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THE TRADE IN TOOLS: THE MARKET FOR ILLICIT GUNS IN HIGH-RISK NETWORKS*

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Illegal guns circulating among high-risk networks represent a threat to the security and well-being of urban neighborhoods. Research findings reveal that illegal firearms are usually acquired through a variety of means, including theft and diversions from legitimate firearms commerce. Little is known, however, about the underground gun markets supplying the gang and drug networks responsible for a large share of gun violence in U.S. cities. In this article, we take a mixed-methods approach, combining trace analyses of recovered handguns with ethnographic interviews of high-risk gun users to develop new insights on the entry of guns into three criminal networks in Boston. We find that guns possessed by Boston gang members are of a different character compared with other crime guns; these guns are more likely to be older firearms originating from New Hampshire, Maine, and I-95 southern states. The results of our qualitative research reveal that gang members and drug dealers pay inflated prices for handguns diverted by traffickers exploiting unregulated secondary market transactions, with significant premiums paid for high-caliber semiautomatic pistols. Taken together, these findings provide an analytic portrait of the market for illicit guns among those most proximate to violence, yielding novel empirical, theoretical, and practical insights into the problem of criminal gun access.

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Guns are the tools of the trade in the anomalous homicide problem in the contemporary United States. More than two thirds of U.S. homicides are perpetrated by guns, and more gun homicides are committed each year in the United States than in all other high-income Organization of Economic Co-operation and Development (OECD) countries combined (Richardson and Hemenway, 2011). In 2011, there were more than 11,000 gun homicide victims and some 467,300 victims of nonfatal firearm crime in the United States (Planty and Truman, 2013). The available research evidence demonstrates that the involvement of guns makes quarrels, robberies, domestic disputes, and other conflicts deadlier (Cook, 1991; Hemenway, 2004; Miller, Azrael, and Hemenway, 2013). The picture that emerges shows that those engaged in violent crime in the United States are not more intent on killing compared with their counterparts in comparable nations, they simply have better access to powerful tools—particularly handguns—that make death a more likely outcome of an assault or a conflictual encounter (Cook, 1987; Zimring, 1968, 1972). Thus, lives would be saved by reducing gun use in violent crimes. Developing a better understanding of criminal access to guns—especially among those most likely to be involved in serious violence—represents an important first step in achieving this reduction.

As scholarly knowledge regarding the concentration of gun homicide has deepened, the question of criminal gun access has grown in importance, both as a practical matter for a society burdened by high levels of gun violence and as a theoretical matter for criminological understanding of homicide. Indeed, as gun violence has been examined at increasingly finer levels of resolution—particularly at the group and social network levels—scholars have revealed the importance of groups and networks in shaping overarching patterns of gun violence. Thus, although gun homicides in many cities in the United States are mainly driven by conflicts involving gangs, drug-selling crews, and other street groups active in crime (Blumstein, 1995; Braga, 2003), the results of social network analyses have more recently demonstrated violence concentration even within the context of such gang conflicts. These findings establish that a substantial share of citywide gun violence is highly concentrated in specific components of co-offending networks and that the social proximity of individuals within the network to gunshot victims significantly influences their risk of shooting victimization (Papachristos, Hureau, and Braga, 2013; Papachristos, Wildeman, and Roberto, 2015). Many—but not all—individuals involved in gun crime have criminal histories, including felony and/or misdemeanor domestic violence convictions, that prohibit them from legally acquiring and possessing firearms (Braga and Cook, 2016; Cook, Ludwig, and Braga, 2005). Two broad observations can be made from the vantage point afforded by this intersection of research into gun access and gun violence. First, the United States has a clear problem with the illegal acquisition of guns by people who should not have access to them. And second, the supply of illegal guns to those embedded in high-risk networks is a critical mechanism in shaping rates of deadly violence in American cities and beyond.

Research findings demonstrate that illegal guns are usually acquired through a variety of pathways, including theft, illegal diversions from legitimate firearms commerce, as well as off-the-books transactions, often from social connections such as family and acquaintances or from street sources such as illicit brokers or drug dealers (Braga et al., 2002; Cook, Parker, and Pollock, 2015). Within the domain of gun-control policy, a class of supply-side policy instruments is designed to influence differentially who has access to different kinds of firearms (Cook, Braga, and Moore, 2011). These supply-side interventions seek to reduce gun crimes by keeping guns out of the wrong hands without

denying access to legitimate owners or infringing on legitimate uses of guns. Yet maintaining legal firearms commerce for law-abiding citizens comes with an unfortunate side effect: the problem of illegal gun transfers. Loopholes in existing gun laws weaken the accountability of licensed gun dealers and private sellers alike, facilitating illegal transfers by scofflaw licensed gun dealers and generating difficulty in screening out ineligible buyers. Most importantly, these loopholes result in a vigorous and mostly unregulated secondary market—gun sales by private individuals—in which secondhand guns change hands (Cook, Molliconi, and Cole, 1995). Between 30 and 40 percent of all gun acquisitions are off-the-books transactions in the secondary market (Cook and Ludwig, 1996).

Although scholars have produced valuable understanding of the basic contours of criminal gun acquisition, not much is known about gun access among those most proximate to violence, such as gang members, and the broader activities of those who make underground gun transactions possible, such as brokers and gun traffickers (Cook, Parker, and Pollock, 2015). In this study, we take a mixed-methods approach to generate new insights into the problem of criminal gun access by studying the gun acquisition patterns of three high-risk networks in Boston. First, we analyze administrative data on firearms recovered and submitted for tracing by the Boston Police Department (BPD) to describe the types of guns possessed by local gang members and nongang possessors as well as the retail purchase and sales patterns of these guns. Second, we use ethnographic interviews with network members to identify firearms circulating among three distinct high-risk Boston criminal networks, tracking the details of the prices paid for these guns and how they were acquired. Finally, we augment our interview data with two case studies of gun traffickers responsible for diverting guns from legal commerce to gang members and drug hustlers in the networks that were studied.

The results of our citywide quantitative analysis show that the guns possessed by Boston gang members are distinctive in type and provenance from other guns recovered in crime, lending support to the hypothesis that gun access among those at elevated risk of violence is shaped by processes that diverge from the functioning of a unitary citywide "gun market." Framed by these quantitative observations, our interview data reveal that those embedded high-risk networks have steady access to handguns diverted from secondary market sources imported from other states. And by means of a unique pricing analysis, we find that network members pay inflated prices for secondhand guns, uncovering signs of a price structure that simultaneously suggests enduring connections to the formal legal market as well as important departures from it that inform broader understanding of gun transactions. The synthesis of quantitative and qualitative approaches represented in this study affords a unique opportunity to construct analytically what has been inferred in previous studies: a portrait of a local gun market. The novel theoretical and empirical insights brought forth in the development of this portrait are important in unlocking deeper comprehension of the problem of criminal gun access and its role as a mechanism of criminal homicide and social inequality.

^{1.} Current loopholes in federal firearms laws include 1) Transfers of secondhand firearms by private sellers are not regulated, 2) no standards for the number of firearm transfers made per year that would require a federal license to sell firearms, and 3) compliance inspections of federally licensed firearms dealers are limited to once per year (Cook, Braga, and Moore, 2011).

GUN MARKETS: DEMAND, SUPPLY, AND PRICE OF ILLEGAL GUNS

DEMAND FOR GUNS BY HIGH-RISK POSSESSORS AND GANG MEMBERS

At first glance, explaining the demand for illegal guns seems straightforward. When asked directly, illegal possessors—whether adults or juveniles, in custody or in the community, in surveys or in interviews—typically state that they want guns for self-protection (Fagan and Wilkinson, 1998; Harcourt, 2006; Lizotte et al., 1994; Sheley and Wright, 1995; Wright and Rossi, 1994). The underlying meanings of self-protection, however, require some unpacking. On the one hand, research findings highlight that the self-protecting desire to carry a gun is born of a calculated choice to gain strategic advantage in the threatening—but also opportunistic—situations that make up the life worlds of those involved in street crime (Sheley and Wright, 1995; Wright and Rossi, 1994). In this view, the meaning of protection is tilted toward active preparedness for a variety of potential criminal encounters—with victims, other aggressors, and even possibly the police. On the other hand, scholars that describe the demand for guns in disadvantaged urban areas stress the importance of "background" conditions in spurring gun demand. These researchers emphasize the ecology of danger and fear in disadvantaged neighborhoods that has resulted in 1) the diffusion of guns as a necessary self-defense tool (sometimes even among young people otherwise not involved in "street" activities) and 2) the socialization of young people in these contexts—particularly by (older) peers toward understanding gun carrying as "natural," including the learning of situational scripts that require guns to carry out properly (Anderson, 1999; Fagan and Wilkinson, $1998).^{2}$

There is good reason to consider gangs and other high-risk groups as important contexts in their own right in shaping demand for guns. The results of recent research have shown gangs to be critical mechanisms in explaining both the stability of gun violence in disadvantaged neighborhoods and its transmission via spatial and social network processes (Papachristos, 2009; Papachristos, Hureau, and Braga, 2012). In addition to their disproportionate use of guns in homicide (Block and Block, 1993; Klein, Maxson, and Cunningham, 1991), gangs further seem to influence the gun-carrying patterns of the people involved with them. Thornberry et al. (2003) highlighted the important distinction between gun ownership and gun carrying. Drawing from the Rochester Youth Development Study, the authors found that gangs facilitate gun ownership, but especially gun carrying, among their associates (see also Bjerregaard and Lizotte, 1995). After controlling for individual-level characteristics, individuals involved in gangs were between 7 and 12 times more likely to carry a gun than were their nongang counterparts. Scholars conducting interview studies with youth in correctional facilities have similarly associated gang membership with the carrying of multiple firearms (Harcourt, 2006).

