenditures on armored-car services and investigation services. Banks and businesses spend $2.5 billion annually on armored cars to avoid the theft of cash. Customers purchase investigation services to solve crimes involving fraud, theft, and computer security but also to look into noncriminal behavior for divorce proceedings, analysis of clients, and similar purposes. Half of the expenditures on investigation services, $3.1 billion, are assumed to relate to crime.

Repairs and Replacements due to Arson and Other Crimes. The Federal Bureau of Investigation (US Department of Justice 2020b) reports that arson caused $534 million in losses in 2019. This includes $416 million worth of damage to structures, $65 million worth of damage to motor vehicles and other mobile assets, and $53 million worth of damage to other types of property. This is a conservative estimate of the total cost of arson because some damage costs are unreported, and the estimate does not include expenditures on fire departments or fire insurance (net of claims), which would decrease in the absence of arson.

On the basis of data from the NCVS (US Department of Justice 2020c), an estimated $705 million in repair costs in 2018 stem from various types of theft and personal crimes. The damage includes expenditures of $274 million for larceny, $172 million for burglary, $136 million for assault, and $51 million for robbery. The cost of vandalism appears in a separate category.

Insurance against Cybercrime and Identity Theft. If insurance prices were actuarially fair, premium payments would equal the expected value of indemnity, and insurance costs would represent a transfer from insurance holders who do not suffer losses to those who do. Indemnity reduces the size of transfers that result from the underlying crimes away from victims. Risk-averse individuals are willing to pay premiums that exceed the actuarially fair rate for insurance in exchange for certainty that they will not suffer losses. The portion of insurance premiums that exceeds the value of indemnity constitutes crime-induced production because it pays for insurance company employees or resources necessitated

[2] US Department of Energy, Office of Energy Efficiency and Renewable Energy, Outdoor Lighting (https://www.energy.gov/eere/slsc/outdoor-lighting).

by crime. The Insurance Information Institute reports cybercrime insurance premiums of $2.1 billion and indicates that the top 10 providers of identity theft insurance received $158.4 million in premiums.[3] With an indemnity rate of 44.9 percent on cybercrime insurance (Gallin 2020), a rate that is assumed to apply to identity theft, there is an estimated $1.2 billion worth of annual crime-induced production in these insurance markets.

Nonlethal Personal Defense Products. Citizens respond to the threat of crime with private expenditures on personal defense products such as pepper spray and whistles. The annual financial statement for Mace Security International (2020) reports $8.7 million in revenue for consumer products, which reflects $17.4 million in expenditures, assuming a 50 percent markup at retail. Expenditures on martial arts classes and similar forms of self-defense are not included because such classes might exist as recreational activities in the absence of crime.

Family and Community Expenditures due to Incarceration. McLaughlin et al. (2016) estimate that the families and communities of incarcerated individuals face $30.1 billion in annual costs, including the costs of child welfare programs, reentry programs, depression, homelessness, and eviction brought on by a family member's incarceration. Some other related costs, such as those of increased criminality among the children of incarcerated parents and infant mortality associated with incarceration, are also captured in the present study but fall into other categories.

4.2. Opportunity Costs

Time Spent Securing Assets. The estimated opportunity cost of time spent locking and unlocking doors is based on the time spent on those activities and the employer's average cost of $38.20 for employee compensation per hour (US Department of Labor 2020b). For this study, two investigators collected 198 observations in Kentucky and Ohio of individuals locking or unlocking cars in 2020. The average unlocking episode took 4.1 seconds, and the average locking episode took 2.3 seconds, for a total of 6.4 seconds per one-way excursion. Elsewhere, I report an average of 6.5 seconds for the same activities, 9.8 seconds for locking or unlocking buildings, and 9.4 seconds for locking or unlocking mailboxes and gym lockers (Anderson 2012).

A typical day is assumed to involve one locking and unlocking episode for a residence, a vehicle, a work building, and a locker or mailbox and two locking and unlocking episodes for an office or other work space. Survey data show that the average individual locks or unlocks something 12 times per day (Anderson 1999). The same survey finds that individuals spend an average of 2 minutes per day looking for keys. The 81 percent of adults who own smartphones (Pew Research Center 2019) unlock their devices an average of 96 times per day (Asurion 2019), which takes about 1.5 seconds (Hall 2017).

