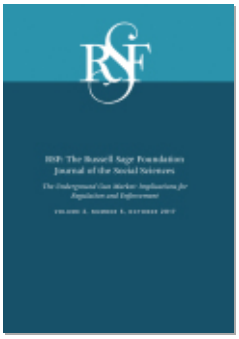
Reducing Access to Guns by Violent Offenders

Philip J. Cook, Harold A. Pollack



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PHILIP J. COOK AND HAROLD A. POLLACK

Since the massacre of children and educators in Newtown, Connecticut, in December 2012, public concern and mobilization around the issues of gun violence and regulation has surged, and not only in connection with mass shootings. President Obama called for universal background checks to limit access to guns by dangerous people, and gun control briefly rose to the top of the congressional agenda. The proper regulation of firearms was a prominent issue in the 2016 presidential campaign, both the Democratic primary and the general election. Many states have recently amended their firearms regulations, in some cases to make them more stringent, in others less. Law enforcement agencies, most prominently in Chicago and other cities where gun violence rates have increased since 2015, are seeking innovative methods to reduce the use of guns in criminal violence (Police Foundation and Major Cities Chiefs Association 2017).

Reducing gun violence deserves a prominent place on the political agenda. In part, it is a matter of social justice. The high gun-violence rate that afflicts many low-income neighborhoods is not merely a symptom of underlying poverty and joblessness; it also degrades the quality of life (Cook and Ludwig 2000). Further, violence contributes to a vicious cycle that exacerbates out-migration, loss of community cohesion, struggling schools, and withdrawal of employment and investment—setting the stage for more violence.

When the five-city Moving to Opportunity experiment recruited mothers living in public housing, by far the most common reason the mothers gave for signing up was fear of crime: 75 percent endorsed that reason (Ludwig et al. 2013). Further, the strongest finding was that moving to more prosperous neighborhoods reduced stress and improved adult mental health, apparently because crime rates were lower. Not only does crime disproportionately affect troubled neighborhoods, it also affects the most socially and economically vulnerable Americans as it widens racial and ethnic disparities in population health. Among males age fifteen to twenty-four in the United States, homicide is the fourth leading cause of death for non-Hispanic whites and the second for Hispanics. Among black males in this age group, it is the leading cause of death and

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claims more lives than the nine other leading causes *combined*.[1]

Criminal misuse of firearms is a problem over and above the general problem of criminal violence. Not only are guns far more lethal than knives and clubs, they also have the unique quality of killing indiscriminately and at a distance. In neighborhoods afflicted by gun violence, no place is safe; children are kept inside and the sound of gunshots spreads terror. Greater gun availability is one explanation for why even though overall rates of violent crime are similar between the United States and Europe, America's homicide rate is much higher (Zimring and Hawkins 1997). Reducing gun involvement in violence would reduce the lethality and social costs of crime, even if the overall volume of crime were unchanged.

In many cities, the promise of preventing gun crime motivates proactive police tactics that have the goal of getting guns off the street, where most shootings occur (Koper and Mayo-Wilson 2006). Although the goal is readily justified, the methods are sometimes controversial. One problematic tactic has been high-volume "stop, question, and frisk" encounters, which tend in practice to concentrate on African American and Latino young men. This approach has been successfully challenged in the courts as a violation of civil rights in Los Angeles, New York, and elsewhere (Meares 2015). Such tactics are a hallmark concern of Black Lives Matter and related efforts within minority communities. Commentators across the political spectrum are also ambivalent in light of the broader concern that more stringent gun policing might increase the flow of convicts into already overpopulated prisons and jails.

Public officials seek innovative approaches for disarming dangerous people, approaches that are less damaging to police-community relations, not to mention civil rights. One possibility is to supplement the effort to deter illicit gun carrying with an effort to stop the transactions that supply active offenders with guns in the first place. But designing an effective program of that sort is handicapped by our meager knowledge of the underground gun markets that supply a large share of these transactions. A better understanding of the workings of this underground market, and how it might respond to changes in regulation and enforcement, form the agenda for this volume.

Many commentators have asserted that it is not feasible to keep guns out of the hands of violent offenders in the United States given our permissive laws and abundance of guns. In the United States, every adult is constitutionally entitled to own guns except those relatively few explicitly disqualified on the basis of their criminal record, immigration status, or one of a handful of other criteria. Because an estimated 270 million guns are in private hands nationwide, effective control is said to be beyond reach (Azrael et al. 2017). But this "futility" claim is in our judgment based on a misunderstanding of how guns come to be used in criminal violence. Despite that the number of private guns is enough to arm every adult, the great majority of adults (78 percent) do not in fact own one. The main concern should be less about the current stock of guns in private hands and more about the flow of guns: the ease of obtaining one for criminal purposes.

It is an interesting thought experiment to ask what percentage of those who commit a gun robbery or assault today were in possession of the gun in the recent past—say, six months ago. Available evidence does not provide a precise answer but points to a general conclusion that guns used in crime have typically not been in the hands of the offender for long. For that reason, and because most firearms assaults and robberies are committed by those who are disqualified from legal gun ownership by federal or state law, it is reasonable to suppose that if law enforcement were somehow able to block all gun transactions that were arming youths, gang members, and other legally disqualified groups, the rate of gun violence would dwindle rapidly, and in six months be a fraction of its current level.[2] If correct, then it is fair to conclude that the *number* of

1. Computed from data available from the Centers for Disease Prevention utility WISQARS (https://webappa.cdc.gov/sasweb/ncipc/mortrate10_us.html, accessed October 1, 2017).

2. A recent study of people arrested for gun violence or gun-related offenses finds that 13 percent were disqualified by age (under age eighteen) and 63 percent of the remainder were disqualified by criminal record or other readily observable characteristic (Braga and Cook 2016).

guns in private hands is of less direct concern than the transactions involving those guns. Because most of those transactions are off the books and technically illegal for various reasons, we use the shorthand term *underground gun market*.

For those readers who took a microeconomics course at some point, the term *market* conjures up a diagram with supply and demand curves that intersect like an *X* to determine a single price and quantity of transactions per unit of time. If the underground gun market resembled the market for bushels of wheat, the simple diagram would provide a sound approach to the possibilities and limitations of suppressing this market.

Real-world markets tend to be a good deal messier than Economics 101 reveals, and underground markets particularly so. Surveys of prisoners and others who have been (or are) active offenders document a diverse terrain of transactions, only about half of which involve an instance in which cash or other items of value are exchanged for property rights to a gun. Loans, gifts, sharing arrangements, and thefts are also common. Even for transactions that are sales, relatively few involve purchase from a store, where federal rules require the clerk to conduct a background check and keep records. More common by far is purchase from a family member, an acquaintance, or a street source. Given that variety of transactions, it is not surprising that prices are far from uniform, even for the exact same make, model, and condition of gun (Hureau and Braga 2016). Furthermore, the money price is not the only or necessarily the most important cost to obtaining a gun outside the formal market. Other types of transactions costs are relevant, including the search time required for the buyer and seller to find each other, the payments to a broker or other intermediary, and the risk of arrest.

If gun regulation and enforcement is to be respectful of the commitment to preserve gun ownership as a convenient option for most adults while reducing gun use in crime, then it is worth assessing the prospects for reducing the flow of transactions that arm active offenders and other dangerous people by raising transactions costs for that group. A better understanding of the underground market should contribute not only to designing effective programs, but also and more fundamentally to judging whether this supply side approach is even feasible.

This article begins by describing trends and patterns of gun ownership and transactions in the population at large. The discussion is informed in part by another in this volume that reports the results of a new national survey (Azrael et al. 2017). This information sets the stage for an inquiry into the underground gun market, because the transactions that supply offenders involve guns that have at some point been diverted from the general commerce in guns. In particular, the guns that end up being used in crime, with few exceptions, were legally manufactured or imported and first sold at retail by a licensed dealer. (In this respect, the underground gun market is closer to the underground market for Vicodin than, say, the market for heroin.) The notable population-level trends are the decline in the prevalence of gun ownership, coupled with the "deepening" of ownership by those who do keep guns. The shift has been remarkable in the predominant motivation for buying and owning guns, from sporting uses to self-defense, as reflected by the types of firearms that are most popular (a shift from rifles and shotguns to handguns), by the overall decline in hunting, and by the near disappearance in the old rural-urban differences in gun ownership once one controls for other things.

Next, we review the social costs of gun misuse. The quest to reduce these costs is the ultimate motivation for our inquiry into underground markets. We acknowledge that guns provide a source of recreation or sense of security to millions of Americans and are sometimes instrumental in self-defense against criminal assault. But like so many useful commodities—motor vehicles, pharmaceuticals, pesticides—guns also cause extensive damage. For that reason, the design, distribution and uses of guns are widely regulated. Gun availability does not "cause" violence but does intensify it in the sense that when a gun rather than a knife is used in a violent encounter, the result is to greatly increase the chance that the victim will die rather than receive a nonfatal

injury. Guns also give assailants the power to kill many people quickly, or to attack police and public officials. In neighborhoods where gun violence is concentrated, residents live in fear. The burden can be measured in terms of deleterious effects on public safety, health, economic development, and quality of life generally.

What can be done to reduce these burdens, and in particular to separate guns from violence? All levels of government regulate gun transactions, possession, and use. These regulations draw the line between legal and illegal gun transactions by imposing restrictions on weapon design, licensing of sellers, defining who is qualified to buy and possess, and mandating record keeping and reporting. To the extent that regulations have the effect of banning potentially profitable transactions, evasion becomes an attractive possibility. Thus the underground market is defined and motivated by regulation and partially undercuts regulatory effectiveness.

Turning to the heart of the matter, we next describe the underground gun market and assess the potential for additional regulation (or stronger enforcement of existing regulations) to reduce availability of guns to offenders. We report evidence suggesting that in some respects the underground market is sensitive to regulation. For example, when Virginia adopted a one gun per month maximum on handgun sales to any one customer, that state's prominence as a "source" state in trafficking to Massachusetts and other states with relatively stringent regulations dropped sharply (see Braga 2017). But the market tends to be quite adaptable, and it cannot be taken for granted that a regulation that distorts trafficking patterns achieves the ultimate goal of depriving dangerous people of guns.

A survey of promising results helps connect those dots. Several articles in this volume provide new descriptive information that helps us better understand the channels by which guns are diverted into the underground market (Wintemute 2017; Collins et al. 2017). Daniel Webster and his colleagues provide an impact evaluation of an important new set of regulations in Maryland; Melissa Barragan and her colleagues report survey results relevant to ascertaining whether ammunition regulations are likely to be effective (Barragan et al. 2017; Webster et al. 2017).

GUN OWNERSHIP: PRIVATE AND PUBLIC INTERESTS

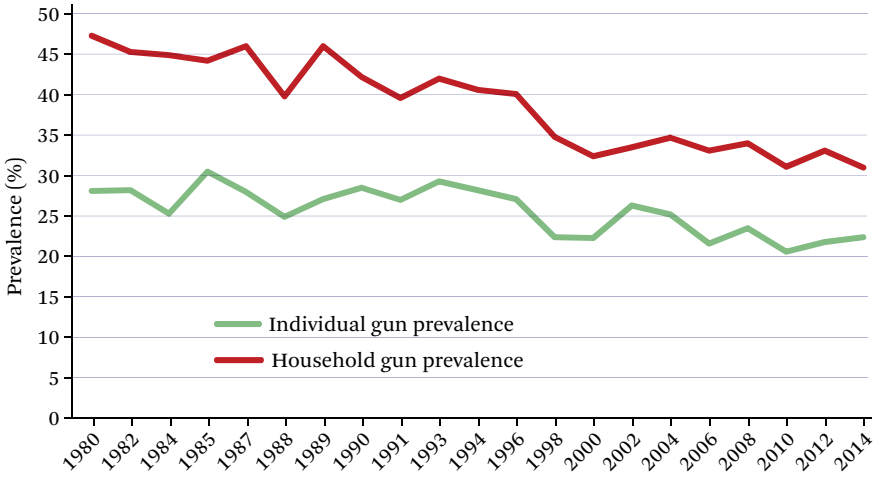
Guns are versatile tools, useful in providing meat for the table, eliminating varmints and pests, providing entertainment for those who have learned to enjoy the sporting uses, and protecting life and property against criminal predators. Guns are a traditional feature of rural life, where wild animals provide both a threat and an opportunity for sport. As America has become more urban, however, the demand for guns has become increasingly motivated by the felt need for protection against other people.