The presence of illegal gun markets in urban environments facilitates access to gang and nongang youth alike, with the tragic consequence of increasing the risk of violence victimization for gun possessing youth—even those not involved in gangs (e.g., Esselmont, 2014; Loughran et al., 2016; Richardson, Brown, and Van Brakle, 2013).

ILLEGAL SUPPLY OF GUNS TO HIGH-RISK POSSESSORS AND GANG MEMBERS

Some of the most influential research aimed at establishing how high-risk possessors obtain guns has drawn on now-dated survey data on incarcerated felons, juveniles in secure facilities, and high school students (Sheley and Wright, 1995; Wright and Rossi, 1994). The results of these studies suggest that theft and informal "off-the-books" transactions made through family, friends, and varying black market origins were the primary sources of guns for high-risk possessors. The outcomes of other studies have confirmed that theft does seem to play an important role in the supply of illegal guns, with current estimates suggesting approximately 250,000 guns are stolen in the United States per year (Langton, 2012). The results of recent analyses of data drawn from the 2004 Survey of Inmates in State Correctional Facilities (SISCF), the 2004 Survey of Inmates in Federal Correctional Facilities (SIFCF), and the 2002 Survey of Inmates in Local Jails (SILJ) demonstrate that very few illegal gun users seem to acquire their guns directly through theft. Among male respondents ages 18 to 40 who were in the first 2 years of their prison term and admitted in the survey interview that they had a gun at the time of crime, Cook, Parker, and Pollock (2015) found that only 4 percent reported directly stealing their most recent crime gun. These same authors further documented that 10 percent of recently incarcerated state prison inmates who carried a gun indicated that they purchased that gun from a licensed dealer, such as a gun store or pawnbroker (Cook, Parker, and Pollock, 2015). Most transactions—an estimated 70 percent—were with social connections (friends and family) or with "street" sources (fences, drug dealers, illicit gun brokers, and gangs).

Other research findings reveal that prohibited possessors circumvent laws and regulations governing legal firearms commerce to acquire guns. Much of this evidence comes from the results of analyses of Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) firearm trace data and firearms trafficking investigations that indicate some percentage of the guns used in crime were recently diverted from legal firearms commerce (Braga et al., 2012; Cook and Braga, 2001; Pierce et al., 2004). The main findings of this body of research can be summarized by five key points. First, new guns are recovered disproportionately in crime (Cook and Braga, 2001; Pierce et al., 2004; Zimring, 1976). Second, some licensed firearm retailers (federal firearms licensees or FFLs) are frequent sources of crime guns; these retailers are linked to more guns traced by ATF than would be expected from their overall volume of gun sales (there could be many reasons for these patterns; see Wintemute, Cook, and Wright, 2005). Third, under test conditions, significant proportions of licensed retailers and private-party gun sellers will knowingly participate in illegal gun sales (Sorenson and Vittes, 2003; Wintemute, 2010). Fourth, on average, approximately one third of guns used in crime in any community are acquired in that community, another third come from elsewhere in the same state, and a third are brought from other states (Cook and Braga, 2001). Fifth, there are long-standing interstate trafficking routes for crime guns, typically from states with weaker gun regulations to states with stronger ones. The best known of these is the Interstate 95 (I-95) "Iron Pipeline" from the Southeast to the Middle Atlantic and New England states (Cook and Braga, 2001; Pierce et al., 2004).

The results of analyses of ATF firearm trafficking investigation data reveal that gun traffickers exploit a porous legal firearms commerce system. For instance, in a recent

analysis of 2,608 gun-trafficking investigations made by ATF between January 1, 1999 and December 31, 2002, researchers found that more than 117,000 firearms were diverted from legal to illegal commerce (Braga et al., 2012). They identified the primary guntrafficking pathways as scofflaw and negligent firearms dealers, "straw man" legal purchasers who provide guns to criminals, and illegal diversions through secondary market sources such as gun shows, flea markets, and want ads. The findings from the analysis also revealed the organized theft of firearms from licensed dealers, common carriers, and residences as illegal diversion pathways. Moreover, Braga et al. (2012) found that 73 percent of the cases involved the diversion of 20 or fewer firearms and concluded that most—but not all—gun-trafficking investigations involve a small number of firearms. The largest gun-trafficking case, however, involved the illegal diversion of some 30,000 firearms by a corrupt FFL working with several unlicensed dealers in gun show settings.

In a more recent analysis of ATF trace data for crime guns recovered by the Chicago Police Department between 2009 and 2013, Cook et al. (2015) found that the guns recovered from gang members were relatively old (median age was 10 years from first retail sale), suggesting that they had gone through a series of secondary transactions before being acquired by the gang owner. What is more, some 60 percent of traced guns associated with Chicago gang members were first purchased from licensed dealers in other states, especially in nearby Indiana—a state known for its permissive gun laws. Cook et al. (2015) concluded that if law enforcement is to be effective at reducing access to guns by gang members, it should focus on the intermediaries in the underground market—straw purchasers, brokers, and traffickers. As such, alongside further analyses of trace data, insight into the functioning of these intermediaries must be developed through qualitative approaches. After all, there is little in the way of administrative data that would provide direct guidance on the workings of the underground market and its actors.

In spite of the many important scholarly contributions carried out under the banner of research into gun markets, the form that these markets assume is an unsettled question, specifically lacking detail regarding transactions that arm end users of criminal guns. In part, robust definitions or theoretical images of gun markets have been underdeveloped on account of the data sources that have been used to shape the field (i.e., gun recovery analyses and surveys), which have outlined the parameters of supply and demand but have inferred rather than observed the transactions that make up these markets. One important exception is the work of Cook et al. (2007), which used qualitative fieldwork to generate a concrete representation of a Chicago gun market by means of analyzing prospective gun searches by an array of various underground actors, such as thieves, sex workers, drug dealers, and gang members. The authors found evidence of considerable frictions in the market for guns primarily because the underground gun market was both illegal and "thin," indicating that the number of buyers, sellers, and total transactions was small, and relevant information on reliable sources of guns was scarce (Cook et al., 2007). Importantly, a main characteristic of the research was the high number of failed searches—many actors, even within the criminal underworld of a disadvantaged Chicago neighborhood, could not successfully purchase a gun. These findings, in conjunction with the relative ease with which some others acquired guns (i.e., gang members), offer an important clue that gun markets should not be expected to operate under the law of one price, but that price—and access—will be impacted by "who you know."

Supply-side gun market interventions seek to increase the price of guns sold to prohibited persons and to increase the "effective price" of acquiring guns—the time and hassle

required to make a connection to buy guns (Braga and Pierce, 2005; Moore, 1973, 1976). Unfortunately, there is scant empirical evidence on gun prices encountered by illegal consumers in market settings and the factors that influence street prices of firearms. In their assessment of interventions aimed at illegal firearm acquisition, the National Research Council (2005: 86) observed:

No agency or researcher has systematically collected price data over a sufficient amount of time to determine the correlation of prices across gun types over time and thus whether they are appropriately treated as a single market or even a set of linked markets.

The little that is known about gun prices suggests noteworthy markups for guns purchased in underground markets, with higher street prices in cities located in jurisdictions with stronger gun commerce laws and regulations. For instance, Cook et al. (2007) reported that nongang-affiliated Chicago youth reported paying between \$250 and \$400 for low-quality pistols that were available on legal market websites for as little as \$50 to \$100. In an older study, Cook, Molliconi, and Cole (1995) drew on anecdotal evidence provided by law enforcement agencies and reported that a low-quality Davis .380 semiautomatic pistol cost \$90 at a retail outlet, \$250 on the streets of Charlotte or Raleigh (NC), and \$400 on the streets of New York or Washington, DC.

There is, thus, a strong need for a better developed understanding of the specific illegal gun market pathways through which high-risk individuals, such as gang members, convicted felons, and other prohibited persons, acquire guns. In particular, there is scant empirical evidence on the prices paid in illegal gun markets and the varied factors that influence price such as sources, types, and condition of guns. As suggested by the National Research Council (2005), arguments for and against a market-based approach to preventing gun violence are principally based on speculation, not on evidence from research.

RESEARCH METHODS AND DATA

In this study, we bring together two complementary sources of data to develop understanding of the trade in illegal guns at the street level. First, we analyze administrative data on illegal gun recoveries maintained by the BPD. These data provide context for the ensuing qualitative findings and help to improve interpretations of the data collected. Second, we use ethnographic interviewing and some participant-observation fieldwork to catalog the active stock of illegal guns in three distinct social networks involved in crime and violence. Through this fieldwork approach, we further document the prices paid for specific guns, record the kinds of transaction (cash, trade, and other) that brought guns into the network, and identify the sources of specific guns. Finally, we use diagnostic regressions to analyze the qualitatively obtained transaction data in the service of exploring the relationship between gun prices in the formal and illicit markets. After a brief description of the research setting, these methods are presented in detail.

RESEARCH SETTING

Massachusetts is known for having some of the strongest gun laws in the United States. In 2013, the Brady Campaign to Prevent Gun Violence ranked Massachusetts gun laws as the sixth-strongest among gun laws in the 50 states (Brady Campaign, 2013).

Importantly, Massachusetts regulates all secondhand gun transactions by requiring records of ownership transfers, thefts, and losses to be reported to the state (Braga and Hureau, 2015). Massachusetts has also been noted as having a very low prevalence of gun ownership relative to other U.S. states (Azrael, Cook, and Miller, 2004). In a recent survey, only 12.8 percent of Massachusetts households reported owning guns as compared with 32.6 percent of U.S. homes reported owning a gun (Okoro et al., 2005). A 2010 Harvard School of Public Health representative survey of Boston residents estimated that only 3.7 percent of respondents reported that someone in their household owned a handgun (see Braga and Cook, 2016). The research context of Massachusetts, and specifically Boston, can thus be described as a setting characterized by strong gun laws and low gun ownership.