[3] Insurance Information Institute, Facts + Statistics: Identity Theft and Cybercrime (https://www.iii.org/fact-statistic/facts-statistics-identity-theft-and-cybercrime).

Given these estimates, the average US resident spends 4.97 minutes per day locking or unlocking things or looking for keys. This represents $294.6 billion worth of time lost to these security measures each year, or $1,154 per adult. Expenditures on consumer products that reduce locking and unlocking time offer reference points for consumers' willingness to pay to avoid this opportunity cost. For instance, the 2020 retail price for a smart entry system that unlocks a car door on the driver's approach is $539.99, and a Kwikset keyless deadbolt for the door of a home costs $229.00.[4]

Lost Earnings of Criminals and Their Families. The estimated opportunity cost of criminals' time committing crimes and in prison includes $15.95 in wages. This is the median wage for males 16 and older who receive an hourly wage,[5] weighted by the proportion of inmates who are black, white, Hispanic, and Asian or other (Maruschak and Minton 2020). Surveys of inmates indicate that their mean wage rates prior to their arrest exceeded the median wage for their demographic, which makes the median wage a conservative estimate (Anderson 2012). The opportunity cost also includes an average of $6.83 in benefits and legally mandated employment expenses (US Department of Labor 2020b). The estimated opportunity cost of time is adjusted for the race- and education-weighted unemployment rate. After subtracting the $2.6 billion estimated value of prison production (Bair 2008), the incarceration of an individual for 1 year represents $30,769 in lost productivity. This estimate is conservative because the amount an employer is willing to pay a worker is less than or equal to the value of the worker's contribution to productivity.

Criminal respondents to the prison and jail surveys (Anderson 1999, 2012) indicate that the average criminal incident takes slightly more than 1 workday to plan and execute. The estimate of the hours spent on crime is the product of the 18,631,410 criminal victimizations reported in the 2019 NCVS (Morgan and Truman 2020) and the 8 hours in a typical workday. This time is valued at the hourly lost wage and benefit estimate of $22.78 for incarcerated individuals and adjusted for the unemployment rate. On these bases, the estimated value of lost productivity while planning and executing crimes is $3.3 billion per year.

For the 95 percent of new prison inmates each year who will eventually be released (James 2015), incarceration lowers future earnings. Time spent in prison limits the development of human capital, weakens social networks, and tarnishes workers' reputations. McLaughlin et al. (2016) estimate that current levels of incarceration cause collective losses in the inmates' lifetime earnings of $247 billion annually. The incarceration of a family member also reduces the household's in-

[4] Advanced Keys, Smart Keyless System: Products (https://advancedkeys.com/products.htm); Home Depot, Kwikset HALO Satin Nickel Single-Cylinder Electronic Smart Lock Deadbolt (https://www.homedepot.com/p/Kwikset-HALO-Satin-Nickel-Single-Cylinder-Electronic-Smart-Lock-Deadbolt-Featuring-SmartKey-Security-Touchscreen-and-Wi-Fi-939WIFITSCR15SM/311532377).

[5] Values are based on the weekly and hourly earnings data from the Current Population Survey; see Bureau of Labor Statistics, Weekly and Hourly Earnings Data from the Current Population Survey (https://data.bls.gov/PDQWeb/le).

come because of less marriage, more divorce, and lower lifetime earnings for the children. McLaughlin et al. (2016) estimate that loss to be $60.9 billion.

Victims' Lost Workdays. The NCVS (US Department of Justice 2020c) asks respondents how many workdays were lost because of each incident of crime. This includes time the victim spent recovering from injuries, cooperation with police, testifying at trial, and repairing damaged property and time spent by other family members on the crime's repercussions. The estimated value of victims' lost work time is the sum for all crimes of the crime-specific lost workdays multiplied by 8 to find the total number of lost hours and multiplied by the average cost of employee compensation per hour worked of $38.20 as reported by the US Bureau of Labor Statistics (US Department of Labor 2020b). That estimate, $3.1 billion, is the lower bound for the value of lost work because the amount employers are willing to pay as compensation is less than or equal to the full value of work performed. Further, the value of lost productivity is a conservative estimate of the value of crime-related time lost because it does not include the value of leisure time lost by victims as a result of crime.