Patterns of Gun Ownership

The annual General Social Survey, conducted by the National Opinion Research Center, has long included questions on gun ownership. In 2014, just 31 percent of American households included at least one firearm, down from 47 percent in 1980 (Smith and Son 2015). The drop in part reflects the trend in household composition during this period; households are less likely to include a gun because they have become smaller and, in particular, are less likely to include a man (Wright, Jasinski, and Lanier 2012). In most cases, guns (unlike, say, toasters) are owned by individuals rather than households, and it is meaningful to track individual ownership. As shown in figure 1, the General Social Survey reports a drop in the percentage of individual adults owning at least one gun from 28 percent (1980) to 22 percent (2014), confirming the household trend (Smith and Son 2015). The trend among women during this period is essentially flat (10 percent reported owning in 1980, and 12 percent in 2014), so that the downward trend is due to reduced ownership by men (50 percent in 1980, down to 35 percent in 2014) (Smith and Son 2015).

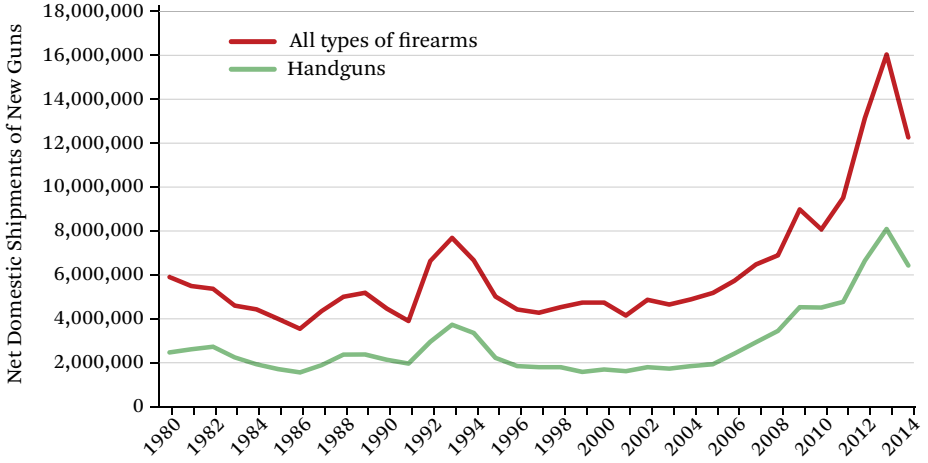
Figure 2 depicts the trend in the number of new guns shipped to U.S. retailers; the data in this case are based on federal tax records. Each year's total is the sum of manufactures and imports net of exports. Figure 2 documents the remarkable decade-long surge in the volume

Figure 1. Prevalence of Gun Ownership



Source: Authors' tabulation based on Smith and Son 2015.

Figure 2. Trends in Shipments of New Guns



Source: Authors' tabulation based on ATF 2017.

of new guns beginning in 2003, and the growing relative importance of handguns (revolvers and pistols) as opposed to long guns (rifles and shotguns). In comparing the two figures, it is clear that if both are accurate, then the surge in new gun sales (increasing by a factor of 3.5) has been absorbed with no effect on the prevalence of gun ownership. The average number of guns kept by gun owners has been increasing.

The cumulative number of guns in private hands in the United States cannot be tracked from year to year, although a handful of surveys go beyond the usual questions on gun ownership to inquire about the *number* of guns in the home. The most recent national survey, the 2015 National Firearms Survey, found that gun-owning individuals average 4.9 guns in 2015, up substantially from the 1970s (Azrael et al. 2017). Administrative data on shipments of new guns to retailers tells us little about the net addition to the stock because the rate of disposal of existing guns through breakage, confiscation, and off-the-books imports and

Table 1. Correlates of Gun Ownership: Multivariate Logit Regression

Respondent	Coefficient	SE	*Z*-Ratio	*P*-Value
Female	−1.347***	0.132	−10.17	<.001
Race				
Non-Hispanic white	Referent (joint $p < .001$)			
Black	−1.107***	0.232	−4.76	<.001
Hispanic	−1.403***	0.261	−5.37	<.001
Other nonwhite	−0.433*	0.237	−1.83	.067
Income				
Less than $20k	−0.909***	0.234	−3.88	<.001
$20–40k	−0.308*	0.185	−1.66	.096
$40–75k	Referent (joint significance $p < .004$)			
$75k or more	−0.134	0.165	−0.81	.417
Income missing	−0.566**	0.228	−2.49	.013
Education				
Less than high school	−0.995***	0.360	−2.77	.006
High school graduate	Referent (joint significance $p < .002 \ldots$)			
Some college	−0.096	0.157	−0.61	.54
College graduate	−0.524***	0.154	−3.4	.001
Age				
Eighteen to thirty-four	−0.259	0.185	−1.40	.161
Thirty-five to forty-nine	Referent (joint significance $p < .04 \ldots$)			
Fifty to sixty-four	0.094	0.172	0.55	.583
Sixty-five or older	0.254	0.184	1.38	.168
Community				
Urban	Referent (joint significance $p < .28 \ldots$)			
Rural	0.338	0.241	1.4	.161
Suburban	−0.077	0.168	−0.46	.644
Region				
Midwest	Referent (joint significance $p < .001$)			
South	0.309**	0.156	1.97	.048
Northeast	−0.548***	0.197	−2.79	.005
West	0.145	0.182	0.8	.426
Constant	0.291	0.236	1.23	.218

Source: Authors' computation based on Pew Research Center 2015.
*$p < .1$; **$p < .05$; ***$p < .01$

exports is unknown (Cook 1993). As Azrael and colleagues explain in this volume, available survey data indicate a total U.S. gun stock of around 270 million guns (Azrael et al. 2017).

Qualitatively similar demographic patterns of gun ownership have persisted at least from the time it became possible to estimate them from survey data. A recent snapshot is provided by our analysis of Pew Research Center survey data for 2014; table 1 provides the results of a multivariate regression analysis of whether the respondent indicated that he or she personally owned a gun. This type of analysis answers the question of how each variable influences the likelihood of gun ownership when all other variables are held constant. What we learn is that, after adjusting for socioeconomic characteristics, men are much more

likely to own a gun than women and whites are more likely than minorities (blacks and Hispanics). Low income and low education are both strongly and negatively related to gun ownership. A regional effect remains, the South at the high end and Northeast at the low end. Gun ownership by education peaks among those who graduated from high school but not from college. The biggest surprise is that after controlling for other factors, rural respondents do not display discernibly higher gun ownership rates than those living in urban or suburban areas.

Overall trends reflect the declining prevalence of hunting and rural traditions of gun sports. In 1940, 49 percent of teenagers were living in rural areas. By 2000, that proportion had dropped to 22 percent, and it continues to fall. Hunting is on the decline. Data from the General Social Survey indicate that the proportion of households with hunters fell from 32 percent in 1977 to 15 percent in 2014. The absolute number of hunting licenses issued in 2015 (fifteen million) was less than in 1970 (sixteen million), although the U.S. population had grown from 205 to 320 million people (U.S. Fish and Wildlife Service 2015).

Increasingly, people buy guns not to shoot animals or targets, but rather to prepare for a time when they might need to shoot or at least threaten another person. Although the prevalence of gun ownership is not increasing, those who do own guns are buying more of them and have an increasing preference for handguns over rifles and shotguns. Half of gun owners say that self-protection is the reason or primary reason they own a gun, compared with just a quarter of owners who gave that response as recently as 1999 (Pew Research Center 2013).[3]

The Virtues of Gun Ownership

Most private citizens who possess a handgun do so at least partly for defense against crime. Self-defense, particularly the defense of one's home and family, is viewed as a traditional duty of the head of a household and a natural extension to the collective purpose of public safety. In *Heller v. District of Columbia* (2008), the majority of the U.S. Supreme Court announced a Second Amendment right that overturned the near ban on private possession of handguns in the District of Columbia on the specific grounds that handguns were widely viewed as an appropriate weapon for protecting the home. Self-protection and the protection of the home may thus be viewed as having a public virtue and priority that goes beyond the usual arguments for consumer sovereignty.

A related, contested tradition regards gun ownership as a virtuous check on government authority. In this view, private arms serve as a bulwark against public tyranny. The belief in a right to insurrection is sometimes based on an interpretation of the Second Amendment, and is an important subtext in debates over the proper limits of government power in firearm registration, background checks, and computer databases containing information regarding firearms possession and sale (Horwitz and Anderson 2009; Bogus 2008; Henigan 2009).

Regardless of public perceptions and ideology, a question remains of whether guns are in fact effective in self-defense (let alone in combating tyranny), and whether it is prudent to keep one for that purpose. Research on self-defense covers a number of specific issues: the frequency and success with which guns are used in self-defense, the hazards of keeping a gun in the home, and the deterrent effect of increasing the number of potential victims who are armed. It comes as no surprise that on each of these issues disagreement is considerable in the scholarly literature, as well as among advocacy groups. Here we limit the discussion to evidence regarding deterrence, but interested readers should refer to more comprehensive treatments (Kleck 1997; Cook and Goss 2014; Hemenway 2004).

The strongest claim in support of the public virtue of widespread gun possession (and the perversity of regulations that curtail guns) is that guns in private hands generate a general deterrent effect on crime. Early arguments along these lines speculated about the effect on residential burglary, and especially "hot" burglaries of occupied homes (Kleck 1997;

3. The Pew Research Center poll reported 26 percent in 1999 and 48 percent in 2013 responding that the reason they own is self-protection.

Kopel 2001). The first systematic analysis of this issue demonstrated by use of the geo-coded National Crime Victimization Survey data that the individual likelihood of residential burglary or hot burglary is not reduced by living in a county with high gun prevalence (Cook and Ludwig 2003). In fact, greater gun prevalence was associated with an *increase* in the residential burglary rate. One reason may be that more prevalent gun ownership increases the profitability of burglary, because stolen guns are readily fenced for good prices. The fraction of burglaries that are "hot" is not affected by the prevalence of gun ownership.

The most prominent research findings on the general deterrence issue were based on an evaluation of changes in state laws governing concealed carrying of handguns. Over the 1980s and 1990s, a number of states eased restrictions on concealed carry, adopting a regulation that required local authorities to issue permits to all applicants who met minimum conditions. These "shall issue" laws replaced "may issue" laws (which gave the authorities discretion) or outright bans on concealed carry. The economists John Lott and David Mustard published the first evaluation of these shall-issue laws, finding that they were associated with a reduction in homicide and some other types of crime (Lott and Mustard 1997). Lott went on to publish *More Guns, Less Crime* to report these results and variations on them (2000). He reached differing conclusions about the effect on property crime depending on the details of the statistical analysis (Cook, Moore, and Braga 2002). In every econometric specification, however, he found that ending restrictive gun-carrying laws reduced homicide rates (Lott 2000, 90).