Within Boston, gun violence is highly concentrated among a small number of highrisk places and people and disproportionately driven by gang conflicts. Approximately 5 percent of Boston's street block faces and intersections generated ~74 percent of fatal and nonfatal shooting incidents between 1980 and 2008 (Braga, Papachristos, and Hureau, 2010). These gun violence hot spots were noted to be located in, and proximate to, gang turf and drug market areas. In 2006, only 1 percent of Boston's population between the ages of 14 and 24 were members of street gangs involved in gun violence; however, gang-related disputes generated more than two thirds of all gun homicides, and gang members were involved as offenders, victims, or both in 70 percent of nonfatal shootings (Braga, Hureau, and Winship, 2008). In a recent study, Papachristos, Braga, and Hureau (2012) used social network analysis to study all fatal and nonfatal gunshot injuries in a cooffending network within one disadvantaged Boston community. The analysis revealed that an estimated 85 percent of all gunshot victims were in a single network of gang associates representing less than 5 percent of the community's population.

Findings from research conducted during the mid-1990s revealed firearms associated with youth, especially with gang youth, tended to be semiautomatic pistols, often ones that were newer and apparently recently diverted from retail commerce (Kennedy, Piehl, and Braga, 1996). Many were being brought into Boston from out of state. Boston law enforcement agencies responded to these patterns by implementing a gun market disruption strategy that focused on shutting down illegal diversions of new handguns from retail sources (Braga and Pierce, 2005). The results of an impact evaluation found that the gun market disruption strategy significantly reduced the supply of new handguns to Boston criminals (Braga and Pierce, 2005). The findings from the evaluation, however, also suggested that traffickers may substitute older handguns purchased through secondary market transactions to avoid the enforcement attention dedicated to new guns.

OFFICIAL DATA ON FIREARM RECOVERIES

The Gun Control Act of 1968 (GCA) established requirements that allow a firearm to be traced from its manufacture or import to its first sale by a retail dealer (Cook and Braga, 2001; Zimring, 1975). Firearm tracing by ATF makes it possible, at least in principle, to determine the chain of commerce for a firearm from the point of import or manufacture to the first retail sale (and beyond in states that maintain records of gun purchases). Unfortunately, not all firearms can be traced and firearm trace data have some widely recognized limits. For instance, these data may be limited by police decisions on which recovered guns to submit for tracing (Congressional Research Service, 1992; Kleck

and Wang, 2009). Firearms traces can also be unsuccessful for a variety of reasons, such as incorrect completion of the trace request form by local police, the firearm was too old to trace (pre-1968 manufacture), or the gun had obliterated serial numbers. Most importantly, ATF trace data cannot directly determine whether a recovered firearm was illegally diverted from lawful firearms commerce. Inferences on illegal gun diversion are thus made based on suspicious purchase and sales patterns.

Comprehensive tracing of all firearm recoveries reduces some of the bias in trace data introduced by police decision-making. Jurisdictions that submit all confiscated guns for tracing can be confident that the resulting database of trace requests is representative of a well-defined "population" of guns recovered by police during a particular period of time and a reasonable "sample" of guns used in crime (Cook and Braga, 2001). As such, ATF trace data can provide policy-relevant insights on illegal gun market dynamics when conclusions are based on careful analyses that are coupled with clear acknowledgments of the data limitations (National Research Council, 2005).

Analyses of firearms trace data typically are focused on a critical dimension of the illegal firearms market: "time-to-crime," the time between a firearm's first sale at retail and its subsequent recovery by a law enforcement agency. Law enforcement considers a traced firearm with short time-to-crime, defined as recovery within 3 years of first retail sale, as possibly having been illegally diverted from a retail outlet (Cook and Braga, 2001). Researchers have also identified gun-trafficking indicators associated with short time-tocrime, such as firearms purchases made as part of multiple gun sales, as well as firearms recovered in tight gun control states that were originally purchased at FFLs in loose control states (Braga et al., 2012; Pierce et al., 2004). So-called "junk guns," cheap firearms of low-quality manufacture, have further been associated with gun trafficking; Webster et al. (2013) suggested that their low price enables traffickers to invest little money in guns that can sell for nearly five times more than their retail price in states with the most restrictive gun laws. For the purposes of this analysis, recovered handguns were characterized as "low-quality" firearms if they were manufactured by Hi-Point Firearms, "ring of fire" firearm companies (Bryco, Jennings, Lorcin, Davis, etc.; Wintemute, 1994) or its descendants (Cobra Industries, Jiminez, Talon, Sedco, etc.), or companies popularly recognized as manufacturers of cheap firearms (see, e.g., http://junkguns.com/).

The BPD has been comprehensively submitting all recovered firearms to ATF for tracing since 1991 (Braga and Pierce, 2005; Kennedy, Piehl, and Braga, 1996). Between 2007 and 2013, the BPD recovered and attempted to trace 3,764 firearms. Of these firearms, 58.3 percent (2,196) were recovered from an individual possessor and the remainder was recovered in public places without a known possessor. Firearms recovered from known gang members were determined by matching the names and dates of birth of crime gun possessors to the BPD's gang member database. To be classified as a gang member, the BPD requires that a person has to accumulate 10 points based on a fixed set of criteria that includes self-admitted gang membership, gang tattoos, participation in gang-related crimes, and other factors (see Braga, Hureau, and Papachristos, 2014). Of the firearms recovered from identified possessors, 38.1 percent (837 of 2,196) were determined to be recovered from Boston gang members.

Analysis of these data proceeds as follows. Descriptive statistics were used to summarize the characteristics of all firearms recovered by the BPD from a known possessor during the study time period and the results of ATF tracing. For firearms traced to their first known retail sale by an FFL, selected gun-trafficking indicators, such as time-to-crime,

source states, and characteristics of retail purchasers and recovery possessors, are also presented. Multivariate logistic regression (Aldrich and Nelson, 1984) is then used to examine whether there were any systematic differences between traced firearms recovered from gang members and traced firearms recovered from nongang possessors.

QUALITATIVE DATA COLLECTION METHODS³

This project's qualitative data were produced by repeated interviews and limited participant observation with six respondents, representing three distinct social networks, who agreed to reveal the ways that guns circulated within their social networks. The collection of these data was made possible by uncommon research conditions, in this case, the long-standing relationships of trust and reciprocity between the field researcher (Hureau) and Boston's gang outreach streetworkers and a small number of street gang networks. Thus, the field researcher did not conventionally "enter the field" anew for this project so much as adapt existing fieldwork routines and activate existing field contacts toward the collection of new forms of data.

Although the project was guided by an imperative to produce novel insights regarding guns in circulation among those at highest risk for violence, at the outset of fieldwork, it was simply unclear what types of data could be systematically collected in this research context. Thus, the qualitative research proceeded inductively out of necessity. Fieldwork began when the fieldworker approached two gang outreach workers, each of whom specialized with gang networks in distinct high-violence neighborhoods, to inquire about the general viability of the research project. The outreach workers believed that the research could be performed if the fieldworker could connect to appropriate respondents, and thus, they were asked to help the field researcher reach potential respondents that 1) were actively involved in gang networks; 2) were willing to openly—but confidentially—discuss guns in circulation in their social networks; 3) possessed general knowledge regarding guns; and 4) had the requisite social vantage point to be aware of most guns circulating in their network.

The field researcher recruited six respondents, with recruitment proceeding in stepwise fashion over the first 6 weeks of fieldwork. The first two respondents were referred by gang outreach workers, representing two distinct gang networks (Networks A and B). These two respondents, 3 weeks into fieldwork, each recruited an additional respondent from their respective networks to deepen insight into the networks. Finally, 6 weeks into data collection, after being approached by one of the referring gang outreach workers, two respondents from a third network of nongang "hustlers" (Network C) were integrated into the research process. In summary, four respondents were recruited through referrals provided by gang outreach streetworkers, whereas two respondents were recruited by means of referral from existing participants. All potential respondents approached agreed to participate in the study.

The six participants were African American men, with ages ranging from mid-20s through mid-30s. Because of their age, social position within their gang or group, and general knowledge of guns, respondents were well positioned to observe the gun usage

Additional supporting information, including an expanded version of this qualitative method section offering more details of the fieldwork process, can be found in the listing for this article in the Wiley Online Library at http://onlinelibrary.wiley.com/doi/10.1111/crim.2018.56.issue-3/issuetoc.

patterns of a wide range of actors within their social networks. Each participant owned or regularly accessed at least one firearm for their protection, and each of the six participants had been shot and had witnessed the shooting of friends. Only one participant, who reported having a valid Massachusetts license to carry firearms and was associated with the nongang "hustling" Network C, owned a legal gun.

Among the gang networks, prior research findings provide additional context for respondent reports of their egocentric networks.⁴ These findings indicate that the average Boston gang engaged in gun violence comprises between 25 and 30 members (Braga, Hureau, and Winship, 2008; Kennedy, Piehl, and Braga, 1996; Papachristos, Hureau, and Braga, 2013). In this study, Network A represented a network that spanned two distinct but allied gangs; one a "side street" gang of approximately 15–20 members, and the other a larger gang of approximately 50 members revolving around a nearby housing development. Network B comprised an intersection of two separate but allied housing development-based gangs, each with approximately 100 members and associates. In contrast, Network C was made up of a small group of approximately ten friends that referred to themselves as "hustlers" who supported themselves through a blend of formal employment and illicit enterprises—including procuring and selling illegal guns. Although these hustlers had experience with gun violence, its threat was not an enduring feature of their lives and relationships with one another in the way it was for those enmeshed in Networks A and B.

The field researcher met with each respondent one to two times per week over the course of the summer and fall of 2014, resulting in a total of 71 meetings. Respondents were paid \$50 for each interview. These meetings lasted approximately 2 hours each and took place at a location of the respondents' choosing that allowed for uninterrupted private conversation. Locations included parks, restaurants, coffee shops, parked cars, and respondents' kitchens and back yards. The sensitive nature of the conversations required that the fieldworker be flexible in allowing respondents to shape the interview situation to best suit them, leading to circumstances that blurred distinctions between interviewing and participant-observation fieldwork, particularly among respondents in Networks A and C who invited the fieldworker into their homes and private spaces.