Neighborhood Watches. The National Sheriffs' Association reports 31,690 active neighborhood-watch programs. According to the National Association of Citizens on Patrol (2005), daily patrols usually last 4–8 hours. For the present study, the assumed average time commitment is 6 hours per day per neighborhood-watch program. Participants' time is valued at the average cost of employee compensation as explained in Section 4.2. The resulting estimate for the value of time spent on neighborhood-watch programs is $2.7 billion.

4.3. The Value of Risks to Life and Health

The Value of Life. Like the cost of public policies that threaten human lives, the cost of crime depends on the cost of human life. Largely to inform necessary public policy decisions (Viscusi 2021), there is a sizable literature on the value of unidentified or statistical lives that applies similarly to the value of lives lost to crime. We know that statistical lives have finite value because individuals and policy makers routinely make decisions that have finite benefits and involve risk to life. To drive a car, cross a street, operate farm machinery, or live in a relatively high-crime neighborhood is to accept a risk of death in exchange for the benefits of that activity. None of these activities would be acceptable if the value of a statistical life were infinite, because the expected cost would be a positive risk of death times infinity, which is infinity.

Estimates of the value of a statistical life (VSL) are extrapolations of real-world trade-offs between money and risks made in labor markets, among other settings. As in neighborhoods with high rates of violent crime, occupations with high injury and death rates involve fears of losses of health and necessitate onerous precautions. In a synthesis of the relevant research, Viscusi (2015) estimates that the bias-corrected mean VSL is $10.59 million. Similarly, the US Environmental Protection Agency (2020) applies a VSL of $9.5 million, and the US Department

of Transportation (2021) applies a VSL of $11.6 million. Viscusi (2015) analyzes hundreds of VSL estimates derived from the literature and reports 25th and 75th percentile VSL estimates of $8,853 million and $19,098 million, respectively. The present research applies that range to indicate the uncertainty associated with the VSL value. The estimates of the value of crime-related deaths are these VSL estimates multiplied by the number of crime-related deaths. Previous studies of the cost of crime apply similar labor-market-based estimates (see Cohen 1990; Anderson 1999, 2012).

The psychic cost of crime-related risks to life and health are also reflected in lower property values in high-crime areas (Pope and Pope 2012). Fearing vulnerability to crime, some people commute from relatively safe neighborhoods or forgo opportunities to go out at night. The estimated values of statistical lives and injuries used in the present study may serve as proxies for costs that include these crime-related losses, and to avoid double counting such costs are not added separately. If the risks of occupational injuries and fatalities in dangerous jobs impose a smaller psychic burden than the risk of violent-crime victimization, the labor market values provide conservative estimates of the cost of violent crime.

Crime-related deaths include deaths caused by illegal drugs, AIDS contracted via illegal drug use, drunk driving, violations of boating laws, arson, murder, nonnegligent manslaughter, and incarceration. The Centers for Disease Control (CDC) reports 67,367 drug overdose deaths in 2018 (Hedegaard, Miniño, and Warner 2020). The CDC (2020a) also reports 15,815 deaths among adult and adolescent HIV patients, and that one in 10 HIV cases are attributable to injection drug use (CDC 2020b). Hence, an estimated 1,582 HIV deaths are caused by injected drug use or sex with an injecting drug user.

The National Highway Traffic Safety Administration (US Department of Transportation 2019) reports 10,511 deaths caused by drivers with blood alcohol concentrations above the legal limit in 2018. A total of 184 deaths resulted from violations of boating safety laws in 2019 according to the US Coast Guard (US Department of Homeland Security 2020). The National Fire Protection Association (Campbell 2017) reports an average of 440 deaths per year attributable to intentional fires in the first 5 years of the 2010s. The FBI (US Department of Justice 2020c) reports 16,425 cases of murder or nonnegligent manslaughter in 2019. McLaughlin et al. (2016) estimate that in a typical year, incarceration increases the number of suicides by 198, the number of premature deaths after release from prison by 7,230, and infant mortality among children of inmates by 134 deaths. Multiplying the 104,071 crime-related deaths by the $10.59 million value of a statistical life yields a $1.10 trillion estimate of the value of lives lost to crime.