In the finest scientific tradition, a number of analysts have sought to replicate Lott's findings and confirm or disconfirm them (Donohue 2003; Ludwig 1998; Black and Nagin 1998). The importance of this academic debate is indicated by the fact that an expert panel of eighteen scholars was created by the National Academy of Sciences to review the conflicting research. Panelists were chosen because they were expert on the relevant methods and had not been directly involved in research related to gun control. Among other things, this panel reanalyzed Lott's data, and, with one dissent, judged his findings to be unreliable (Wellford, Pepper, and Petrie 2004). The economist John Donohue and his co-authors have published several evaluations of the shall-issue laws, taking advantage of additional years of data and exploring alternative specifications, statistical techniques, and time periods (Ayres and Donohue 2009; Aneja, Donohue, and Zhang 2012). The most recent is the most comprehensive and reports consistent results using a variety of statistical techniques: deregulation of concealed carry has had the net effect of increasing criminal violence (Donohue, Aneja, and Weber 2017).

The scientific process has worked quite well in this case because replication based on extended experience has challenged dubious findings. Given the most recent evidence, we conclude with considerable confidence that deregulation of gun carrying over the last four decades has undermined public safety—which is to say that restricting concealed carry is one gun regulation that appears to be effective.[4]

THE SOCIAL BURDEN OF GUN VIOLENCE

As with motor vehicles and prescription pain-killing medications, the widespread distribution and use of firearms creates both social costs and benefits. The benefits are primarily in the form of recreation and of a sense of security from criminal predation. The social burden comes from the misuse of guns to perpetrate deadly assaults and robberies, cause accidents, and translate passing thoughts of suicide into spontaneous and deadly action.

Gun violence is an important detriment to the standard of living in the United States, and is markedly more prevalent in the United States than in any other wealthy democracy. Gunshot injuries and deaths have a noticeable effect on life expectancy and contribute to health disparities across race and gender. Guns

4. Charles Manski and John Pepper conclude that considerable uncertainty remains about this conclusion (2015). But their analysis is based on a questionable specification regarding the year that Virginia adopted shall-issue licensing for concealed carry.

and gunfire terrorize some low-income communities and degrade community life. The choice of weapons appears to have a profound effect on the patterns and outcomes of criminal assault, and have a strong causal effect on the likelihood of death in a suicide attempt.[5] In a word, guns *intensify* violence.

It is common place for commentators to assert that gun violence is a "public health problem" (Hemenway and Miller 2013). Given the tens of thousands of deaths and injuries from gunshots annually, that claim seems uncontroversial, and serves as a useful connection to the methods (epidemiology and evidence-based policy design) and preferred styles of intervention (non-punitive, community-engaged) that characterize other public health interventions to address threats to population health (Moore 1993). This designation also underscores the basic normative judgment that all lives are valuable.

We embrace this perspective, but add that the social harms associated with gun violence go well beyond the number of firearms-related injuries or its effect on life expectancy. Gun violence is a public health problem, but it is also a crime problem, an economic development problem, and a burden on everyday quality of life for heavily affected communities. All of these perspectives are relevant to setting public priorities and crafting effective programs and policies to ameliorate gun violence.

Victimization

Approximately one million Americans have died from gunshot wounds in homicides, accidents, and suicides since 1986. In 2015, the most recent year for which the National Center for Health Statistics has provided final tabulations on injury deaths, the total was 36,252 firearm deaths, including 12,979 homicides, 22,018 suicides, and 489 unintentional killings (CDC 2017).[6] As a point of reference, in 2015 there were about as many gun deaths as motor vehicle deaths. Another point of reference is the years of potential life lost before age sixty-five: guns account for one of every fifteen years lost to early death from all causes.

Of the 17,793 criminal homicides reported in 2015, 73 percent were by gunshot. It is also true that half of all suicides are committed with firearms. (Gun suicide is a distinctive and severe public health problem beyond the scope of this volume.) Of course, not all gunshot injuries are fatal. Emergency rooms treated 84,997 nonfatal gunshot injuries in 2015, including 62,896 nonfatal injuries from criminal assaults. And the police recorded more than three hundred thousand assaults and robberies in that year in which the perpetrator used a gun, in most cases to threaten the victim. [7]

Most of the firearms used against people are handguns—revolvers or, more commonly in recent decades, pistols. Specifically, about 70 percent to 80 percent of firearm homicides and 90 percent of nonfatal firearm victimizations were committed with a handgun from 1993 to 2011 (Zawitz 1995; Planty and Truman 2013). The predominance of handguns in criminal misuse occurs despite the fact that the majority of guns in private hands are rifles and shotguns—that is to say, long guns. But handguns are more convenient to conceal and carry in public, where much of the crime occurs.

Gun violence contributes to racial and ethnic disparities in mortality. Focusing just on males age fifteen to thirty-four, homicide victimization rates in 2015 (consistent with earlier years) were seventeen times as high for blacks as for non-Hispanic whites. Homicide is the

5. Widespread gun-carrying may also make police more wary during encounters with the public, engendering more aggressive procedures that could result in unnecessary violence.

6. These and subsequent statistics in this paragraph are taken from the Centers for Disease Control public-use website WISQARS (https://www.cdc.gov/injury/wisqars/fatal.html, accessed June 21, 2017). The classification of gunshot deaths as "unintentional" in the Vital Statistics Registry is unreliable. Catherine Barber and David Hemenway demonstrate the numerous false positives and false negatives in this classification, and that to some extent they balance out (2011).

7. The FBI reports 764,449 aggravated assaults known to the police, of which 24.2 percent were with a gun, and 327,374 robberies, of which 40.8 percent were with a gun (2015). The implied number of nonfatal gun crimes is 318,566.

leading cause of death for blacks in this age group, and the second leading cause of death for Hispanic males. For all men in this age range, most (86 percent) homicides are committed with guns.

Guns are the weapons of choice for assassins and cop killers. Fourteen of the fifteen direct assaults against presidents, presidents-elect, and presidential candidates in United States history were perpetrated with firearms, including the five resulting in death (Kaiser 2008). (The one exception of the fifteen, a failed attack with a hand grenade against President George W. Bush, occurred overseas.) In the decade from 2006 to 2015, 521 law enforcement officers were shot dead, against just twelve who were stabbed to death and thirteen who were victims of a terrorist attack (NLEOMF 2017).

The most prominent cases of firearms victimization in recent decades have been the mass shootings at campuses, workplaces, movie theaters, and other public places. Some of these infamous events have become grim touchstones, including Columbine, Virginia Tech, Aurora, Newtown, San Bernardino, Orlando, and the attack on Representative Steve Scalise and others in Alexandria, Virginia. The estimate of the rate at which such events occur of course depends on the definition of *mass shooting*. Using a relatively broad definition of at least four people shot in a single incident, more than one thousand such incidents, that included 1,300 deaths, occurred between 2013 and 2015; by the most stringent definition in widespread use, at least six people shot and killed in a single incident, "just" eleven occurred during those three years, seven in 2015 alone (Klarevas 2016).

Despite the prominence of the mass shootings in the public discourse on gun violence, the overall number of victims in such incidents remains less than 3 percent of total gun homicides. The weapons and motivations—and corresponding policy challenges—behind such mass shooting incidents also differ from most gun homicides. Fortunately, the homicide rate (both gun and nongun) has dropped in recent years, declining from twentieth-century highs in 1980 and 1991 of more than ten per hundred thousand to just five in 2014. The persistent characteristic of American homicide through these ups and downs is the high involvement of guns, particularly handguns, which account for the bulk of gun homicides (Zimring and Hawkins 1997). Overall violence rates in the United States are also above average, though not to nearly the same extent: one comparison of the United States with other high-income countries found that the U.S. firearm homicide rate was almost twenty times as high, but that the nongun homicide rate was "just" 2.9 times as high as the average of the other countries (Richardson and Hemenway 2011).

How and Why the Type of Weapon Matters

A popular slogan admonishes, "Guns don't kill people, people kill people."[8] The bumper sticker is right that depriving "people" of guns does not automatically remove the impulse to kill. Yet the argument overlooks something else: without a gun, the *capacity* to kill is greatly diminished. As one wag suggested, "Guns don't kill people, they just make it real easy."

Bumper stickers aside, the true causal role of guns in homicide remains a fundamental issue in gun-violence research and evidence-based policymaking. The type of weapon obviously matters in some circumstances. The number of drive-by knifings, or people killed accidentally by stray fists, is remarkably low. When well-protected people are murdered, it is almost always with a gun; as mentioned, more than 90 percent of lethal attacks on law enforcement officers are with firearms, and all assassinations of U.S. presidents have been by firearm. When lone assailants set out to kill as many people as they can in a business office, movie theater, public park, or college campus, the most readily available weapon that will do the job is a gun.

But what about the more mundane attacks that make up the vast bulk of violent crime? The first piece of evidence is that robberies and assaults committed with guns are more likely to result in the victim's death than similar violent crimes committed with other weapons are.

8. This was a popular bumper strip in the 1970s and prominently endorsed by the Republican presidential candidates as recently as 2016.

In public health jargon, case-fatality rates differ by weapon type. Take the case of robbery, a crime that includes holdups, muggings, and other violent confrontations motivated by theft, regardless of whether they result in serious injury. The case-fatality rate for gun robbery is three times as high as for robberies with knives, and ten times as high as for robberies with other weapons (Cook 1987).

For aggravated (serious) assault it is more difficult to come up with a meaningful case-fatality estimate because the crime itself is in part *defined* by the type of weapon used. (In the FBI's Uniform Crime Reports, a threat delivered at gunpoint is likely to be classified as an aggravated assault, but the same threat delivered while shaking a fist would be classified as a simple assault.) We do know that for assaults from which the victim sustains an injury, the case-fatality rate is closely linked to the type of weapon (Zimring 1968, 1972; Kleck and McElrath 1991), as is also the case for family and intimate assaults (Saltzman, Mercy, and Rhodes 1992). For all victims who sustain an injury in a robbery or criminal assault serious enough to be treated in a hospital emergency department, the death rate for gunshot cases is more than twelve times as high as for knife attacks.[9]

Case-fatality rates do not by themselves prove that the type of weapon has an independent causal effect on the probability of death. The type of weapon might provide an indicator of the assailant's intent—and that it is the intent, rather than the weapon, that determines whether the victim lives or dies. This was offered as a reasonable possibility by the revered criminologist Marvin Wolfgang, who in his seminal study of homicide in Philadelphia stated that "it is the contention of this observer that few homicides due to shooting could be avoided merely if a firearm were not immediately present, and that the offender would select some other weapon to achieve the same destructive goal" (1958, 83). James Wright, Peter Rossi, and Kathleen Daly and others offer the same theme: the gun makes the killing easier and is hence the obvious choice if the assailant indeed intends to kill (1983). If no gun were available, this argument asserts, most would-be killers would still find a way to kill. In this view, fatal and nonfatal attacks form two distinct sets of events with little overlap, at least with respect to the assailant's intent.

This speculation that the intent is all that matters seems to contradict much of what we know about human behavior. When a tool is available to make a difficult task (such as killing another person) much easier, then we expect that the task will be undertaken with greater frequency and likelihood of success.

The first systematic research (as opposed to speculation) on this matter was conducted by Franklin Zimring, who demonstrated the significant overlap between fatal and nonfatal attacks with respect to circumstances and apparent motivation (1968, 1972). Even in the case of earnest and potentially deadly attacks, assailants commonly lack a clear or sustained intent to kill. Zimring notes that in many cases the assailant is drunk or enraged, unlikely to be acting in a calculating fashion. Whether the victim lives or dies then depends on the lethality of the weapon with which the assailant strikes the initial blow.