Unlike structured interviews where the interview unfolds from a formal script, the ethnographic interview approach (Spradley, 1979) used in this study retained the style and structure of an informal conversation, albeit one infused with ethnographic elements directed toward developing insight into how guns were embedded in respondents' social networks. The initial meeting produced the beginnings of a working roster of guns that the field researcher and respondent would refine over time. To maintain a focus on the precise attributes and contextual details of the focal firearms, the field researcher attempted to limit this first session to reports of three to six guns per respondent. The fieldworker and

^{4.} In describing the networks of respondents, we stress that we invoke the social network perspective not as a *method* but as a *theoretical paradigm* stressing the interdependence of social actors, relational ties in shaping flows of resources, and the role of network structures in providing opportunities and constraint for social action (Wasserman and Faust, 1994). This perspective helps us to avoid "analytical groupism" in our conception of gang networks (Decker and Van Winkle, 1996; Desmond, 2014; McGloin, 2005), while offering a natural unit of analysis for describing how respondents identified and sought information on guns in their social worlds (Burt, 2004; Granovetter, 1995 [1974]).

respondent developed a code for each gun identified, and the fieldworker recorded detailed information on each gun into a notebook alongside field jottings (Emerson, Fretz, and Shaw, 1995) of key respondent reports, quotes and phrasings, as well as descriptions of field scenes and interactions. Immediately after the close of the session, the fieldworker transferred these data into a gun roster spreadsheet and wrote fieldnotes describing interview context, key events, respondent disposition, and questions for the next interview session.

Interview sessions began by reviewing respondent findings to questions identified in the previous interview meeting, such as the purchase price for a particular gun or its precise model. Next, the fieldworker presented his findings, using a computer tablet to show respondents a list of guns based on prior descriptions in order to refine precise identification. The interview continued by reviewing every active gun on the roster—identifying important unknown details of its attributes and transactions and documenting developments with regard to transfer, movement, and use. Respondents then reported the emergence of new guns that entered the network or recently became visible as a result of transfer, use, or loss. The interview closed by recapping the most important questions for the respondent and fieldworker to address in the time until the next meeting.

As indicated, the fieldworker and respondents went to great lengths to identify details of the guns under study. In addition to precise descriptions of make and model, the respondent and field researcher consistently reviewed gun movement, transactions, and produced a standardized assessment of gun condition. Documenting the details of any particular gun often required several weeks of iterative research work, integrating several layers of fieldworker and respondent fact finding and checking. Depending on contextual factors and social proximity to a particular gun, respondents might refine gun details by visually inspecting a gun in the field, making direct and indirect inquiries to possessors, and/or using fieldworker tablet images to improve identification of a gun with which they recently came into contact.

Although the integrity of the qualitative data collected was ultimately dependent on the reports of participants, the methodological approach used in this study offered advantages in improving data quality. In addition to increased trust—bolstered by chain referrals and the fieldworker's relationships—the process of reviewing all guns on a respondent's roster at every interview prompted multiple reports of the guns under study, ultimately yielding more refined and accurate data. Furthermore, multiple respondents reporting within the same network provided an additional check on the data; in a handful of cases, we discovered that respondents were providing reports of the same gun. Finally, as a result of being invited into the private spaces of respondents, the field researcher was

^{5.} The fieldworker consulted the *Blue Book of Gun Values* to assess condition, using its grading criteria to train respondents. Making use of sample photographs published on the *Blue Book* and NRA websites, guns were ranked as: "new" (in box or without box), "mint" (perfect, without finish flaws, but no box), "excellent" (95% to 98% finish condition), "very good" (original parts with acceptable finish loss), "good" (80% to 95% finish condition), "fair" (20% to 60% condition of finish), or "poor" (gun does not fire and in poor condition). Condition was obtained for more than two thirds of cases; based on these conditions, for missing cases, we imputed the condition as "good."

able to verify respondent reports through in-person examination of eight guns shown to him by respondents.⁶

To make the most of the detailed gun and transaction data collected, we complete the analysis of qualitative data by quantitatively analyzing it to search for patterns suggested—and perhaps obscured—by the fieldwork process. In particular, we attempt to develop insight into the various features of guns and their transactions that were associated with their selling price on the street. This analysis proceeds by using diagnostic descriptive analyses to better understand the relationship between formal price and street price, followed by ordinary least-squares (OLS) and spline regressions (Friedman, 1991) to predict street price by formal value and a slate of other regressors informed by our fieldwork and previous empirical research into gun markets.

RESULTS

CHARACTERISTICS OF GUNS RECOVERED FROM GANG AND NONGANG POSSESSORS

Table 1 presents the characteristics of N=837 firearms recovered from gang members and N=1,359 firearms recovered from nongang possessors by the BPD between 2007 and 2013. When semiautomatic pistol, revolver, and derringer recoveries were summed, firearms recovered from Boston gang members were more likely to be handguns (95.4 percent) relative to firearms recovered from nongang possessors (85.5 percent). Beyond that distinction, guns recovered from gang members and nongang possessors were very similar in terms of caliber, recovery crime types, and whether manufactured by reputable (e.g., Smith & Wesson, Ruger, Colt, Glock, and Beretta) or lower quality (e.g., Hi-Point, Lorcin, and Bryco) "junk gun" companies. ATF was able to trace 55.1 percent (N=461) of the guns recovered from Boston gang members and 59.9 percent (N=814) to their first known retail sale. Some 13.9 percent of gang guns and 10.8 percent of nongang guns were not traceable because of obliterated serial numbers, which is an indicator of illegal gun trafficking (Kennedy, Piehl, and Braga, 1996). The remaining guns were not traceable because of pre-1968 manufacture or problems with the trace request form submitted.

Table 2 presents selected gun-trafficking indicators for traced firearms recovered from Boston gang members and nongang possessors. Larger shares of traced guns recovered from gang members originated from first retail sales at I-95 southern states with comparatively permissive gun laws (32.9 percent; specifically, Florida, Georgia, North Carolina, South Carolina, and Virginia) relative to traced guns recovered from nongang possessors (20.4 percent). FFLs located in New Hampshire and Maine, both proximate states with less restricted gun laws, were the first retail sale sources for 21.9 percent of the traced gang

^{6.} Some readers might question how we can be certain that respondents did not lie to us, providing falsified accounts of imaginary guns to secure payment. The simple answer is that apart from those guns inspected by the field researcher, we cannot be certain. Given the methodological checks employed, however, we hope that most would agree that it would be a cumbersome enterprise for respondents to maintain consistent reports of fictional guns over the fieldwork period. We would further remind skeptics that we also integrate "official" police data into this study that provide context for our qualitative observations, and that there is a nontrivial correspondence between these two sources.

Table 1. Characteristics of Firearms Recovered from Boston Gang Members and Nongang Possessors, 2007–2013

Characteristics	Gang Guns, <i>N</i> = 837 Percent	Nongang Guns, N = 1,359 Percent
Characteristics	reitent	reitent
Type		
Semiautomatic pistol	61.3	60.2
Revolver	32.9	24.6
Rifle	2.4	6.8
Shotgun	1.6	6.8
Derringer	1.2	0.9
Other	0.6	0.7
Caliber		
9mm	19.6	20.5
.22	17.0	14.7
.38	14.2	12.0
.380	11.0	9.5
.25	7.8	6.1
.45	7.6	8.5
.32	6.6	4.3
.357	6.1	4.1
.40	5.7	7.1
Other calibers	4.4	13.2
Manufacturer Reputation		10.2
Low-quality ("junk") manufacturer	30.6	25.8
Reputable manufacturer	69.4	74.2
Recovery Crime Type	05.1	,2
Illegal gun possession	81.5	76.7
Violent crime	13.3	16.6
Drug offense	3.6	5.3
Other	1.6	1.4
Trace Results	1.0	1.7
Traced to first retail purchaser	55.1	59.9
Not traced due to pre-1968 manufacture	18.1	16.7
Not traced due to pile 1308 manufacture Not traced due to obliterated serial numbers	13.9	10.7
Not traced due to obliterated serial humbers Not traced due to problem with trace form	12.9	12.6

guns but only for 13.7 percent of nongang traced guns. For traced gang and nongang guns alike, most of the traced gang guns were first purchased by males rather than by females. With a single exception, all gang guns were recovered in the hands of someone other than the first retail purchaser (99.8 percent), suggesting that at some point in their lifespan, these guns were likely transferred from a legal owner to a criminal possessor. In contrast, nearly 20 percent of traced nongang guns were recovered from the first retail purchaser. Traced guns recovered from nongang possessors were newer (median time to crime = 9.6 years) than the traced guns recovered from gang members (median time to crime = 13.8 years). More than 25 percent of traced nongang guns and only 12.6 percent of traced gang guns were recovered by the BPD within 3 years of the first retail sale.

Table 3 presents the results of the multivariate logistic regression of N=416 traced firearms recovered from gang possessors relative to N=814 traced firearms recovered from nongang possessors during the same time period on selected firearm characteristics. The binary dependent variable represented whether a traced firearm was recovered from a gang member (1) or not (0). The logistic regression model tested whether specific firearm characteristics (type, caliber, and manufacturer quality), recovery crime type

Table 2. Selected Gun-Trafficking Indicators for Traced Firearms Recovered from Boston Gang Members and Nongang Possessors, 2007–2013

	Traced Gang Guns N = 461 Percent	Traced Nongang Guns $N = 814$ Percent
Source State		
I-95 southern states	32.9	20.4
New Hampshire, Maine	21.9	13.7
Massachusetts	20.6	41.1
Other states	24.5	24.8
Retail Purchaser Gender		
Male	89.4	88.8
Female	10.6	11.2
Purchaser and Possessor Identification		
Purchaser and possessor are different people	99.8	80.3
Purchaser and possessor is the same person	0.2	19.7
Time to Crime		
Recovered more than 3 years after first retail sale	87.4	74.6
Recovered within 3 years of first retail sale	12.6	25.4
Median time to crime	13.8 years	9.6 years
Minimum time to crime	31.0 days	3.0 days
Maximum time to crime	43.8 years	51.0 years

NOTES: For guns recovered from gang members, 55.1% (N = 461) of 837 recovered firearms were successfully traced to the first retail purchaser. For guns recovered from nongang possessors, 59.9% (N = 814) of 1,359 recovered firearms were successfully traced to the first retail purchaser.