The Value of Injuries. Like the estimated value of life, the estimated value of injuries comes from wage-risk trade-offs in the labor market. Viscusi and Aldy (2003) summarize 24 relevant studies of the value of a statistical injury with a mean of $90,697. Their method of valuation captures a psychic cost because the financial cost of work-related injuries would be covered by workers' compensation. The value of lost productivity is measured separately in the valuation of lost

workdays. The contingent-valuation method yields similar results. For example, Cohen et al. (2004) use this method to estimate a $95,531 value of an averted serious assault.

Crime-related injuries include 1,265,680 rapes, robberies with injuries, and aggravated assaults with injuries (Morgan and Truman 2020). Using the National Inmate Survey, Beck et al. (2014) estimate that 4.0 percent of the inmates in state and federal prisons and 3.2 percent of the inmates in jails were victims of rape or sexual assault in the previous year, which constitutes 81,501 sexual victimizations. According to the National Fire Protection Association (Campbell 2017), there were 1,310 arson-related injuries in the average year during the first half of the 2010s. The US Coast Guard (US Department of Homeland Security 2020) reports 1,144 injuries caused by boating under the influence of drugs or alcohol or other violations of boating safety laws in 2019. The estimate of 1,265,000 injuries caused by drunk driving is the product of the 4.4 million injuries caused by motor vehicle accidents (National Safety Council 2020) and the 28.75 percent of driving fatalities caused by drivers with a blood alcohol concentration over the legal limit (US Department of Transportation 2019). The $237 billion estimate of the implicit cost of crime-related injuries is the product of the $90,697 value of nonfatal injuries and the 2,614,635 crime-related injuries.

4.4. Transfers

The white-collar crimes of fraud and theft involve transfers of money or goods from victims to criminals. Advancements in computing, telecommunications, and tracking technology have brought changes in this area, exemplified by the increase in Internet fraud and identity theft and the decrease in mail fraud and motor vehicle theft. Reporting on transfers can be divergent and overlapping; the estimates below are on the conservative side and do not include overlapping components.

Occupational Fraud. Occupational fraud occurs when employees misappropriate their employers' assets for personal gain. Such fraud can involve embezzlement, false statements, bribery, and corruption. It also includes retail employee theft, which makes up an estimated one-third[6] of the $61.7 billion worth of inventory that retailers lost to crime in 2019 (National Retail Federation 2020). The Association of Certified Fraud Examiners (ACFE) conducts a biannual survey of more than 50,000 examiners to study the extent of fraud, most recently in 2019. The median estimate of the percentage of annual revenues lost to occupational fraud among examiners of fraud in the United States is 5 percent.[7] Applied to the 2019 US GDP of $21.61 trillion, this provides an estimate of $1.08 trillion in transfers due to occupational fraud.

Internet Fraud. The FBI Internet Crime Complaint Center (US Department

[6] Richard Hollinger, director of the University of Florida Security Research Project, email message to the author, September 27, 2020.

[7] Andi McNeal, director of research, Association of Certified Fraud Examiners, email message to the author, September 25, 2020.

of Justice 2019c) reports $4.0 billion worth of Internet fraud. This is net of recovered losses and does not including losses related to health care and identity theft, which the present study counts elsewhere. Compromised email accounts that allowed scammers to intercept fund transfers are the largest source of losses, followed by romance scams and spoofing scams in which criminals pretend to be a trusted person.

Insurance Fraud. The National Health Care Anti-Fraud Association makes a "conservative" estimate that the value of health care fraud is 3 percent of total health care expenditures.[8] That is on the low end of the FBI estimate that fraud constitutes between 3 and 10 percent of total health care expenditures (US Department of Justice 2011a). With $3.8 trillion in annual health care expenditures (Centers for Medicare and Medicaid Services 2020), the 3–10 percent estimate corresponds with a cost range of $114.8–$379.5 billion. Guided by the intersection of these estimates at the conservative end of the range, the present study applies $110.9 billion as the estimate of health care fraud. The FBI estimates a $44.9 billion annual cost of insurance fraud other than health insurance fraud.[9]

Identity Fraud. The cost of identity fraud is largely absent from early studies of the cost of crime. Its importance has grown with the sophistication of cybercriminals and the frequency of data breaches. Once a minor issue centered around counterfeit credit cards, identity fraud has expanded to include takeovers of entire bank and investment accounts with a total estimated cost of $17.0 billion annually (Tedder and Buzzard 2020).