Zimring's studies of wounds inflicted in gun and knife assaults suggest that the difference between life and death is often a matter of chance, determined by whether the bullet or blade punctures a vital organ. It is relatively rare for assailants to administer the coup de grâce that would ensure their victim's demise. For every homicide inflicted with a single bullet wound to the chest are two survivors of a bullet wound to the chest that are indistinguishable with respect to intent. It is largely because guns are intrinsically more lethal than knives that gunshot injuries are more likely to result in death than sustained attacks with a knife to vital areas of the body (Zimring 1968). Zimring's second study provides still more compelling evidence by comparing case-fatality rates for gunshot wounds with different calibers—a wound inflicted by a larger caliber

9. Using data from WISQARS data on violent deaths and nonfatal injuries for 2013, we find a case fatality rate of 1.20 percent for knife assaults causing serious injury, and a case-fatality rate of 15.26 percent for gun attacks causing serious injury. The ratio is 12.7.

gun was more likely to prove lethal than a wound inflicted by a smaller caliber gun. Assuming that the caliber of gun is not correlated with the intent of the assailant, the clear suggestion is that the type of weapon has a causal effect on outcome.

Zimring's argument in a nutshell is that robbery murder is a close relative of robbery and that homicide is a close relative of armed assault; death is effectively a probabilistic byproduct of violent crime. Thus, though the law determines the seriousness of the crime by whether the victim lives or dies, that outcome is not a reliable guide to the assailant's intent or state of mind.

One logical implication is that the overall volume of violent crimes and the number of murders should be closely linked, moderated by the type of weapons used. Where Zimring provides a detailed description of cases as the basis for his conclusion, tests based on aggregate data are also potentially informative. One such study demonstrates that robbery murder trends in forty-three large cities (for which data were available) behaved as we would expect, displaying a tight connection between variation in robbery and in robbery murder. An increase of one thousand gun robberies is associated with three times as many additional murders as an increase of one thousand nongun robberies (Cook 1987). *Instrumentality* provides a natural explanation for these patterns.

Three decades after his pioneering research on instrumentality, Zimring and a colleague published *Crime Is Not the Problem,* presenting the case that violent-crime rates in American cities are not particularly high relative to their counterparts across the developed world—except for homicide and gun-related crimes generally (Zimring and Hawkins 1997). American "exceptionalism" is the result of the unparalleled prevalence of firearms in assaults and robberies in the United States. In this view, American perpetrators are not more vicious than those in Canada, Western Europe, and Australia—they are just better armed. Furthermore, the trend in guns used in crime, as for guns sold to the public, over the last generation has been toward larger caliber pistols with more power and larger capacity to fire multiple rounds without reloading—as Anthony Braga documents in this volume (2017).

The case-fatality rate in violent encounters is not the only outcome in violent crime that is affected by weapon type. Other instrumentality effects have been documented for the crime of robbery (Cook 1980b, 1991). Assuming that robbers are generally in it for the money, then their goals are to choose lucrative victims, control them, and make good the escape. Use of a gun enhances the robber's power, making it possible to successfully rob hard-to-control but relatively lucrative victims (groups of individuals, businesses).

Based on this reasoning, we might expect gun robberies to be more likely to be successful than other robberies, and to involve more loot when they do succeed. Further, robbers with guns should be able to control the situation by use of the potent threat of the gun, rather than by physical attack (as with a strong-arm robbery or mugging).

As it turns out, these patterns are indeed evident in victim survey data. Robbers bearing guns are 12.5 percentage points more likely to succeed than their knife-wielding counterparts are, and the average value of offender's "take" almost doubles when robberies by firearm do succeed (Cook 2009; Kleck and McElrath 1991). Further, the likelihood of injury to the victim depends on the type of weapon, and gun robberies are the least likely to involve injury. Of course, when the robber does fire his gun, it is quite likely that the victim will die, making gun robberies (as noted) by far the most lethal type of robbery (Cook 1980b).

In sum, the type of weapon deployed in violent confrontations is not just an incidental detail; it matters in several ways. Because guns provide the power to kill quickly, at a distance, and often without much skill or strength, they also provide the power to intimidate other people and gain control of a violent situation without an actual attack. When a physical attack happens, the type of weapon is an important determinant of whether the victim survives; and guns are far more lethal than other commonly used weapons. Notably, the handguns available on the market and used by offenders have become more deadly over the last generation: the prevalence of large-capacity maga-

zines, larger caliber, and greater power has increased (see Braga 2017).

The most important implication of this instrumentality perspective is that policies that are effective in reducing gun use in violent crime would reduce the murder rate even if the volume of violent crime were unaffected. As it turns out, about half of the states have incorporated sentencing enhancements for use of a gun in crime (Vernick and Hepburn 2003). These enhancements, most of which were adopted in the 1970s and 1980s, were intended to reduce gun use in violence; systematic evaluations offer some indication that they have been effective (Loftin and McDowall 1981, 1984; Abrams 2012).[10] In any event, the widespread adoption of sentencing enhancements for using a gun in robbery is a clear indication of the commonsense recognition of the instrumentality effect.

That gun robberies are so much more lucrative than robberies with other weapons raises a related question: why are most robberies committed without a gun? One possibility is that many robbers lack ready access to a gun, which would suggest that the underground gun market has high transactions costs for some offenders. But it is also possible that some robbers are deterred from firearm possession, carrying, or use in crime by the threat of severe punishment.

Social Costs of Gun Violence

A comprehensive account of the societal impact of gun violence requires imagining all the ways in which it affects the quality of life. The elevated rate of homicide, as important as it is, provides just the beginning in this calculation. It is useful to establish a ballpark estimate of the magnitude of this problem in terms that could be compared with other problems of health, safety, and urban development.

The traditional approach for valuing disease and injury is the cost-of-illness (COI) method, which misses most of what is important about gun violence. In essence, the cost-of-illness approach values people the way a farmer would value his livestock (Schelling 1968), based on their productivity and market value together with the cost of their medical care and other maintenance. The alternative approach, which is almost universally favored by economists, values the reduction in risk of injury according to the effect on the subjective quality of life. In short, the difference is between whether safety should be valued on the basis of how the lives saved contribute to gross domestic product (the COI approach), or rather by the value that people place on living in a safer environment.

In the latter perspective, violence, particularly gun violence, is a neighborhood disamenity, akin to pollution, traffic, and poor schools. Anyone living in a neighborhood where gunshots are commonly heard is likely to be negatively affected. The possibility of being shot, or of a loved one's being shot, engenders fear and costly efforts at avoidance and self-protection—as when mothers keep their children from playing outside for fear of stray bullets (Cook and Ludwig 2002). Property values fall as people with sufficient means move to safer neighborhoods; by one estimate, every homicide in Chicago results in seventy people moving out of the city (Cook and Ludwig 2000). Business suffers as customers gravitate to shopping districts where they feel safe. Neighborhood educational quality suffers through multiple pathways, including the impact of neighborhood dislocation on children's mental health and school readiness (Stein et al. 2003). Tax revenues are diverted to cover the financial costs of medically treating gunshot victims, usually at public expense (Cook et al. 1999).

Data from a randomized trial of Chicago Head Start interventions provided a particularly poignant illustration of the associated mental health challenges. When children happened to be assessed within a week of a homicide—almost always gun homicide—that occurred near their homes, they exhibited lower

10. Philip Cook and Daniel Nagin document the influence of weapon use in a case on prosecutorial and judicial discretion (1979). That study finds that defendants who used weapons were more likely to be convicted and sentenced to prison in the District of Columbia in 1974, but that there was little distinction between guns and other types of weapons in that court. Marcy Rasmussen Podkopacz and Barry C. Feld document the importance of weapon use as an influence on the decision to waive juveniles to adult courts (1996).

levels of attention and impulse control and lower pre-academic skills. Researchers also found strong effects of local violence on parental distress, which appears to be a key pathway through which local violence affects the well-being of young children (Sharkey et al. 2012). Gun violence has similarly detrimental impacts on educational attainment. Research conducted in Chicago indicates that student performance on standardized tests declines in the immediate aftermath of a local shooting (Sharkey 2010).

The costs of fear, suffering, and avoidance are largely subjective. One challenge in assessing the social burden of violence is to place a monetary value on these subjective effects, and in particular to estimate how much households would be willing to pay to reduce the perceived risks. One approach is to analyze property values, comparing neighborhoods with differing rates of gun violence while controlling for other factors that may be relevant in that market. That approach is bound to be incomplete (because at best it can capture only the local place-related effects of gun violence) and poses an almost insurmountable analytical challenge (because other neighborhood disamenities that also affect property values are highly correlated with gun violence).

An alternative approach, the contingent-valuation (CV) method, provides a comprehensive cost estimate in monetary terms, and without the challenge of extracting the value of safety from real-estate transactions data. Economists have used CV widely in valuing different aspects of the environment, but the first application to crime was specifically in the context of gun violence (Cook and Ludwig 2000; Thaler 1978).

To perform the CV estimate, a series of questions on a national survey that asked whether respondents would be willing to vote for a measure that would reduce gun violence in their community by 30 percent if it were going to cost them a specified amount (randomly varied across respondents). The pattern of answers was interesting. Perhaps surprisingly, given the unfamiliar nature of the questions for many respondents, the pattern of answers was also reasonable. For example, respondents with children at home were more willing to pay than those without. The overall estimate was that such a reduction would be worth $24 billion (Cook and Ludwig 2000; Ludwig and Cook 2001). Multiplying up to a hypothetical 100 percent reduction, we could estimate that interpersonal gun violence was at the time an $80 billion problem, and that the subjective costs were by no means confined to the people and communities that were at highest risk of injury—indeed, the willingness-to-pay for this reduction actually increased with income.

Regardless of the empirical method, it is surely informative to view gun violence as a neighborhood disamenity such as pollution. Translating the burden of this disamenity into monetary terms requires going well beyond valuing the lives and medical costs of actual victims. The costs of prevention, avoidance, and fear loom large in any comprehensive accounting of the value of safety.

One particularly important difference in practice between the CV and COI approaches is in the distinction between gun suicide and criminal assault. Because the annual toll of gun deaths includes twice as many suicides as homicides, the COI valuation tends to attribute the bulk of the burden of gun violence to suicide. But that ignores the difference in the costs of avoidance, prevention, and fear, which greatly elevate the relative importance of criminal gun assault in affecting the community's standard of living.[11] A similar set of distinctions might be made between mass shootings and

11. *Mother Jones* recently published an ambitious analysis of the costs of gun violence, working closely with the analyst Ted Miller of the Pacific Institute for Research and Evaluation. Miller estimated a total annual cost of $229 billion using a modern variant of the COI method that values life on the basis not only of lost earnings but also of the monetized value of "quality of life." The latter is typically based on wrongful death lawsuit settlements, and in this case averaged more than $6 million per life. The result was that lost quality of life made up 74 percent of the total cost. This variation on COI is still valuing lives (ex post) rather than attempting to value safety and take account on avoidance and mitigation. Further, the dollar value of a life takes no account of the actual circumstances of the victims. The result is that suicides dominate the social cost.

everyday homicides; the seemingly random mass attacks, often with military-related weaponry, on schoolchildren and other entirely innocent victims in normally safe places have the effect of creating nationwide anxiety, with a cost out of all proportion to the actual number of victims.

REGULATIONS GOVERNING FIREARMS TRANSACTIONS AND POSSESSION

The crack-fueled epidemic of violence that began in 1984 crested in the early 1990s and then subsided. Despite the fact that some cities experienced sharp increases in 2015 and 2016, the 2016 homicide rate of roughly five per hundred thousand population is half of the peak value and comparable to the low rates circa 1960. Robbery and assault rates have dropped in proportion. Virtually every large city has shared in this trend and is now safer, with all the attendant benefits, than it was a generation ago (Levitt 2004).