Table 3. Multivariate Logistic Regression Comparing Traced Boston Firearms Recovered from Gang and Nongang Possessors on Selected Firearm Characteristics, 2007–2013 (N=1,275 Firearms)

Predictors	Odds Ratio	Standard Deviation	
Handgun	1.198*	.121	
Low-quality manufacturer	1.140	.137	
.380, 9mm, .40, .45	.805	.130	
Illegal gun possession	1.202	.141	
Violent crime	.963	.329	
Fast time to crime (<3 years)	.477**	.170	
Different purchaser and possessor	3.871**	.267	
Massachusetts FFL	.633**	.177	
New Hampshire, Maine FFL	1.516*	.184	
I-95 southern state FFL	1.577**	.166	
Constant	.227**	.308	
−2 log likelihood	1,570.170		
Nagelkerke R^2	.102		

NOTES: The model analyzed 461 gang member guns (36.2%) and 814 nongang member guns (63.8%). Traced firearm sold by FFL in another state is the reference category for the Massachusetts FFL, New Hampshire and Maine FFL, and I-95 southern state FFL dummy variables.

ABBREVIATION: FFL = federal firearms licensee.

p < .05; **p < .01.

(illegal possession relative to found guns and other recovery crimes), and gun-trafficking indicators (time to crime, purchaser and possessor were different people, and source states) were statistically significant predictors of the log of the odds of a firearm being recovered from a gang member. Odds ratios were used to represent the impact of a one-unit change in the predictor variables on the ratio of the probability that a firearm was recovered from a gang member.

After controlling for the other covariates, traced Boston gang member guns were more likely to be handguns relative to firearms recovered from their nongang counterparts (p <.01). Traced gang guns, however, were not more likely to be medium and higher powered calibers (.380, 9 mm, .40, .45), made by low-quality manufacturers, or recovered in illegal possession offenses when compared with traced nongang member guns. The logistic regression analysis confirmed that successfully traced gang and nongang guns had much different retail commerce patterns. When the other predictors were held constant, Boston gang guns were almost 37 percent less likely to be first sold at FFLs in Massachusetts (p < .01) but nearly 58 percent more likely to be first sold at FFLs in I-95 southern states (p < .01) and almost 52 percent more likely to be first sold at FFLs in neighboring New Hampshire and Maine (p < .05). After controlling for other covariates, traced guns recovered from Boston gang members were nearly four times as likely to be first purchased at retail by someone other than the crime gun possessor (p < .01) and were 52.3 percent less likely to recovered by police within 3 years of their first retail sales relative to traced guns recovered from nongang members (p < .01). In sum, relative to other criminal gun possessors, Boston gang members tended to possess older guns that were first purchased by someone else in states with relaxed gun controls.

GUNS IN THE FIELD: STOCK, TRANSACTIONS, AND PRICES

Eighty-six active firearms were documented across the three networks over the course of fieldwork in the summer and fall of 2014: 38 guns were associated with Network A, 28 were associated with Network B, and 20 guns were associated with Network C. Ninety percent of the guns observed were handguns (77 of 86 firearms), with 70 percent of all guns being semiautomatic pistols. Revolvers comprised 20 percent of all cases. A small number of rifles, shotguns, and other types of guns also appeared in circulation.

Table 4 summarizes the types, calibers, and manufacturers of the handguns observed in the three networks. Indeed, relative to the sample of gang member guns from BPD recoveries, the handguns in these networks tended to be medium and higher powered (.380 and larger calibers) semiautomatic pistols. More than one quarter of handguns were 9mm automatics. Although one respondent personally preferred the simplicity and reliability of a revolver, all respondents acknowledged that the most desirable guns were larger caliber semiautomatic pistols. Semiautomatics were perceived to offer two key advantages: First,

^{7.} This preference was expressed while discussing a trade made by the younger members of his gang network. The young men traded a Taurus .357 Magnum snub-nosed revolver for a Glock 26®, but concerns surfaced that the new pistol may have been used in a shooting. For the respondent, the young men had blundered. First, they gave away a newer gun for one that was a potential liability, and second, they failed to see what they had in the Taurus®—a powerful and reliable gun, not subject to jamming. Alongside the sensual dimensions of firing a revolver that he enjoyed (their "PAP! PAP!" sound, the heft of the cylinder, etc.), revolvers had the advantage of not leaving shell casings as physical evidence.

•					
Handguns	Network A	Network B	Network C	N	% Hand Guns
HANDGUNS	32	26	19	77	100.0
Semiautomatic	27	16	17	60	77.9
Revolver	5	10	2	17	22.1
BY CALIBER					
9mm				21	27.3
.40				11	14.3
.380				11	14.3
.45				7	9.1
.22				6	7.8
Other (.25, .357, .38, etc.)				21	27.3
BY MANUFACTURER					
Smith & Wesson				14	18.2
Taurus				12	15.6
Glock				8	10.4
Sturm Ruger				7	9.1
Hi-Point				5	6.5
Other (Colt, Bryco, Intratec, Beretta, etc.)				31	40.3

Table 4. Summary of Handguns in Networks (N = 77)

they generally offered the potential to fire more shots without reloading, and second, they were more concealable when carrying, as semiautomatics are typically thinner and lighter than revolvers. Smaller pistols like the 9mm Glock 19[®] or the pocket-sized .380 caliber Ruger LCP[®] were particularly sought after. In all, 22 manufacturers were represented, with the top five manufacturers (Smith & Wesson, Taurus, Glock, Sturm Ruger, and Hi-Point) comprising approximately 60 percent of cases. Although lower quality manufacturers were present (notably, Hi-Point), the guns in the three networks were remarkable for their quality of manufacture.

The field researcher was able to obtain the purchase price for 58 of the 77 handguns recorded. Most guns entered the three networks by means of cash transactions. Fiftythree (68.8 percent) handguns were procured by means of pure cash transaction (with no other trade or in-kind involved). Four guns (5.2 percent) entered the networks by cash sale where the price was discounted to reflect a family connection or a previous debt that was owed—two guns were discounted for family connections, whereas the remaining two transactions were discounted because the seller owed the buyer money for drugs or a previously lost gun. One gun (1.3 percent) was procured by way of a blended transaction involving the exchange of a gun plus additional cash. Taken together, these transactions involved more than \$36,000 in cash transfer. Of the 19 handguns (24.6 percent) that were unable to be priced, in the case of seven guns (9.1 percent), the purchase price was simply unknown or could not be recalled accurately; six guns (7.8 percent) entered the networks via gun-for-gun trades without additional pricing information; three guns (3.9 percent) were given to network members by acquaintances no longer involved in illicit street activity; two guns (2.6 percent) entered the networks via theft without first being resold; and one gun (1.3 percent) was given by a family member.

It is important to note that 15 of the 86 guns (17 percent) in the full set of cases entered the networks by means of joint acquisition. All joint acquisitions occurred within Networks A and B, the networks comprising street gangs. The joint acquisitions observed exhibited a typical pattern: Two to three people would pool money together to purchase

a gun and, in some cases, would collectively decide to trade that gun for another mutually agreed-upon gun after some period of time. In contrast to the commonsense notion of "community guns" among gangs, wherein all members of the gang are theorized to have access to a gun, the property rights to these jointly purchased guns were sharply defined to permit sharing exclusively among the original purchasers.

In one view, the phenomenon of joint ownership can be understood as the solution to an economic problem, a market adaptation to overcoming the expense of purchasing a gun in a context characterized by high markups and financially constrained buyers. Yet these arrangements did not merely bring together any two market participants in the interest of achieving an efficient match. On the contrary, the transactions recorded were generally built on preexisting relationships of trust and reciprocity. In one instructive example from early in the fieldwork process, the field researcher was reviewing the transaction details of a jointly purchased Ruger 9mm[®] in Network A when he casually remarked on what he perceived to be an expensive \$700 purchase price. The respondent mocked the idea that expense had anything to do with why the gun was purchased jointly, laughing, "Ha! [\$700] was nothing! I was hustling at the time." The respondent explained that he had purchased the gun with one of his best friends in the gang, during a moment when he was less financially constrained, but was concerned for his safety; an early summer shooting marked the rekindling of a gang conflict that would cause several months of danger. What the respondent understood himself to be sharing was not the burden of the cost of the gun but the *opportunity* to get a quality gun during a time when both men needed one.

Of the 58 handguns for which a price was recorded, the lowest documented purchase price was \$200 (secondhand Ruger Straight Six .22® revolver; secondhand Taurus 731 .32 Magnum® revolver), whereas the highest purchase price was \$1,100 (a new-in-box Springfield Arms XD4 .40® pistol). The mean price for a handgun was \$636, with a median price of \$638. Figure 1 shows the distribution of prices among handgun cases.

It is noteworthy that the prices paid for guns in these networks represented substantial markups over fair market values. To establish fair market value, the field researcher consulted the online version of the *Blue Book of Gun Values* (www. bluebookofgunvalues.com), one of the most used resources among gun dealers and retailers for determining the value of guns. By using the detailed information collected on the manufacturers, models, and condition of guns, fair market values were obtained for 54 of the 58 handguns for which a street purchase price was recorded. Based on this price and condition information, we conservatively estimate that the handguns we observed were marked up 191 percent over their fair market value. The consequential markup these guns have undergone can perhaps best be demonstrated by comparing their street price against their full, new-in-box, manufacturer's suggested retail price (MSRP). Street prices reflected a 64 percent markup over full MSRP.