Retail Theft, Vender Fraud, and Return Fraud. The findings of the National Retail Security Survey indicate that retailers lost an estimated $62.2 billion to inventory shrinkage in 2019 (National Retail Federation 2020). The National Retail Federation (2018) estimates that shoplifting constitutes 36.5 percent of that shrinkage, or $22.7 billion. Vendor fraud and error account for an additional 5.4 percent, or $3.4 billion, of the shrinkage. The remainder comes from employee theft as counted among the estimates of occupational fraud discussed above, administrative and paperwork errors, and unknown sources. Retailers lose an additional $27.2 billion to return fraud, such as returns of stolen merchandise (Appriss Retail 2019).

Telephone, Mail, and Coupon Fraud. Telephone and mail fraud peaked before the advent of the Internet but continue to cause significant transfers. The Federal Trade Commission (2020) reports $497 million in losses from 821,862 cases of telephone fraud and $51 million in losses from 31,928 cases of mail fraud. Forter (2020) finds that coupon fraud is a large and growing problem with a $300–$600 million estimated annual cost. The midpoint of that range, $450 million, is used in the present study.

[8] National Health Care Anti-Fraud Association, The Challenge of Health Care Fraud (https://www.nhcaa.org/tools-insights/about-health-care-fraud/the-challenge-of-health-care-fraud).

[9] US Department of Justice, Federal Bureau of Investigation, Insurance Fraud (https://www.fbi.gov/stats-services/publications/insurance-fraud). The undated web page is cited as early as 2012; inflation adjustment is made from that year.

Unpaid Taxes. Internal Revenue Service Research (2019) estimates a voluntary tax compliance rate of 83.6 percent and that 85.8 percent of taxes are ultimately paid after accounting for late payments and postaudit collections. The sources of noncompliance include underreported income, excessive deductions, failure to file a return, and failure to pay the full amount due. The Congressional Budget Office (2019) reports fiscal year 2019 tax revenues of $3.49 trillion, which is 85.8 percent of $4.07 trillion. The estimated federal tax gap is thus $578 billion.

Other Theft. The NCVS (US Department of Justice 2020c) collects information on incidents of theft and the value of cash and property transferred from victim to criminal (for estimates of the total number of US incidents, see Morgan and Truman 2020). The NCVS Victimization Analysis Tool[10] indicates the portion of theft that fell into the personal theft or larceny category consisting of purse snatching and pocket picking. The net values of cash and property taken are calculated by aggregating incident-level figures from the NCVS. The product of the estimated national count and the average per-incident theft value provides estimates of transfers due to household theft of $3.6 billion, household burglary of $2.4 billion, motor vehicle theft of $1.1 billion, robbery of $438.1 million, and pocket picking and purse snatching of $39.0 million.

5. Summary of Findings

5.1. Crime-Induced Production

Crime drives an estimated $992.2 billion in annual expenditures on goods and services that would otherwise be unneeded. Policing and corrections make up more than one-quarter of the crime-induced production. Estimates of private spending on crime prevention range from $17 million on pepper spray to $54.9 billion on security systems. The largest expenditures on recovery from crime are an estimated $110.3 billion on medical care for victims and $38.7 billion on prenatal exposure to illicit drugs. Table 2 summarizes the findings on crime-induced production.

Table 3 lists the myriad agencies of the US government with a role in preventing or responding to crime. For instance, the Department of Labor enforces the laws of the Occupational Safety and Health Administration and the Mine Safety and Health Administration.[11] The Department of Agriculture supports the Forest Service's investigation of timber theft and the enforcement of fish and wildlife regulations (US Department of Agriculture 2019). The US Department of Health and Human Services fights the crimes of elder abuse, child abuse, health care fraud, and drug abuse (US Department of Health and Human Services 2019). Table 3 does not include the expenditures on policing, corrections, or any other component of Table 2.

[10] For the National Crime Victimization Survey Victimization Analysis Tool, see Bureau of Justice Statistics, NCVS Dashboard (N-DASH) (https://www.bjs.gov/index.cfm?ty=nvat).