Gun violence has trended downward at close to the same rate as nongun violence.[12] The obvious conclusion is that the general reduction in violence, whatever its causes (and those have been extensively debated), had the effect of greatly reducing gun violence (Blumstein and Wallman 2006; Cook and Laub 2002; Levitt 2004). Any systematic discussion of the problem of gun violence should include the possibility offered by programs that are potentially effective against violence generally—cognitive-behavioral therapy for school-age youth and juvenile offenders, youth summer employment, higher alcohol taxes, and others (Cook, Ludwig, and McCrary 2011; Gelber, Isen, and Kessler 2014; Heller 2014; Heller et al. 2017).

Despite the crime drop, rates of criminal violence are unacceptably high and thus a leading problem in many communities across the country. Gun violence remains a particular problem because—as noted—gun use in violence intensifies that violence, terrorizing neighborhoods and greatly increasing the likelihood that assault victims will die. For that reason, reducing gun use is a worthy goal. Reducing the proportion of assaults and robberies committed with guns is thus what is known as a harm-reduction strategy. It has the potential to reduce the harm caused by violent crime without reducing the overall volume of violent crime.

Current law and practice incorporate diverse mechanisms for reducing the misuse of guns. Criminal law enforcement is coupled with regulations on gun commerce ("gun control") and other programs intended to reduce careless or criminal use (safety training, public education, improved safety devices). Here we focus primarily on regulation of gun commerce. Among other things, federal and state regulations have the effect of defining which transactions are legal. For the most part, the transactions that arm active offenders violate existing regulations, and constitute what we refer to as the "underground gun market." We offer a brief history of federal regulation (see table 2), and characterize trends in state regulation as well. We then characterize the various channels by which offenders can and do circumvent these regulations. (compare Zimring 1991; Cook and Ludwig 2006; Wintemute 2006).

Federal Regulation

Compared with other high-income nations, the United States is lax in regulating firearms. It does nonetheless impose nontrivial regulation of their design, possession, transfer, and uses. A teenager shooting squirrels with a sawed-off shotgun in New York's Central Park would be in violation of a number of local, state, and federal laws.

Actually the first federal law regulating guns, the Uniform Militia Act, was intended to *increase* the prevalence of gun ownership. Enacted by Congress in 1792, it required that every "free able-bodied white male citizen" between the ages of eighteen and forty-five equip himself with a rifle or musket and ammunition in preparation of being called to serve with his state's militia (Whitney 2012). The vision of a citizen's militia in each state was held out as the alternative to a standing national army. It soon gave way to the realistic requirements of defending the new nation. In the twentieth

12. A comparison of rates in 2014 with the peak year of 1991 indicates a decline in the gun homicide rate of 48 percent and a decline in the nongun homicide rate of 59 percent.

century, Congress came to recognize that the widespread private ownership of guns (which incidentally had become much cheaper and more deadly than in 1792, and of lower military value) was generating negative consequences that required federal regulation.

Table 2 summarizes the sequence of prominent federal laws and litigation, coupled with comments on contemporaneous trends in criminal violence. Congress first got into this arena during the Prohibition Era because of its associated gang violence. The federal excise tax on guns was imposed in 1919 primarily for revenue purposes, although the sumptuary aspects were noted in the congressional debate. In 1927, well into the Roaring Twenties, a ban was imposed on the use of the U.S. mail to ship handguns. The focus on particular types of guns continued with the National Firearms Act of 1934 (NFA), which required owners of fully automatic weapons (machine guns), sawed-off shotguns, and other gangster weapons to register these weapons with the federal authorities. All transfers of these weapons were subjected to a tax of $200, which at the time was prohibitive. It was not until 1986 that Congress banned the manufacture of NFA weapons for civilian use. Some indications are that this law has been effective—the use of fully automatic weapons in crime, even in domestic terrorism, appears to be rare in modern times, for example.

Comprehensive federal legislation was not enacted until 1968, following a surge in crime, urban riots, and political assassinations (Zimring 1975). Building on the precedent of the Federal Firearms Act of 1938, the Gun Control Act (GCA) strengthened federal licensing of firearms dealers and limited interstate shipments of guns to licensees. Such legislation sought to protect states that opted for tighter regulation against inflows of guns from lax-regulation states. (As Anthony Braga observes in this volume, this remains a challenging task for America's highly decentralized firearm policies.)

In particular, the GCA banned mail order shipments across state lines of the sort that supplied Lee Harvey Oswald with the gun he used to assassinate President Kennedy. The GCA also expanded federal prohibition on possession by certain categories of people deemed dangerous because of their criminal record, substance use or psychiatric disorder, or youth. "Felon in possession" thus became a federal offense, which facilitated partnership between local prosecutors and U.S. attorneys in combating violent crime. The GCA's recordkeeping requirements assisted law enforcement agencies in tracing guns to their first retail sale, which has proven quite useful in some murder investigations. Finally, the GCA banned the import of foreign-made handguns that were small or low quality and hence did not meet a "sporting purposes" test.

The agency created to do the regulatory enforcement and criminal investigation of gun trafficking is the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF). It has been something of a political football since its creation. In 1986, the Firearm Owners Protection Act placed limits on ATF's ability to inspect dealers and keep records that would help identify suspicious purchasing patterns. But with the surge of violence during the 1980s associated with the introduction of crack cocaine, and a shift in the political winds in favor of the Democrats, it became politically possible to strengthen the federal regulatory scheme.

The Brady Handgun Violence Prevention Act, which went into effect in 1994, required that every purchase from a federally licensed dealer be preceded by a background check and eventually established a federal "instant check" system that dealers could access. Also in that year, Congress imposed a ban on the manufacture or import of assault weapons for civilian use, as well as large-capacity magazines. (That ban was allowed to sunset ten years later, although some states have enacted a version of it.) In 1996, the Lautenberg Amendment expanded the list of people proscribed from possessing a firearm to those who had been convicted of misdemeanor crimes of domestic violence.

In recent years, the primary federal forum has shifted from Congress to the courts. Following the success of the state attorneys general in suing the tobacco industry (resulting in the Master Settlement Agreement of 1998), a number of cities filed suit against the gun industry. These suits proposed different theories

Table 2. Time Line of Federal Gun Policy

Era	Crime Patterns	Federal Crime Policy Innovations
1920s	Prohibition-related gang violence Tommy gun era	1919 Federal excise tax on handguns (10 percent) and long guns (11 percent) 1927 Handgun shipments banned from U.S. Mail
1930s	End of Prohibition in 1933 Declining violence rates	1934 National Firearms Act Requires registration and high transfer tax on fully automatic weapons and other gangster weapons 1938 Federal Firearms Act Requires anyone in the business of shipping and selling guns to obtain a federal license and record names of purchasers
1960s	Crime begins steep climb in 1963 with Vietnam era & heroin epidemic Assassinations Urban riots	1968 Gun Control Act Bans mail-order shipments except between federally licensed dealers (FFLs) and strengthens licensing and recordkeeping requirements Limits purchases to in-state or neighboring-state residents Defines categories of people (felons, children) who are banned from possession Bans import of Saturday Night Specials
1970s	Violence rates peak in 1975 (heroin) and again in 1980 (powder cocaine era)	1972 Bureau of Alcohol, Tobacco and Firearms created and located in the U.S. Department of Treasury (ATF)
1980s	Epidemic of youth violence begins (roughly) in 1984 with introduction of crack	1986 Firearm Owners Protection Act Eases restrictions on in-person purchases of firearms by people from out of state Limits FFL inspections by ATF, and bans the maintenance of some databases on gun transfers Ends manufacture of NFA weapons for civilian use
1990s	Violence rates peak in early 1990s, begin to subside School rampage shootings	1994 Brady Handgun Violence Prevention Act Requires licensed dealers to perform a criminal background check on each customer before transferring a firearm. 1994 Partial ban on manufacture of assault weapons and large magazines for civilian use 1996 Congress bans the Centers for Disease Control (CDC) from promoting gun control, and effectively stops CDC from funding research on gun violence 1996 Lautenberg Amendment bans possession by those convicted of misdemeanor domestic violence
2000s	Crime and violence continue to decline	2004 Assault weapons ban is allowed to sunset 2005 Congress immunizes firearms industry against civil suits in cases where a gun was used in crime 2008 *Heller v. District of Columbia* for the first time establishes personal right under the Second Amendment

Source: Cook 2013.

of mass tort, but had the common goal of using the courts to do what the legislatures would not when it came to regulating the design and marketing of firearms (Lytton 2005). In 2005, Congress intervened to stop this litigation by taking the rather extraordinary step of immunizing the gun industry from lawsuits where the damages had resulted from misuse of a gun (Protection of Lawful Commerce in Arms Act, PL 109–92).

In a different way, the courts nonetheless become an important arena for the fight over gun control. With the *Heller v. District of Columbia* decision in 2008, the U.S. Supreme Court for the first time discovered in the Second Amendment a personal right to keep a handgun in the home for self-protection, suggesting that this personal right might also bar other sorts of regulations. Two years later, in *McDonald v. City of Chicago*, the Court ruled that the constitutional restriction also applied to states and local governments beyond the federal district. Gun rights advocates have now brought a flood of litigation challenging nearly every sort of restriction on gun design, possession, transactions, and use. The courts of appeal after *Heller* have been nearly uniform in giving the government substantial deference with regard to firearms regulation. Nearly 95 percent of post-*Heller* Second Amendment claims have failed. At this writing, we still have no clear indication of what the Supreme Court will end up doing to resolve all of the open questions about the newfound freedom created by *Heller* and *McDonald* (Cook, Ludwig, and Samaha 2011; Rosenthal and Winkler 2013; Blocher and Miller 2016).

Trends in State-Level Regulation

Much of the action in gun control has been at the state and local level (Blocher 2013). Cities have traditionally regulated the place and manner of gun carrying and discharge. States have imposed a variety of requirements or bans on transfers, possession, and carrying, focusing in particular on handguns. For example, New York State's Sullivan Act of 1911 mandated a license for anyone wishing to possess or carry a handgun; North Carolina in 1919 required that anyone seeking to acquire a handgun obtain a pistol permit after satisfying local officials of the buyer's good moral character and need for a handgun for defense of home or self-protection.

In recent years, the National Rifle Association and its allies have been highly effective in persuading the great majority of states to relax their regulations. Most states have now adopted preemption laws (banning local governments from imposing regulations that go beyond the state law), and have eased or erased restrictions on carrying concealed firearms. On another front, about half the states have adopted some version of the Stand Your Ground law, which allows people to use deadly force to defend themselves if they feel threatened, even if they are in a public place and have a realistic option to retreat (McClellan and Tekin 2012; Cheng and Hoekstra 2012).

Thus the gun rights movement has made broad gains in erasing the modest level of control on gun carrying and use that had traditionally been applied by state and local governments. So far, however, federal regulations on gun design and transactions, and on who can legally be in possession, have remained in place, and some states have strengthened their regulations in those areas. Data systems for background checks remain imperfect. Yet these systems have been improved since the Brady Act was first put in place, so that would-be buyers with a serious criminal record or a disqualifying history of sufficiently serious mental illness are more likely to be blocked from buying a gun from a dealer.[13] That said, such individuals may well be able to pick up a gun in the underground market.

TRANSACTIONS THAT ARM DANGEROUS OFFENDERS

The 270 million guns in private circulation are owned by fifty-five million adults. Some of those current owners will end up using their guns in crime, but in a sense the greater threat to public safety comes from the fact that these guns form a reservoir that supplies guns to fu-

13. Nationwide, the number of states that do not submit mental health records has fallen from nearly half in 2010 to just four as of 2015 (see Everytown for Gun Safety 2015).

ture delinquents, gang members, convicted felons, and other offenders. Criminal careers tend to be quite brief—by one estimate, an average of five years for those who begin committing property and violent crimes as youths (Blumstein, Cohen, and Hsieh 1982)—and each new crime cohort must acquire their guns if they are to be armed. Some evidence suggests that the elapsed time between the acquisition of a particular gun and use of that gun in crime is typically a matter of weeks or months.[14] That evidence suggests that the *transactions* that arm offenders should be a critical focus of policy and law enforcement concern. If these transactions could be successfully interdicted, the rate of gun crime would dwindle rapidly. That observation motivates our interest in the markets in which the relevant transactions take place.