Figure 2 presents two plots exploring the relationship between the observed prices paid for guns and fair market value for the 54 handgun cases for which we were able to obtain

^{8.} Readers may question how disadvantaged men can afford the purchase prices detailed in this study. The respondent responsible for this quote was employed in a part-time low-wage job at the time of the interview, although as he notes, he was making better money selling high-grade marijuana just months prior. As Zelizer (1994) has shown, money that can be spent on socially inclusive items or experiences is often "earmarked" over "regular" money. In this sense, "gun money" can be earmarked for its importance in personal protection but also, as in this case, for its social role in promoting interpersonal solidarity and inclusion.

Figure 1. Histogram of Handgun Purchase Prices Upon Network Entry (N = 58)

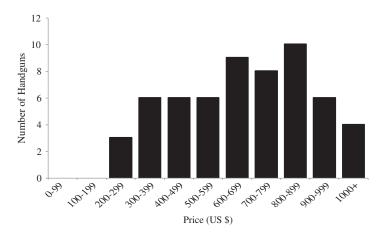
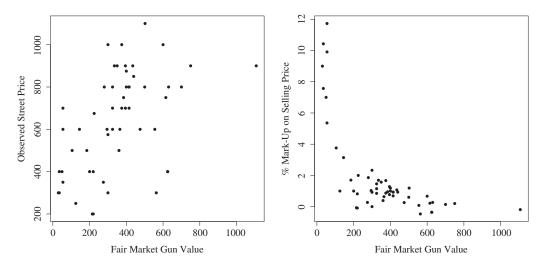


Figure 2. Plots of Handgun Fair Market Value, Price, and Markup (N = 54)



a price. The left plot maps the simple relationship between the street price paid and the gun's fair market value. The right plot offers a different view of this relationship, showing each gun's markup against its fair market value. Although most guns appear to be marked up approximately 100 percent, a handful of guns do sell below their fair market value. Perhaps what is most striking, however, is the exorbitant markup on guns of lower fair market value, as is shown in the right plot. The seemingly inverse relationship between fair market gun value and markup demonstrated in the right plot is heavily influenced by the markup on guns of lesser fair market value. What is more, these heavily marked up guns are not simply old or in poor condition, but they are renowned low-quality guns.

Of the ten most marked-up guns among our cases, eight were made by low-quality gun manufacturers such as Hi-Point (4), Bryco (2), Jennings (1), and Lorcin (1).

We used linear regression analyses and additional quantitative diagnostic techniques to assess the influence of several firearm features on street gun prices, above and beyond a gun's formal legal market price (as measured by the *Blue Book* value). These features included:

- Gun Type: The results of fieldwork, along with previous research (i.e., Kennedy, Piehl, and Braga, 1996), demonstrate that semiautomatic pistols seem to be preferred to revolvers among street gun users. For these analyses, gun type is constructed as a dummy variable where 1 = semiautomatic pistol and 0 = revolver.
- Gun Caliber: Several scholars have indicated that illicit gun users prefer "highpower" handguns (i.e., Harcourt, 2006; Kennedy, Piehl, and Braga, 1996; Wright and Rossi, 1994), which is a view supported by research subjects. Here caliber is constructed as a dummy variable comparing "high-power" calibers against medium- and small-caliber guns. High-power guns are defined as .40, .45, and .50 caliber guns as well as all Magnum calibers (among our cases, .44, .357, and .32).
- "New" Guns: Recently manufactured guns 1) function well (in theory) and 2) do not come with the risk of prior use in violent crime (Braga et al., 2012). As such, new guns are hypothesized to have greater street value when viewed against comparable used guns. "New" is a dummy variable where 1 = gun reported to be "new" or "new in box" and 0 = gun reported to be used.
- Gun Size: Although respondents indicated that smaller guns (of sufficient caliber and capacity) were preferred to larger guns for their ease of carrying and concealment, Wright and Rossi (1994) reported that large-size guns were preferred among their sample of incarcerated felons for their shock and intimidation value. Here we construct a dummy variable where large guns (= 1) are defined as being longer than 8 inches in total length, whereas small guns (= 0) are defined as being less than 8 inches long.

The results of several diagnostic analyses (including the plots represented in figure 2) revealed that although *Blue Book* value clearly seemed to be associated with final street price, this relationship might not be linear. Specifically, the results of these tests seemed to show a strong relationship between *Blue Book* value and street price at *Blue Book* values less than \$350 to \$400, with a much more ambiguous relationship above those *Blue Book* values. Figure 3 presents box plots that illustrate the attenuation of this relationship at higher *Blue Book* values. To account for this potential nonlinearity, two models were generated: first, a base OLS regression of street price on the featured covariates, and second, a linear spline regression interpreting the same relationship by means of a specification tailored to account for the observed nonlinearity.

Table 5 presents the results from both OLS (model 1) and spline (model 2) regressions of street price on selected gun characteristics. In model 1, street price is regressed on *Blue*

^{9.} In addition to improvement in measures of goodness of fit, linear spline regression was chosen over alternative quadratic specifications because spline regressions (unlike quadratic) do not have the flaw of imposing a form (see Friedman, 1991) that requires the relationship between *Blue Book* value and street price to eventually turn negative at higher values. Such a specification is unrealistic and theoretically incompatible with the phenomenon under study.

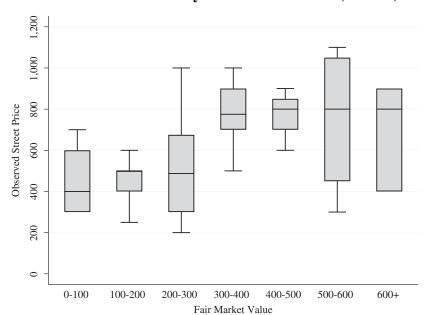


Figure 3. Box Plot: Street Price by Fair Market Value (N = 54)

Table 5. OLS and Spline Regressions of Gun Street Price on Selected Characteristics (N = 54)

Variables	(1) OLS	(2) Spline
Blue Book Value	.460***	
	(.140)	
Blue Book < Median	1.013***	
	(.262)	
Blue Book > Median	.103	
	(.198)	
Pistol	237.600***	230.400***
	(75.970)	(72.380)
High Caliber	160.700***	142.300**
	(59.610)	(57.240)
New	59.380	43.740
	(59.820)	(57.300)
Large-Size Gun	6.413	-1.526
	(61.780)	(58.900)
Constant	198.500 [*] *	93.420
	(92.260)	(97.780)
Observations	54	54
R^2	.416	.481

NOTE: Robust standard errors in parentheses. *ABBREVIATION*: OLS = ordinary least squares. **p < .01; ***p < .001.

Book price, gun type (pistol/revolver), gun caliber, new status, and gun size. As suggested by the simple bivariate plots shown in figure 2, retail prices are important determinants of street prices. After controlling for the other covariates, a \$1 increase in Blue Book value is associated with a \$.46 increase in street price (p < .01). Semiautomatic pistols generally cost \$237.60 more on the street relative to revolvers (p < .01) and high-caliber guns commanded \$160.70 more than medium- and low-caliber guns (p < .01), when holding the other variables constant. Although the coefficients for both covariates were positive, neither new guns nor large guns were associated with statistically significant differences in price from older and smaller guns, respectively.

Model 2 builds on model 1 by imposing a spline representation of the relationship between street price and Blue Book value. In particular, a "knot" was specified in this relationship at \$356 (the median Blue Book value) such that two coefficients could be predicted: one predicting the relationship between street price and Blue Book value at values less than this \$356 median Blue Book price, and an additional coefficient predicting this relationship at values greater than the median Blue Book value. 10 Indeed, the spline regression coefficients suggest that significantly different returns to Blue Book value occur at greater than and less than this knot value. The positive and significant coefficient on "Blue Book < Median" (1.013, p < .01) indicates that, on average and when holding constant all other gun factors, a \$1 increase in Blue Book value will be associated with a \$1.01 increase in street price. This slope is more than double that identified by the simple linear conception of Blue Book value specified in model 1. Importantly, the mildly positive but statistically insignificant coefficient for "Blue Book > Median" suggests that there is no clear relationship between Blue Book value and street price at higher Blue Book values after controlling for other relevant gun factors. 11 It is also important to note that the spline regression specification does little to alter the substantive relationships between other gun feature variables and street price in terms of their magnitude, direction, and statistical significance.¹²

Given the small number of cases (54 handguns), caution should be exercised when drawing inferences from these regression results. Nevertheless, the results of the analyses revealed a robust increase in street prices for semiautomatic pistols of larger caliber. Gang members and drug hustlers apparently demand these kinds of handguns and seem willing to pay elevated prices to obtain them. Furthermore, a strong relationship exists between a gun's value in the legal market and its value on the street but only up to a point.

^{10.} The location of the "knot" in the spline at \$356 was selected after exploring various box, residual, and scatter diagnostic plots. Various alternative specifications for this knot were tested, suggesting that a range of *Blue Book* values between \$300 and \$400 could suitably be selected for identifying a spline specification. For the purposes of this study, establishing the precise location of this knot is far less important than providing general evidence that returns to *Blue Book* value attenuate at higher values.

^{11.} For this spline regression, two separate F tests were conducted to test the null hypothesis that the slopes of these under- and over-median variables were equal. In both tests, the null was rejected (p = .0119 and p = .0183).

^{12.} Several variations of these regressions were conducted with the purpose of identifying sensitivity to statistical outliers with respect to price/markup outliers; these variations had no practical effect on the results presented. Indeed, we have attempted to be as transparent as possible in the presentation of the price data—as figure 2 demonstrates, whereas outliers can be identified, they mostly comport with the general shape of the data.