[11] US Department of Labor, Workplace Safety and Health (https://www.dol.gov/general/topic/safety-health).

Table 2
Crime-Induced Production

Product or Service	Cost ($Millions)
Police protection	153,009
Drug trafficking	151,256
Malicious cyber activity	116,649
Medical care for victims	110,339
Corrections	95,045
Federal agencies	74,931
Security systems	54,856
State and local judicial and legal services	51,891
Prenatal exposure to cocaine and heroin	38,663
Security guards and patrol services	30,629
Punishment cost to family and community	30,075
Federal drug control programs	21,883
Safety lighting	14,089
Small arms and small arms ammunition	10,741
Locks, safes, vaults, and locksmiths	10,528
Driving under the influence costs to driver	9,186
Recovery from vandalism or graffiti	6,721
Protective fences	3,529
Investigation services	3,138
Armored-car services	2,542
Replacements due to arson and other crimes	1,239
Cybercrime and identity theft insurance	1,219
Mothers against Drunk Driving	38
Nonlethal personal defense products	17
Total	992,213

5.2. Opportunity Costs

Despite their absence from early crime-cost studies, opportunity costs are a major component of crime's burden on society. Table 4 provides estimates of the value of time individuals commit to protecting assets and communities and the value of workdays lost due to crime. Representing the largest lost opportunity is the $307.9 billion in forgone lifetime earnings for criminals and their families due to the stigma of incarceration, inferior social networks, and lower levels of marriage and human capital.

5.3. The Value of Risks to Life and Health

The single largest burden of crime is the estimated value of crime-related risks to life. The estimates are extrapolations of the values of small risks of death to unknown victims, which is the reality of crime's threat looking forward. The VSL should not be interpreted as the full price society would pay for the return of known crime victims, nor is it the amount individuals would pay to avoid a cer-

Table 3
Anticrime Components of Federal Agency Budgets

	Cost ($Millions)
Department of Agriculture:	
Forest Service Law Enforcement Operations	129
Office of the Inspector General	98
Animal and Plant Health Regulatory Enforcement	16
Department of Commerce:	
National Marine Fisheries Service	54
Bureau of Industry and Security	52
National Oceanic and Atmospheric Administration Mission Support	15
Department of Defense Army Corps of Engineers, Civil	10
Department of Health and Human Services:	
Administration for Children and Families	4,173
Health Care Fraud and Abuse Control	2,202
Child abuse	158
Elder abuse	5
Department of Homeland Security:	
Customs and Border Protection	20,850
Immigration and Customs Enforcement	9,309
Coast Guard	6,625
Secret Service	2,574
Department of the Interior Regulation and Law Enforcement	214
Department of Justice:	
Federal Bureau of Investigation	9,112
US Marshals Service	3,256
US Attorneys	2,255
Bureau of Alcohol, Tobacco, and Firearms	1,368
Organized Crime and Drug Enforcement Task Forces	718
Offices of Justice Programs	592
All other	862
Department of Labor:	
Occupational Safety and Health Administration	558
Enforcement of Federal Mine Safety and Health Act	253
Employee Benefits Security Administration	194
Legal services	136
Civil rights	7
Department of Transportation:	
Federal Motor Carriers Safety Administration	424
Pipeline and Hazardous Materials Safety Administration	273
National Highway Traffic Safety Administration	105
Office of Inspector General	93
Federal Aviation Administration	34
Federal Railroad Administration	1.2
St. Lawrence Seaway Development Corporation	.2
Department of the Treasury:	
Treasury Department and Internal Revenue Service inspectors General	243
Financial Crimes Enforcement Network	128
Internal Revenue Service	60
Transportation Security Administration	3,521
Federal Emergency Management Agency	2,498
Securities and Exchange Commission	973
Equal Employment Opportunity Commission	351
National Labor Relations Board	192
Federal Trade Commission	166
Federal Communications Commission	70
Nuclear Regulatory Commission	2
Total	74,931