As we have seen, American regulations on firearms transactions and possession are intended to reduce the social cost of misuse but to preserve ready access to guns for the great majority of the adult public. Felons, illegal aliens, and other groups deemed to be dangerous are banned from possession, and some types of weapons—such as Tommy guns and sawed-off shotguns—are very closely regulated. Interstate shipments are limited to federally licensed dealers (FFLs), and licensed dealers are required to run background checks on buyers and to keep records of transactions that can be checked by law enforcement. Some states supplement these federal regulations but preserve the principle of general access. It is intrinsically difficult to prevent disqualified people from obtaining the guns they want when most Americans are entitled to possess all they want. But that the regulations can be and are widely circumvented does not imply that they are entirely ineffective. Indeed, evidence indicates that some existing regulations curtail gun use in crime.

About fifteen million new firearms are sold each year for private use (see figure 2), and several million more transactions involve used firearms. Most of these transactions are legal. Illegal sales and transfers include thefts, transfers to people who are disqualified because of their youth or criminal record, and transactions that are in technical violation of firearms regulations (for example, a state regulation requiring that the buyer have a permit). The available evidence (meager though it is) suggests that a large percentage of the transactions that arm dangerous offenders are illegal under current law (Braga and Cook 2016).

Also relevant is whether the transaction is in the primary market—a documented sale by a licensed dealer—or in the informal secondary market. Figure 3 attempts to represent these distinctions and locate the underground transactions that arm dangerous offenders. To the extent that illegal transactions play a prominent role in arming youths, gang members, and violent criminals, enforcement of existing gun regulations appears to offer an opportunity to reduce gun violence.

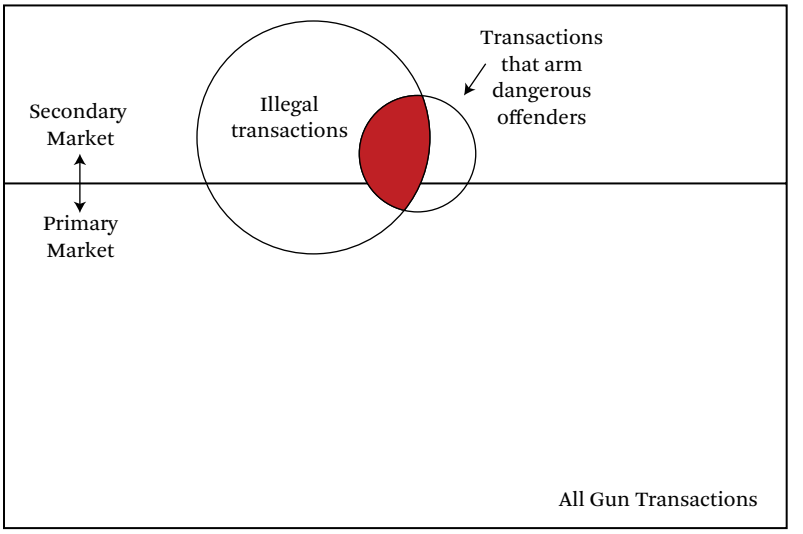
Firearms are quite durable, and the retail market for used guns is active. Some resales occur through a licensed gun dealer, which must follow the same federal rules that apply to transactions involving new guns. Resales between unlicensed individuals (often called private transactions) are only loosely regulated by federal law, with one exception—a gun cannot be shipped directly to an out-of-state purchaser unless that person has a retail license.[15] Federal law also bans knowingly transferring a gun to someone who is disqualified because of their criminal record or other factor. Nineteen states currently require that private transactions involving handguns (or in some states all types of guns) be subjected to a background check, either through a licensed dealer, or through a permit or licensing requirement.

Figure 4 presents a schematic representation of one gun's possible transaction history. It illustrates that guns may change hands several times following the first federal firearms license (FFL) sale, and that some of those subsequent transactions, though typically not documented, may be legal (depending on state and local regulations). Those secondary transactions may include private sales (possibly at a gun show or through the Internet), gifts to fam-

14. An Illinois survey of Chicago offenders conducted by the authors included questions about the gun they used in the current crime. More than half of the guns were acquired within nine weeks of the crime.

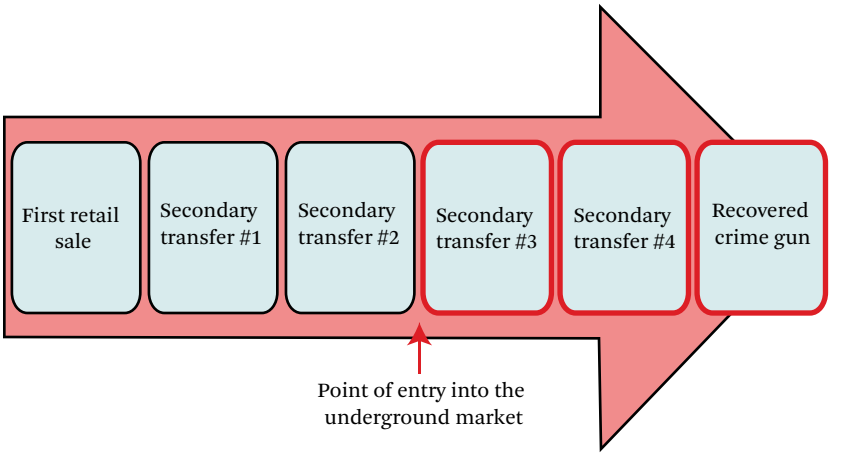
15. In so-called Internet sales of guns, the physical transaction is typically arranged through a licensed dealer.

Figure 3. Transactions: Illegal Versus Dangerous



Source: Authors' tabulation.

Figure 4. Supply Chain of Guns Used in Crime



Source: Cook, Parker, and Pollack 2015.[16]

ily members, a consignment sale through an FFL, or an agreement between friends to share in the use of a weapon. At some point, a transaction—possibly a theft or a sale—may transfer the gun to the hands of someone who is proscribed from gun possession on the basis of criminal record or youth. Subsequent transactions may then move the gun among other offenders until it is ultimately discarded or confiscated by the police. Of course, most every pattern is possible and found to some extent in practice, including cases in which the offender buys directly from a licensed dealer or through a straw purchaser.

Survey evidence provides strong evidence that the gun market is sharply differentiated

16. Reprinted from *Preventive Medicine* 79 (October), Philip J. Cook, Susan T. Parker, and Harold A. Pollack, "Sources of Guns to Dangerous People: What We Learn by Asking Them," 28–36, 2015, with permission from Elsevier.

Table 3. Sources of Guns Used in Current Crime

Source	SISCF State Prisoners n=438 2004[a]	SIFCF Federal Prisoners n=155 2004[a]	SILJ Jail Inmates n=145 2002
Gun store or pawn shop	10.1	12.9	18.8
Flea market or gun show	1.1	2.6	1.7
Friend or family	36.8	31.6	45.4
Fence, street, drug dealer	31.4	22.8	24.2
From victim, burglary	2.7	1.4	2.7
Other	8.2	14.2	7.3
Refused, don't know, blank	5.3	11.6	—
Total	100.0	100.0	100.0

Source: Authors' compilation based on NACJD 2004. Reprinted from Cook, Parker, and Pollack 2015 (see footnote 16).

Note: All numbers in percentages.

[a]Sample restricted to males age eighteen to forty who are in first two years of their prison term and who admit in the survey interview that they had a gun at the time of crime. For the state and federal prison surveys, the results are based only on those respondents who were sentenced in 2002 or 2003, who used or possessed a weapon when the offense occurred, and whose weapon was a gun. All results weighted by the final sample weight for males. For the jail survey, the same definitions applied: used or possessed a gun.

by the characteristics of the individual seeking a gun. Adults entitled to possess a gun are more likely than not to buy from an FFL, that is, a retail dealer. (Later in this issue, Deborah Azrael and her colleagues find that three-quarters of all purchases are from a retail dealer.) For individuals who can pass the requisite background checks, FFLs are a simple and inexpensive channel to purchase a gun of known quality and not associated with a previous crime.

Disqualified purchasers sometimes directly obtain guns from FFLs. Some FFLs are particularly likely to encounter such prohibited possessors or to sell guns later recovered in crimes. Later in this issue, Garen Wintemute provides further information regarding such flows and the characteristics of FFLs likely to become sources for guns recovered in crimes (2017).

Yet prohibited possessors are most likely to obtain their guns in off-the-books transactions, often from social connections such as family and acquaintances, or from street sources such as illicit brokers or drug dealers. Some of these illicit transactions are purchases, but they also take a variety of other forms.

The U.S. Department of Justice has conducted several nationally representative surveys of inmates of state and federal prisons and jails, the most recent of which are from 2004. Gun-involved inmates were asked about the source and type of transaction by which they obtained their most recent gun (see tables 3 and 4). The state prisoner survey is largest and is the focus here, but it is reassuring that the results from the other two surveys are similar (Cook, Parker, and Pollack 2015).

It is rare for offenders to obtain their guns directly from the formal market: only 10 percent of recently incarcerated state prison inmates who carried a gun indicate that they purchased that gun from a licensed dealer (gun store or pawnbroker). Rather, most of the transactions (70 percent) are with social connections (friends and family) or street sources. The latter may include fences, drug dealers, brokers who sell guns, and gangs. Street sources are not necessarily strangers—the survey questionnaire does not ask. And though it is fair to suppose that most of these transactions were illegal for some reason (including the criminal record of the recipient), they are not necessarily so.

Cash purchases and trades constitute about

Table 4. Type of Transaction, Guns Used in Current Crime

Source	SISCF State Prisoners n=438 2004 [a]	SIFCF Federal Prisoners n=155 2004 [a]	SILJ Jail Inmates n=145 2002
Purchase or trade	51.9	49.0	50.4
Theft	4.3	1.3	4.0
Rent, borrow, hold it for someone	15.8	16.8	18.9
Gift	12.1	9.0	9.0
Other	8.8	16.1	14.4
Refused, don't know, blank	7.1	7.8	—
Total	100.0	100.0	100.0

Source: Authors' compilation based on NACJD 2004. Reprinted from Cook, Parker, and Pollack 2015 (see footnote 16).
Note: SISCF = Survey of Inmates in State Correctional Facilities SILJ = Survey of Inmates in Local Jails.
[a]Sample restricted to males age eighteen to forty who are in first two years of their prison term, and who admit in the survey interview that they had a gun at the time of crime. For the state and federal prison surveys, the results are based only on those respondents who were sentenced in 2002 or 2003, who used or possessed a weapon when the offense occurred, and whose weapon was a gun. All results weighted by the final sample weight for males. For the jail survey, the same definitions applied: used or possessed a gun.

half of all transactions. About one in six are temporary arrangements involving a gun owned by someone else, and take the form of borrowing, renting, or holding the gun. Perhaps surprisingly, one in ten guns are gifts—but gifting of guns is also quite common in the population at large.

Finally, the respondent admits to having directly stolen the gun in only a small fraction of cases, so it appears that theft is of scant importance as an immediate source of guns to offenders. Of course, theft may also play a role at an earlier stage of moving guns from the licit to the illicit sector.