This relationship attenuates at approximately \$356 Blue Book value, suggesting that the transactions observed do not seem to be functioning in a manner that draws sharp distinction between medium- and high-value guns. High-risk gun possessors seem willing to pay some premium for quality but may be reluctant to pay exorbitant prices for high-end handguns when a decent-quality gun will satisfice. This is all the more the case in a social context where gun possession resembles a churning process fueled by the constant pressure of police confiscation, complicated sharing and loaning arrangements, insecure storage, and the perceived need to dispose of guns after their use in crime. Certainly, this is an area worthy of further research.

Given that the illegal diversion of new guns from retail has been identified as a key pathway for illegal gun acquisition, it was surprising to observe that new handguns—apart from the portion of their price associated with fair market value—fetched no significant price premium. Although our qualitative data cannot directly address this hypothesis, it may be that changes in gun enforcement policy and practice over time may have made newer guns less appealing to gun traffickers and potential buyers. For example, as in many cities, ATF and BPD investigators prioritize their enforcement actions on uncovering the sources of new guns in Boston (Braga and Pierce, 2005). Newer recovered crime guns are easier to investigate as the people associated with recent retail transactions are easier to locate and apprehend. Knowledgeable gun possessors may understand that newer guns come with increased risks as investigators are better positioned to identify proximate sources that could identify them as the ultimate recipients of diverted guns. Furthermore, as will be described in the next section, interviews with gun traffickers suggest that they attempt to avoid detection by purchasing firearms from secondary market sources in states that do not require any formal record keeping for transactions.

SOURCES OF GUNS INTO HIGH-RISK NETWORKS

Although the field researcher could openly discuss with respondents the existing stock of guns in their networks, it was agreed at the outset of fieldwork that respondents would not be asked to provide details on the specific people associated with entry transactions. This accommodation was necessary to prevent the perception that respondents were informing on specific people in their social networks who were illegally acquiring guns. For Networks A and B, respondents shared their knowledge of the practices associated with guns entering their networks, but generally, they avoided providing details on the specific source for any particular gun transaction. Respondents from Network B revealed that this was because there were limited active supply lines for guns, and through describing the gun's source path, they would essentially be revealing the identity or signature of one of their own. This process worked differently for the respondents associated with Network C. Because Network C respondents were involved in the sourcing of guns for their social network, they were not sharing anyone else's business but their own and, as such, spoke openly on the sources of guns in their network.

Respondents reported that nearly all of the handguns observed in Networks A, B, and C were sourced via illegal diversions from secondary market transactions in states with permissive gun laws. One Network A respondent summarized the prevailing understanding of the geographic sources of guns that flow to Boston gangs: "They are coming from up North and down South." He clarified that by "up North" he meant Maine and New Hampshire and by "down South" he meant Georgia, Virginia, South Carolina,

Florida—"basically the whole South." Respondents from Network B supported this idea but perceived guns originating from northern states to be a more recent phenomenon. These respondent perceptions complement findings from the trace data analysis, which revealed that traced guns recovered from Boston gang members were significantly more likely to be first purchased in I-95 southern states and in New Hampshire and Maine.

Respondents from Networks A and B suggested that they were mainly supplied by a mixture of sources of illegal firearms that could vary over time. Handgun entries into Networks A and B were generally described as cash and trade transactions involving friends, family members, street connections, and known illegal gun sellers. Respondents did not identify theft as a central source of handguns for their networks. Indeed, of the observed 77 cases of handguns, only seven (9.1 percent) entered the networks via theft. Members of gang Networks A and B stole three handguns directly from other neighboring gangs and drug dealers who had not sufficiently secured their weapons, whereas the other four stolen handguns were noted as taken from "civilians," presumed to be legal gun owners. It is important to note that in the case of these civilian thefts, handguns were not stolen by individuals from within the networks but were brought to the networks by intermediaries seeking an outlet to sell stolen guns. The remaining 70 handguns (90.9 percent) were believed to have been diverted from legal firearms commerce at some point in time before the immediate transaction that led to entry into the three networks.

In contrast to Networks A and B, individuals from Network C were centrally involved in the trafficking of guns and were themselves the principal sources of guns to the group of friends that comprised their network. As will be discussed, because they sourced their guns, these respondents were able to document the state of origin for every gun within their network. With the exception of two guns (one sourced from New Hampshire and one sourced from Mississippi), all of the remaining 17 guns in the network were reported to be sourced from a single southern state: Virginia.

All three networks referred to incidents in recent years (which the authors were able to cross-reference via media reports) where individuals known to them had been arrested for their roles in bringing illegal guns to market in Boston. These cases shared the general patterns described earlier: undocumented secondary sales to prohibited purchasers (or in some cases straw purchasers who would immediately transfer guns to prohibited persons) in states with relaxed gun laws, followed by transport back to Boston where guns could be sold for several times their purchase price. For instance, in an example understood as a cautionary tale across all three networks and beyond, an individual associated with a Boston gang smuggled crack cocaine from Boston to drug sellers in southern Maine. While in Maine, he purchased secondhand firearms from private sellers via want advertisements and had arranged for several local residents to straw purchase handguns from pawnshops for him. He was eventually apprehended and convicted of being an unlicensed dealer who illegally diverted more than 70 handguns to criminals in Boston.

Respondents from the gang networks described in varying levels of detail "trips" they had taken to acquire guns with their friends from their network. Such trips were generally not specialized gun-trafficking ventures. This was especially the case for those who had family in states with permissive gun laws. For example, when a gang conflict intensified over the summer, a young man from Network A heeded his family's requests to get out of the city for a while until things calmed down. Yet after staying several weeks with family in Florida, he returned with a 9mm pistol he procured with the help of his cousin. Similarly, one respondent from Network C went on a family vacation to Mississippi and

ended up purchasing a .380 from his cousin. Getting a gun was far from the purpose of his trip. As the respondent explained, "It was just a family visit. I saw the opportunity to get something and I took it." This opportunity was too good to pass up even though he already had four guns back at home in Boston. "I paid \$300. It probably would've been cheaper—but [my cousin] didn't want to come up off it—so I had to offer him an amount that would make a difference as far as Christmas money." These examples underscore a taken-for-granted perspective among those in the high-risk networks under study: One need not wait for guns to become locally available; if you have family or friends in the right places, you can always go get one yourself.

TWO CASES OF GUN TRAFFICKING

Two people with extensive experience trafficking guns from the southern states to Boston were interviewed during the course of field research. The cases that we present here, in many ways, do not resemble conventional social scientific data. We make no claims regarding their generalizability or representativeness, and we further acknowledge that the selection of these cases was not guided by scientific criteria—rather these cases were harvested opportunistically by some combination of chance and trust generated through the fieldwork process. Yet following Howard Becker's articulation of the contribution of Shaw's "single case study," *The Jack-Roller* (Shaw, 1966), we argue that these cases are important beyond their relevance to this single study, especially for the small but nuanced contributions they offer to the broader enterprise of firearms research.

First, these cases offer firsthand narrative accounts of gun trafficking as a social process. Outlining the social processes involved in gun trafficking represents a key contribution to gun research because 1) insights regarding the activities of gun traffickers have been recognized as an area of acute need by gun researchers (Cook, Parker, and Pollack, 2015), and 2) these processes are exceptionally hard to observe (by any research methodology). Second, these cases studies are used to offer a platform for interrogating and generating theories of criminal gun access. Here we show concrete instances of theory in action from the points of view of actors involved with gun trafficking themselves: the moments when opportunities to engage in gun trafficking are recognized; situations when actors invoke the perception of risk (and opportunities for deterrence they imply); the types of knowledge and practical comprehension of gun laws and policies traffickers bring to their practice; and even moral understandings of gun trafficking (and their corresponding techniques of neutralization). Finally, as Becker noted, cases studies like these "can be important at those times when an area of study has grown stagnant, has pursued the investigation of a few variables with ever-increasing precision but has received dwindling increments of knowledge from the pursuit. When this occurs, investigators might well proceed by gathering personal documents which suggest new variables, new questions, and new processes, using the rich though unsystematic data to provide a reorientation of the field" (Shaw, 1966: xii). Although we do not consider gun research to be a stagnant research area, we do believe that it can benefit from the new ideas and lines of inquiry brought forth by these cases and the original data produced by this study.

To the initial surprise of the research team, one of the traffickers we profile here was a respondent from Network C, who over the course of meetings gradually revealed his involvement (and that of his network) in gun trafficking. The second individual was a friend of a Network B respondent, who agreed to be interviewed after the respondent

offered several assurances to his friend regarding the legitimacy of the research project. Drawing from a number of "speech events" depicting narratives of involvement of gun trafficking collected in research interviews (Mishler, 1986), we assembled these fragments into a description of the overarching gun-trafficking experiences of respondents.

A few individuals in the group of friends that comprised Network C began trafficking guns roughly a decade ago, seizing an opportunity that began when one of the group members enrolled in college in Virginia. Their simple process for acquiring guns would begin with the purchase of a local "want-ad" publication referred to as the "Trading Post." The friends would scour the "guns for sale" section until they found a gun that interested them. Typically, the college student (who did not have a criminal record) would then call the seller, arrange to meet, and legally purchase the gun. During one summer afternoon fieldwork session, in the wake of explaining that a Taurus revolver in the network originally came from Virginia, the Network C respondent offhandedly noted, "85 percent of the guns we ever got came from Virginia—the Trading Post [laughing]! I think you need to make a point to talk about *this* in your study: How many people use guns—sell guns—to help them get through college? And [they] don't think they're doing anything wrong as long as *they* ain't shooting nobody! I bet you find a correlation between northern kids going down south for college and trafficking guns."