Table 4
The Value of Lost Opportunities, Health, and Money

	Cost ($Millions)
Opportunity costs:	
Incarceration costs to family and community	307,950
Time spent securing assets	294,624
Criminals' lost workdays:	
In prison	93,752
Planning and executing crimes	3,281
Victims' lost workdays	3,108
Time spent on neighborhood watches	2,651
Total	705,365
Value of risks to life and health:	
Value of lost life	921,304–1,987,559
Value of injuries	237,140
Total	1,158,444–2,224,739
Transfers:	
Occupational fraud	1,080,469
Unpaid taxes	577,761
Health insurance fraud	114,815
Other insurance fraud	44,914
Shoplifting	22,709
Business burglary	3,797
Personal theft	3,635
Household burglary	2,407
Motor-vehicle theft	1,138
Telemarketing fraud	497
Coupon fraud	454
Robbery, purse snatching, and pocket picking	477
Mail fraud	51
Total	1,853,124
Total value of losses	3,716,933–4,783,227

tain death. Table 4 shows that the estimated psychic cost of risks to life and health is $1.2–$2.2 trillion annually.

5.4. Transfers

The largest estimated transfers result from occupational fraud at $1.1 trillion, unpaid taxes at $577.8 billion, and health insurance fraud at $114.8 billion. The classic crime of robbery results in a relatively small $438.1 million in estimated transfers, and pocket picking and purse snatching cause another $39.0 million worth of transfers. Section 3.4 explains that transfers may not impose a net burden on society, but the victims of these crimes bear a burden of $1.9 trillion, as detailed in Table 4.

Table 5
The Total Cost of Crime

	Cost ($Billions)
Crime-induced production	992
Opportunity costs	705
Risks to life and health	1,158–2,225
Transfers	1,853
Gross	4,709–5,775
Net of transfers	2,856–3,922
Net per capita	8,607–11,820

5.5. The Aggregate Cost of Crime

Table 5 shows the total cost of crime and its major components. The estimated gross annual cost of crime is $4,709.1–$5,775.4 billion. Net of transfers, the estimated cost is $2,856.0–$3,922.3 billion or $8,607–$11,820 per citizen. As a best point estimate in the range provided, the aggregate cost based on the mean bias-corrected VSL (Viscusi 2015) is $4,890.2 billion, or $3,037.1 billion net of transfers. The net cost is $9,152 per US citizen and $23,156 for the average household, which represents 33.4 percent of median household income (Semega et al. 2020). The breakdown of the components allows readers to customize the findings as desired. The studies discussed in the literature review generally include transfers, which makes the gross cost estimate appropriate for the purpose of comparisons with similarly broad studies of the cost of crime. The relatively new components of opportunity costs and costs to the families of criminals can easily be removed to accommodate narrower conceptions of the cost of crime.

6. Conclusions

Crime exacts a toll on society far greater than its direct repercussions. An environment of crime and concomitant distrust prompts expenditures on prevention, recovery, justice, and corrections. Beyond asset transfers from victim to criminal, losses to crime comprise lives, health, fear, work, human capital, and time. The crime-induced production, opportunity costs, and psychic costs due to crime in the United States amount to an estimated annual loss valued at $2.86–$3.92 trillion, or $4.71–$5.78 trillion including transfers from victims to criminals. These costs are comparable to the $3.83 trillion spent on health care (Centers for Medicare and Medicaid Services 2020) and the $2.71 trillion spent on food and shelter (US Department of Labor 2020a) annually in the United States.

Measures of the cost of crime improve on counts of crimes by capturing the scale of offenses in each crime category. The aggregated cost of crime also captures substitutions between public and private expenditures on crime and trade-offs between prevention costs and victimization costs. With further research, investigators could estimate the cost of crime periodically using the same approach.

The resulting time-series data would facilitate comparisons of crime's burden across time and inform related studies of the effectiveness of police and anticrime policies.

In a recent report on the cost of crime, the US GAO (2017) highlights the importance of estimating the cost of crime and identifies elements missing from past research. The US GAO calls for the inclusion of cybercrime, white-collar crime, direct estimates of government spending, and indirect costs of incarceration to offenders and their families. Those costs are included in the present study. The US GAO also notes interest in the costs of crimes committed by recidivating offenders, which are included here and broken down by Ostermann and Caplan (2016) and DeLisi and Gatling (2003). New elements that have not appeared in previous comprehensive studies of the cost of crime include the costs of premature deaths and suicides caused by incarceration, the rapes and sexual assaults taking place in prison, and the decreased postincarceration earnings of convicted criminals.