The results from this national survey receive qualitative support from the results of a recent survey of inmates of Cook County Jail (Cook, Parker, and Pollack 2015). The gun transactions in which the respondents were involved were typically with family and acquaintances, illustrating the importance of social network as the source of guns (Papachristos, Wildeman, and Roberto 2015; Papachristos 2009; Braga, Papachristos, and Hureau 2010; Papachristos and Wildeman 2013). Relatedly, guns do not change hands in the equivalent of open-air drug markets; buyers and sellers are likely to know each other, or at least to have an acquaintance in common who can vouch for them. The logical implication is that the underground gun market is thin and balkanized, characterized by great variability in price and other transactions costs.

Thus, within the same city, some individuals may have ready access to guns and others no idea how to find one (Cook et al. 2007). That observation may explain the disagreement among observers as to whether guns are readily available in a particular jurisdiction—the right answer may be that guns are readily available to some criminal offenders and not to others. Furthermore, for those buyers who are "connected" and can access the underground market, the economist's famous law of one price does not apply; similar guns sell at a wide range of prices (Hureau and Braga 2016).

Surveys of offenders provide information on the last transaction in the supply chain illustrated in figure 4. The first link in the chain—the sale of the gun when new by a licensed dealer—can be documented in some cities based on ATF trace data on guns confiscated by the police. ATF traces guns by using the serial number to link to a manufacturer or im-

porter, which then provide the distributor and finally the retail dealer. The last stop, for better or worse, is the record kept by that dealer (Cook and Braga 2001).

For the small percentage of crime guns in which the offender purchased the gun directly from a licensed dealer, the trace provides the whole story. Yet for most guns used in crime, the trace only provides information on the original source of the gun. That information is useful in determining the age of the gun and the location of its first sale, and provides one basis for assessing the workings of the underground market.

Evidence That Gun Availability Influences Criminal Misuse

Given the widespread skepticism about whether the gun-rich environment of the United States allows feasible measures to limit offenders' access, it may be useful to provide a sort of proof of concept. Actually, the evidence we have in mind falls short of a proof but remains compelling.

A variety of empirical research suggests that the availability of guns in a community affects the likelihood that a firearm will be used in assaults and robberies. Indeed, rates of gun ownership differ widely across regions, states, and localities—from 13 percent in Massachusetts to 60 percent in Mississippi, according to one set of estimates (Azrael, Cook, and Miller 2004). Current gun ownership influences the use of guns in crime directly—a gun in the home increases the chance that violent domestic relationships will end up involving gunplay and result in death (Campbell et al. 2003). But the prevalence of guns may also affect the availability of guns to active offenders. Burglaries and thefts from vehicles are more likely to include a gun as part of the loot (Cook and Ludwig 2003). In a community in which guns are prevalent, it is more likely that an offender who is seeking a gun will know someone, or know someone who knows someone, who would be willing to lend, sell, or share a gun. Regardless of the scenario, violent crimes in gun-rich communities are more likely to involve guns than in other communities.

A test of the hypothesis that greater gun prevalence induces greater criminal gun use requires a measure of the prevalence of gun possession, a measure that is valid for comparing jurisdictions at a point in time and tracking movements over time. It turns out that in many respects the best index is the percentage of suicides with guns (Azrael, Cook, and Miller 2004; Kleck 2004). Several studies have investigated the effect of gun prevalence, measured by this proxy of firearm suicide divided by suicide, and homicide rates across counties (see, for example, Miller, Azrael, and Hemenway 2002; Cook and Ludwig 2002).

The interpretation of such results is in some doubt. It is difficult to isolate a causal mechanism from analysis of cross-sectional data. Gun-rich jurisdictions, such as Mississippi, systematically differ from those with relatively few guns, such as Massachusetts. The usual approach for addressing this apples and oranges problem has been to statistically control for other characteristics, such as population density, poverty, and the age and racial composition of the population. But these variables never explain very much of the cross-sectional variation in crime rates, suggesting that the list of available control variables is inadequate to the task (Glaeser, Sacerdote, and Scheinkman 1996). Also unclear is whether widespread gun ownership is the cause or effect of an area's crime problem, given that high crime rates may induce residents to buy guns for self-protection. These same concerns are arguably even more severe with cross-national comparisons at any point in time.

Some of the problems with cross-sectional studies can be overcome by using panel data (repeated cross-sections of city, county, or state data measured at multiple times) to compare changes in gun ownership with changes in crime. Compared with Massachusetts, Mississippi may have much higher homicide rates year after year for reasons that cannot be fully explained from existing data sources. But, by comparing changes rather than levels, we implicitly control for many unmeasured differences across states that are relatively fixed over time, such as a "Southern culture of violence" (see Butterfield 1997; Loftin and McDowall 2003). The best available panel-data evidence suggests that more guns lead to more homicides, a result driven entirely by a relationship

between gun prevalence and homicides committed with firearms; association of gun prevalence with nongun homicides or other types of crimes is scant (Duggan 2001; Cook and Ludwig 2006).

It is worth emphasizing that the conclusion from this line of research is not "more guns, more crime." Gun prevalence is unrelated to the rates of assault and robbery (Cook 1979; Cook and Ludwig 2006; see also Kleck and Patterson 1993). The strong finding that emerges from this research is that gun use *intensifies violence*, making it more likely that the victim of an assault or robbery will die. The positive effect is on the murder rate, not on the overall violent-crime rate.

These findings raise a basic question. Are there feasible methods for reducing overall gun prevalence? Some jurisdictions have adopted regulations intended to reduce overall handgun prevalence, either through a near ban on acquiring such guns (Chicago, District of Columbia) or by restrictive licensing (New York City, Massachusetts). As noted, handgun bans were ruled unconstitutional by the U.S. Supreme Court in *McDonald v. Chicago* (2010), which extended the Second Amendment ruling in *District of Columbia v. Heller* to states and localities. In any event, it is not clear whether the ban in either Chicago or the District of Columbia was effective in reducing overall prevalence (Cook and Ludwig 2006). Both jurisdictions border states where guns are largely unregulated.

Finally, both government and nonprofit groups have shown enthusiasm for reducing availability through gun buy-back programs. Research on these programs, which are typically short-duration offers of cash or goods in exchange for guns, has suggested that these approaches are not effective at reducing gun violence (Kennedy, Piehl, and Braga 1996; Romero, Wintemute, and Vernick 1998; Rosenfeld 1996). Yet a note of caution is in order. The effects of a gun buy-back will likely depend on the circumstances.

Australia's 1997 buy-back of semiautomatic rifles is often cited as one that reduced gun violence. Yet that effort bore little resemblance to the usual American-style buy-back. The Australian buy-back was a prelude to a near-comprehensive ban on private ownership of these weapons. Thus owners could not exploit the buy-back to exchange their old gun for a new one, nor were the sellers to the buy-back limited to those who had no further use for the weapon. Some evidence suggests that, in this extreme case, the buy-back saved lives (Reuter and Mouzos 2003). Most striking, Australia, which averaged about one mass shooting a year before its buy-back, has had none since then (Davey 2016).

In the American context, the relevance of the gun-prevalence studies is not so much to program design as it is to demonstrating that gun availability influences weapon choice by some violent offenders. That conclusion is strengthened by survey evidence, including surveys of arrestees who say they would like to have a gun but do not know how to obtain one (Cook et al. 2007). Oft-heard claims—that guns are not scarce and that in any event criminals will do whatever is necessary to get their guns—appear to be exaggerated. The next question is whether it is possible that regulations targeted at depriving a select group from obtaining guns can be effective if overall availability is not reduced.

Evidence of Effective Regulation

As we have seen, current regulations are effective in keeping offenders from buying their guns at retail dealers, and in influencing interstate trafficking patterns and other aspects of the underground gun market. One consistent pattern is that guns recovered in states that have relatively tight regulations are more likely to come from out of state, and in particular from states with lax regulations (Knight 2013). For example, 85 to 90 percent of the guns recovered in New York City were first sold in another state, and for the most part were first sold in lax states along the eastern seaboard (the I-95 corridor) such as Virginia, Georgia, and Florida (Smith 2016).

Interstate gun flows change in response to a change in regulations. A notable example is the dramatic change in sources of crime guns to Chicago following the adoption of the Brady Act in 1994; the percentage coming from the Deep South states, where gun stores for the first time were required to run background

checks, dropped abruptly by 15 points, replaced by in-state sales (Cook and Braga 2001). Other examples have also been well documented (Braga et al. 2012). In this volume, Anthony Braga uses 1981–2015 Boston data to strengthen these analyses (2017). The likelihood that a Boston handgun would be traced to a Virginia FFL nearly doubled after Virginia repealed its law limiting consumers to one handgun per month. Such evidence helps document the importance of systematic trafficking into jurisdictions with tight controls, though, as noted, the trafficking is not generally on a large scale.

The question is whether regulatory effects on transaction patterns translate into reduced gun violence. A noteworthy example is the Brady Act, which required FFLs to conduct background checks of would-be buyers. Since it was fully implemented in 1998, three million transactions have been blocked as a result of these background checks, for the most part because the customer had a felony conviction. According to one evaluation, however, the direct effect of the Brady Act on homicide rates was statistically negligible (Ludwig and Cook 2000). Closing the secondary market or private sale loophole may be a necessary precondition for effective screening (Cook and Ludwig 2013).

As of this writing, nineteen states require a background check for most private sales of handguns (and in some cases long guns); these checks are accomplished either by requiring buyers to obtain a permit from local government authorities, or by mandating that the transaction be processed by a licensed dealer (Wintemute 2013). This sort of universal background check requirement was proposed by the Obama administration following the Sandy Hook massacre of schoolchildren in 2012 but was narrowly defeated through filibuster in the U.S. Senate.

The strongest evidence that a permit system can be effective comes from an evaluation of the *repeal* of the Missouri law requiring that all handgun buyers obtain a permit from the sheriff. After the law, changes were measureable in the transaction channels that were arming criminals, as, more importantly, was a spike in firearms violence (but no change in nonfirearms violence) unique to Missouri (Webster, Crifasi, and Vernick 2014). The involvement of local authorities in the Missouri law may have been key to its effectiveness—so far none of the laws that simply require private transactions to be channeled through FFLs have been shown to be effective in reducing gun violence. Additional evidence on effectiveness of a universal background check comes from an evaluation of Connecticut's 1995 pistol permit law by Kara Rudolph and her colleagues (2015). These authors report a large drop in gun violence, based on a statistical technique that uses "synthetic" controls.

Strong evidence suggests that expansions in the categories of people disqualified from owning guns could save lives. In 1991, California implemented legislation that disqualified those convicted of violent crimes at the misdemeanor level. A causal analysis by Wintemute and his colleagues finds a substantial reduction in violent recidivism by those convicted of misdemeanor violence after the gun ban than immediately before (2001). Similarly, in 1996 the Gun Control Act was amended to expand the federal ban on felons to include those convicted of misdemeanor-level domestic violence. The ban was implemented at different times in different jurisdictions due to legal challenges, which created a natural experiment for evaluating its effectiveness. Using this source of variation, Kerri Raissian finds that the ban reduced domestic murders involving guns, with no effect on nongun murders (2016).

Another area of gun regulation that has been in flux is the disqualification of those who are mentally ill or incapacitated. The Gun Control Act bans gun possession by those who have been "adjudicated as a mental defective," an unfortunate and antiquated phrase that among other things refers to individuals who have at some point been involuntarily committed to a mental institution. The background checks conducted by gun dealers tap into several data bases kept by federal authorities, but most states have not provided the necessary information on a consistent basis. One exception has been Connecticut, which in 2007 began reporting relevant records of mental illness to the federal National Instant Criminal Background Check System (NICS). One analysis found that disqualified individuals were less

likely to be arrested after the data transfer made their history accessible as part of the NICS check (Swanson et al. 2013).

Some commentators have argued for measures that would temporarily prohibit individuals from purchasing or possessing firearms after a short-term involuntary hospitalization, or by individuals whose behavior presents known risk factors for violence. Jeffrey Swanson and his collaborators suggest that such temporary firearm prohibitions might apply to individuals convicted of a violent misdemeanor, those subject to a temporary domestic violence restraining order, and those convicted of certain drug- and alcohol-related offenses. These authors suggest that focusing on known and identifiable risk factors rather than psychiatric diagnoses and treatment histories would more effectively identify people who pose a danger to themselves or others. Preliminary evidence is now emerging regarding the likely impact of such policies (Swanson et al. 2015).

In sum, gun regulations have in various instances been carefully evaluated and shown effective at reducing criminal misuse of firearms. The lesson is not that all such regulations are effective, but rather that regulation can be effective and should not automatically be written off as futile given the alleged efficiency of the underground market. But there is no such thing as a free lunch when it comes to regulatory effectiveness, and in particular jurisdictions that adopt regulations but do not enforce them will be disappointed (Braga and Hureau 2015).

Enforcement Options

Interdicting transfers within the illicit sector has been a low-priority mission for most police departments. Because experience with local investigations directed at stopping the redistribution of guns among offenders is so scant, it is not clear what can be accomplished in this arena.

In particular, drug enforcement experience provides few lessons and sometimes a misleading guide. Compared with markets for cocaine and heroin, transactions in guns are relatively few (Koper and Reuter 1996). Organized crime groups cannot monopolize the distribution of guns to offenders because many offenders can source them from acquaintances or relatives who have legal access to the primary market.

Indeed, a better analogy might be the market for underage beer sales; the potential sources of beer to teenagers include almost every adult, and the actual source in any one transaction is likely to be a family member or friend who does not charge much, if anything, for the service. More opportunity exists for underground brokers or traffickers in tightly regulated jurisdictions, but even in cities such as Boston, New York, and Chicago, evidence of individuals who are making a living solely by servicing the gun market is minimal. Supplying guns tends to be a sideline.

To the extent that the underground market does have many small suppliers and little structure, it is an unappealing target for law enforcement, where investigators and prosecutors are looking for clear villains and big cases (Braga et al. 2012). Still, some law enforcement tactics may provide valuable leverage in reducing supply to dangerous people.

Regulatory Enforcement Against Licensed Dealers

Federally licensed dealers are authorized to receive interstate shipments of guns. They are also clearly in a position to serve as an important source of illicit supply if they are inclined to ignore regulations governing transactions and record keeping. Without a doubt, some of the sixty thousand licensed dealers are scofflaws, some of them in a big way. ATF's investigations have turned up cases where a dealer is a major direct source of guns to criminal organizations (Braga et al. 2012). In several cases specific dealers have been shut down or "reformed" by investigations and lawsuits brought by cities (Webster et al. 2006; Webster, Vernick, and Bulzacchelli 2006). Several studies have documented the willingness of clerks and gun store owners to help callers who indicate they are disqualified or intend to use guns in crime (Sorenson and Vittes 2003; Wintemute 2010). Garen Wintemute's article in this issue, however, provides evidence that even well-meaning dealers may end up with a relatively high percentage of sales ending up as crime guns, with the percentage being sensitive to their mix of customers (2017).

ATF has the lead responsibility in the regulatory enforcement of licensed dealers, but is limited by law and by an intentionally constrained budget from taking effective action. In some jurisdictions, state or local agencies also have regulatory authority over dealers. Violations appear to be widespread, but whether a stepped-up enforcement regime would ultimately reduce gun crime has not been demonstrated directly.

As reported, surveys suggest that gun stores are not an immediate source of guns to more than say, 10 percent of offenders, although straw-purchase arrangements appear quite common (Cook et al. 2015). But scofflaw dealers may well play a more important role several steps back in the supply chain, providing guns to traffickers and other go-betweens.

Internet Sales and Gun Shows

A large volume of gun transactions flows through gun shows (akin to flea markets for guns), and the Internet is increasingly connecting buyers and sellers on sites such as ArmsList and GunBroker.com. Gun shows are more closely regulated in some states than others, with a marked difference in the prevalence of suspect transactions. Online sites are largely unregulated in practice and do support illicit transactions.[17] Despite the apparent advantage to disqualified buyers, gun shows and the Internet scarcely figure in offenders' self-reports of where they obtain their guns. But it is reasonable to believe that some trafficking pipelines exploit gun shows. Internet sales have also played some role in the provision of guns to perpetrators of mass homicides. These perpetrators may be legally entitled to purchase firearms, but may be more readily identified and thwarted were they forced to pursue in-person transactions.

Interstate Traffickers and Local Brokers

In tightly controlled jurisdictions, out-of-state sources are important to the local underground gun market. ATF takes the lead in trafficking investigations, sometimes working in conjunction with local law enforcement. Because trafficking is typically conducted by individuals and small partnerships, developing cases with enough heft to be of interest to U.S. attorneys may be a challenge. The same analysis applies to local brokers who serve to connect buyers and sellers in tight-control jurisdictions (Cook et al. 2007). These small businesses are unlikely to attract much interest or attention from the police and prosecutors. In particular, buy and bust programs are rare.

Straw Purchasers and Diffuse Private Transactions

Most offenders avoid purchasing directly from gun stores, presumably because they are disqualified and not prepared to use false identification—or simply do not want a record kept of the sale. One alternative that preserves the convenience of shopping at a store is to enlist someone who is qualified to make the purchase on a disqualified person's behalf.

If that arrangement is worked out in advance, then the straw purchaser has committed a crime by signing the form that indicates that he is buying the gun for himself. But this is a minor crime, difficult to prove, and rarely prosecuted. One indication of how common it is comes from a recent study of trace data from guns recovered by the Chicago Police. Fully 15 percent of the newer guns (less than two years since first sale) recovered from gang-involved offenders were originally purchased by a woman and then recovered from a man (Cook et al. 2015). Although that does not prove that the woman was acting as the man's agent, it is a plausible scenario.

Some straw purchases could be stopped by vigilant clerks (if the true buyer were actually in the store with the straw buyer), and it is possible that regulatory pressure, including requirements such as the mandatory videotaping of gun sales, may help encourage that sort of vigilance. In many cases, however, the true buyer will not be evident at the time of the purchase, and the second transfer (from straw purchaser to the true buyer) becomes just one of millions of private transactions that are generally unregulated.

17. Everytown for Gun Safety's "The Wild Wild Web" documents the prevalence of disqualified buyers for internet sales in Nevada (https://everytownresearch.org/reports/the-wild-wild-web/, accessed July 7, 2017).

We believe that diffuse transactions and small-time brokers and traffickers are suitable targets for concerted enforcement. In suggesting more effective enforcement measures, we are mindful of concerns that enhanced gun enforcement might aggravate America's mass incarceration problem. Overly punitive policies, particularly in the domain of illicit drugs, have undermined community trust and public legitimacy of any policy that might increase incarceration. That is a fact of American life and casts some shadow over every criminal justice proposal to tougher enforcement, even those that could credibly reduce violent crime.

These tensions are real but can be sensibly managed in the domain of gun policy. A voluminous criminology literature suggests the likelihood of apprehension and punishment are more powerful levers than the severity of punishment itself in deterring crime (Cook 1980a; Nagin 2013). What is required are policies that puncture the sense of impunity among participants in underground gun markets. More effective enforcement policies may not require many actual convictions of gun sources to send a message that these gun transfers are criminal and do carry some salient legal risks.

Interestingly, our interviews with inmates of Cook County Jail uncovered a widespread perception that police agents were making undercover buys and that selling to a stranger without careful vetting was a mistake (Cook, Parker, and Pollack 2015). The reality is that the Chicago Police Department rarely buys guns undercover. So it appears that even a small effort will make gun sellers more careful not to move outside their social network—a good thing if the goal is to stop the proliferation of guns across networks.

Measures implemented in other policy domains suggest other strategies and infrastructures that might help identify scofflaw dealers, straw purchasers, and other individuals at high-risk of low-level offending. Prescription drug monitoring programs (PDMPs) have identified hundreds of thousands of high-risk patients, thousands of high-risk prescribing medical professionals, and significant numbers of scofflaw medical facilities and pharmacies that contribute to the underground market for prescription opioid medications. PDMPs are associated with reduced prescription opioid diversion and misuse yet impose manageable burdens on legitimate patients and prescribers (Bao et al. 2016). A similar program in the gun area would require a registry of gun sales that exists only in California and a handful of other states.

But, in principle, any jurisdiction could proactively seek to identify the sources of guns to armed offenders who are arrested. The quid pro quo for gaining the defendants' cooperation may be a bargain to reduce the sentence, which may be difficult to justify unless creating a legal liability for gun sources were viewed as a high priority.

LOOKING AHEAD

Fifteen million new guns are sold each year, together with many millions of used guns that are also sold or otherwise change hands. Some unknown number of those transactions are illegal because of regulatory violations or because the "transaction" is a theft. Although these illegal transactions likely represent a small fraction of overall gun sales, they make up a large share of the transactions that end up arming delinquents, gang members, and other dangerous offenders. Even though regulations on gun transactions are widely violated, they are not necessarily ineffective. Evidence is compelling of their (partial) effectiveness in particular cases and in particular ways.

There has been some confusion about just what we can hope to accomplish through gun regulation and enforcement. It is often said that guns cause violence. Although that may be true in particular instances, it is not true that changes in gun availability will have a discernible effect on the rates of assault, robbery, and rape. The primary consequence of an assailant's using a gun rather than a knife or club is the likelihood that the attack will be fatal. Guns *intensify* violence. In that sense, separating guns from violence can be viewed as a mitigation strategy. The cost of any given volume of violence is keenly sensitive to the types of weapons used.

This volume seeks to develop a better understanding of how dangerous people obtain their guns. It explores programs and policies

designed to make gun access by this group more difficult. The focus on gun transactions to dangerous people concentrates attention on just one part of the problem of gun violence. We are very much aware that a significant share of gun crime is committed by people who are not obviously or actionably "dangerous," and thus not disqualified from owning a gun. We also are aware that suicide makes up a large share of the gun-violence problem, and that overlap between suicide and the underground gun market is negligible. Even if illegal transactions were somehow eliminated, the problem of gun violence would remain—but it would be greatly diminished.

Even those who endorse the goal of keeping guns out of the hands of youths, gang members, and active offenders may despair, believing that the large inventory of guns in private hands, combined with lax regulations, has the effect that as a practical matter guns are readily available to all. From the evidence, however, we conclude that the truth is more nuanced. The United States is remarkably differentiated when it comes to the prevalence of gun ownership, and weapon choice by criminals is correlated with ownership prevalence; a natural interpretation is that robbers and other violent criminals find it more difficult to obtain a gun in Massachusetts than New Orleans. Furthermore, fine-grained studies within a single jurisdiction suggest that some criminals are more closely connected to gun sources than others, and have lower costs of finding and obtaining one. Those who take it as a matter of faith that markets operate efficiently to bring together buyers and sellers may be surprised by the reality of the underground gun market in Boston or Chicago, where an offender who is not well connected may have a difficult time obtaining an affordable gun and as a result go unarmed some of the time. Finally, evidence from impact evaluations is compelling that some firearms regulations have been effective in reducing gun violence.

To be effective, regulations must be enforced. If a gang member's friend can earn $50 making an illegal straw purchase for him, why not do it? The answer may depend on whether the friend believes that the police will take an interest in tracking down the source of the gun if the gang member is arrested for a robbery or assault. Even occasional enforcement actions may be helpful in sending a message that such gun sources are not immune from legal consequences.

Empirical research is essential if myths about the gun market are to be confronted by good evidence. The articles in this issue are offered in that spirit.

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