It should be clear that all counts of crimes and their costs are vulnerable to missing data. The values in the present study should not give the appearance of accuracy. Survey data were used when possible to capture some of the crimes not reported to police, but some estimates are based on reported crimes. Section 4 explains that many of the values are selected to be on the low end of available estimates. For these reasons, the findings in the present study are most likely conservative estimates of the total cost of crime.

The enormity of crime's cost adds relevance to the distribution of crime's burdens. Morgan and Truman (2020) provide a breakdown of crime rates by demographic characteristics. Rates of violent-crime victimization per 1,000 persons are the highest among the group that includes Pacific Islanders, American Indians, Alaska Natives, and persons with two or more races (66.3) and lowest for Asian Americans (7.5). Households with incomes less than $25,000 per year experience 37.8 violent crimes per 1,000 people, while every other income level has a rate between 16.2 and 19.7. Women and men have similar rates of violent-crime victimization, 20.8 and 21.2, respectively, although women experience 88.6 percent of all reported rapes and sexual assaults. Rates of serious-crime victimization are highest for 18–24-year-olds (37.2) and lowest for those 65 and older (6.0). As the broader cost implications of crime come to light, added protection or assistance for groups with inordinate burdens may be justified.

The findings also indicate the portion of crime's burden borne by crime victims, taxpayers via the government's crime-related expenditures, criminals and their families, and citizens trying to avoid crime. Crime victims bear 58.3 percent of the cost of crime in the form of psychic costs, transfers to criminals, and the costs of recovery. Government expenditures, such as those on policing and corrections, amount to 19.9 percent of the total cost of crime. Criminals and their families internalize 13.0 percent of the cost of crime, largely because of the expenses of drug use, prenatal exposure to drugs, and losses associated with incar-

ceration. Consumers shoulder the remaining 8.8 percent of the cost of crime by purchasing preventative goods and services and through the time lost to preventative measures.

The counts of most types of violent crimes and property crimes have followed a downward trend that began in the 1990s. Between 1995 and 2019, the number of violent-crime victimizations decreased from 10.02 million to 5.8 million, and the number of property-crime victimizations decreased from 29.5 million to 12.8 million (Truman 2011; Morgan and Truman 2020). The scales of these crimes have not always changed in proportion to the counts, nor have they always changed in the same direction. This highlights the importance of measuring crime with costs rather than counts. For example, as the percentage of consumers victimized by identity fraud fell from 5.7 percent in 2018 to 5.1 percent in 2019, losses due to identity fraud increased from $15.1 billion to $17.0 billion (Tedder and Buzzard 2020). And as the number of intentionally set fires on industrial properties decreased by 21.3 percent between 2018 and 2019, the average cost of those crimes increased from $103,258 to $191,929 (US Department of Justice 2019b, 2020b).

Comparisons of the overall cost of crime over time are necessarily rough because the coverage of crime-cost studies has evolved as discussed in Section 2. Differences among the studies are compounded by changes in the availability of data and advancements in the methods used to estimate particular costs. With that caveat, it is possible to compare the cost estimates for components of crime common to this study and two procedurally similar studies (Anderson 1999, 2012) of costs in the 1990s and the 2000s. These studies do not target a particular year, but the estimates are based largely on data collected near the end of the preceding decades. Since the 1990s, the estimated cost of transfers increased 93 percent, with an 83 percent increase between the 1990s and the 2000s and a 6 percent increase between the 2000s and the 2010s. Increases in occupational fraud and unpaid taxes make up the largest shares of those increases. Between the 1990s and the 2010s, expenditures on crime-induced production increased 53 percent, with the cost of policing up 104 percent. Opportunity costs increased 91 percent over the same period for reasons that include the growing popularity of electronic devices that users unlock frequently as discussed in Section 4.2. Psychic costs increased 45 percent over the past 2 decades, partly because of a near doubling of deaths caused by illegal drugs.

This research addresses the stated need of Congress for improved clarity on the cost of crime (US GAO 2017). Only with a better understanding of crime's hidden costs can policy makers properly evaluate proposals for innovative approaches to policing, corrections, and crime prevention. The scale of losses to criminal malfeasance and the far-reaching repercussions of crime also reveal the value of efforts by leaders, educators, parents, and other role models to elevate the conduct of humanity.

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