Guns were generally driven back to Boston directly by the group of friends associated with Network C, although respondents noted variations to this model. Once a respondent took a duffle bag filled with four guns back to Boston via an Amtrak train; on occasion, the friends would hire a moving company specializing in automobiles and art (which they had been introduced to via the drug trade) to transport the guns they had purchased secondhand through the Trading Post, and sometimes, the college student would simply drive guns back to Boston himself during college recesses and sell them to friends. But members of Network C also reported planning social trips to visit the student around college events (i.e., spring break) and then picking up a gun or two from the Trading Post before heading home. The overarching pattern of gun acquisition presented by Network C, however, was one where individuals from the network would directly source their guns by means of private secondary sales, transport these guns north by driving them on their own, and finally sell (or keep) the moved guns within their immediate social network as their needs dictated. Guns acquired by means of unregulated secondhand purchase in places like Virginia would typically yield \$250 to \$400 in profit per gun once they were sold in Boston; comprising mostly semiautomatic pistols, purchases made for \$250 to \$500 in the legal market would be later be sold for \$600 to \$900. What is noteworthy about the sale and pricing of these guns when reaching Boston is that this markup would apply to close friends within the network—sometimes even to those involved in their movement north.

Network B respondents detailed a different pathway of gun trafficking. Over the course of fieldwork, respondents from this network described a "civilian" they knew that trafficked guns from the south to Boston. After several discussions between the field researcher, Network B respondents, and the trafficker, the trafficker expressed an interest in being interviewed for the study as long as protections were taken to conceal his identity. In contrast to the ad hoc model of trafficking presented in Network C, this individual followed a rigid routine for trafficking guns from the south to Boston. An African American man in his 40s, this respondent described himself as a professional, a college graduate, and an owner of his own home and car. Apart from his involvement in trafficking, he reported

having no other involvement in criminal activity (hence, his description by the Network as a "civilian") and no criminal record. Over the course of a midsummer meeting at his friend's dining room table, he spoke thoughtfully and seriously about his activities.

He had been involved with what he called "bringing back" guns for 4 years and estimated that he had moved approximately 80 guns to Boston over that period. He takes ten trips per year, returning with precisely two guns on each trip. He reported that he never brought back more than two guns on any trip. The guns he smuggled back to Boston were a mixture of new and high-quality used guns. He said, "They're used but in excellent condition—like maybe they've been test fired or something." The last five trips he took yielded six new guns and four used guns, although he noted that a couple of the used guns came in their factory boxes. The net income from each of these trips ranges from \$800 to \$1,200. Considering how frequently he takes these trips, this income has become an important part of his financial goals, with the proceeds earmarked for paying off his mortgage and buying additional rental property in and around Boston. Despite the financial support his activities have offered him, he viewed his involvement in trafficking as necessarily temporary. "Nothing lasts forever," he said, when queried on his continued involvement in gun trafficking. "Stick to the plan, and don't get greedy. When you get greedy, you lose." He reasoned that his conspicuously law-abiding profile, small-scale operation, and discrete, risk-averse approach will help him avoid detection until he gets out of the business.

His trips down south followed the same formula. The respondent works for a company that does business along the East Coast, so all his trips begin as regular work trips. He usually flies down south and drives back to Boston—with expenses paid for by his company. To account for this seemingly odd arrangement, he explains to his co-workers that he prefers to drive and doesn't like flying, but medical problems prevent him from enduring a two-legged trip in the car. At times, co-workers have accompanied him on the north-bound voyage in his rental car, unaware of the two guns he has stashed in the trunk. As part of the planning process for his trip, he checks the National Rifle Association website for the gun show calendar in a particular southern state. He has made a long-standing contact that he refers to as "his friend," who is a gun dealer in this southern state, and he can count on him to be present at gun shows in the region.

The interview subject reported that every gun he has ever purchased has been from this one dealer. The two met 4 years ago at a gun show, an opportunity that he sought out prior to committing to trafficking guns because, as perceived by the interviewee, "everything is off the books" at these shows. The interview subject "felt out" the dealer for a bit, visiting his display at the gun show several times for conversation, and things moved forward when he told him that he "might be interested in selling the guns when he got home." He recalled being pleased with how the dealer responded. "You have got to go slow with them. Some people might hear that [you want to resell guns] and be like, 'What do you mean you're going to sell them at home?'"

After establishing intentions, the dealer began by suggesting options for "what will sell"—all handguns, mostly higher powered semiautomatics—a process that the pair has continued to use throughout their working relationship. The interviewee, for all his involvement with guns, prefers to let the dealer select guns for him and does not identify as a gun enthusiast. In fact, he projects an image of wanting to have as little to do with the guns as possible. "I don't get personal with it," he said when responding to fieldworker queries on specific models, emphasizing that he has established a routine with the dealer

where the dealer "packs up" the guns in boxes for him so that he never even has to touch them. The discrete container box provided by the dealer is buried underneath clothes, blankets, and luggage for the duration of the trip back to Boston. When asked whether he thinks that the dealer knows what is happening with the guns, he replied, "He knows, but he doesn't know." After a long pause, he corrected himself and with a softened voice stated, "He knows. He knows."

Once back in Boston, the respondent reported following another similarly strict routine in reselling the guns. He deals only with a single contact, someone he calls his "broker," about whom he wants to discuss as little as possible, and about whose activities he claims to stay willfully ignorant. He did report, however, that it was a chance encounter with this broker 4 years ago that gave him the idea of getting into the business in the first place. Acquaintances from growing up together in Boston, he bumped into the broker in a bar and in the course of conversation mentioned that he was considering getting his license to carry in Massachusetts. The broker "dropped lots of hints" that there was "a lot of money" in reselling guns on the street. Although the respondent did not specify precisely how the relationship progressed, soon thereafter he began bringing guns to Boston to be sold to the broker. When asked his thoughts regarding where he thinks the guns might eventually end up, he grew uncomfortable and conjured up improbable scenarios: "Who knows? Maybe he's got a license. Maybe he's a gun collector with a million guns in his house. That's his business."

CONCLUSION

In this article, we provide much needed insight into the functioning of illegal gun markets, developing understanding of how these markets operate for a most consequential population: those at highest risk for involvement in gun violence. The overarching contributions of this study derive from discoveries in three unsettled areas of firearms research. First, we analytically describe the stock of firearms in active circulation among networks exposed to gun violence, situating these qualitative findings within a broader quantitative analysis of guns recovered in crime in Boston. Second, we advance understanding of illegal gun prices by analyzing correspondence between formal and informal market prices, in the process discovering gun-specific factors that influence street price. Finally, we identify some of the pathways and processes through which individuals at highest risk for involvement in violence obtain firearms. These novel findings are substantively important for the detail they provide about a poorly understood social problem, theoretically important for the fresh images they provide for stimulating theory development, and of policy import for a policy area hindered by gridlock and lack of support for policy-relevant research.

In previous research of illicit gun prices, scholars have generally analyzed prices of "crime guns" as an undifferentiated category without respect for gun models or type of illicit use; in contrast, we have made analytic and theoretical breakthroughs in the study of illegal gun pricing by bringing newfound specificity to these areas. We found that, relative to legal market prices for similar handguns, the gang members and drug sellers we studied paid inflated prices for their illegally acquired handguns (mean price = \$636, median price = \$638, representing a near 200 percent markup over fair market value). In a first-of-its-kind analysis of the features that influence street price, we discovered that semiautomatic pistols (~\$230) and higher caliber guns (~\$150) fetched significant price

premiums in the gun transactions we studied, whereas new guns did *not* command a price premium relative to their fair market value when compared with used guns. Importantly, the results of our analysis of street pricing reveal that, when controlling for other relevant gun characteristics, fair market value is positively associated with street price but only up to a point. Specifically, it seems that the market transactions we observed did not yield significant and worthwhile returns for the sale of higher valued guns relative to medium-valued guns (those valued around \$350 in the legal market). Consistent with Webster et al. (2013), our findings demonstrate that secondary sales of guns of lower fair market value—particularly semiautomatic pistols of higher caliber—seem to present an elevated risk for involvement in gun trafficking.

Viewed in tandem, the results of our qualitative and quantitative efforts revealed that specific supply lines made firearms available to three high-risk networks of gang members and drug hustlers in Boston. Relative to traced firearms recovered from individuals who were not gang involved, traced firearms recovered from Boston gang members seemed distinctive; they were more likely to be older firearms first sold by licensed dealers in New England states and I-95 southern states with less stringent gun laws. The increased age of traced guns recovered from Boston gang members suggests that these firearms have gone through a series of transactions before being acquired by the current owner (Cook et al., 2015). Our interviews with gun traffickers also suggest that they directly and indirectly supply these high-risk networks with secondhand guns purchased from licensed and unlicensed sellers in states with weaker gun control laws. In contrast to the assertion made by a handful of researchers (e.g., Kleck and Wang, 2009; Wright and Rossi, 1994), as well as by gun advocacy groups, that theft is the primary mechanism for criminal gun acquisition, guns in the networks we studied were overwhelmingly observed to be acquired through secondary transactions and not by theft. Whether the role of theft in illegal gun acquisition has been overstated or whether different types of users rely on distinct supply lines—or both—are important questions future research.

Our inquiry does have important limitations. In spite of the steps taken to ensure the quality of respondent gun reports (i.e., repeated observations and regular checks on the accuracy of previous reports), most cases could not be verified by the field researcher or other respondents, and thus, they are subject to the limitations associated with self-report data. Furthermore, the diagnostic regression analyses that flow from these qualitative data violate assumptions of OLS regression; most notably, the cases we analyze were not intended to represent a random sample of a population, and relatedly, the networked nature of our observations results in the correlation of error terms. As with other research studies using ATF trace data, analyses are limited by an inability to trace all recovered firearms to their first retail sale and, for those traced guns, a lack of direct information about intermediary transactions that may have occurred between the first retail sale and

^{13.} From the perspective of economic theory, this pricing pattern could be interpreted as evidence of a price premium related to the risk of selling illegal guns. Because the risk of being apprehended for selling an illegal gun is independent of a gun's value, it makes sense that this risk premium would be additive, as is reflected in the relatively higher minimum gun price (~\$200) observed. For buyers embedded in networks exposed to gun violence, the attrition of guns among our cases suggests that the constant threats of police confiscation and possibility of gun loss (elevated through network exposure to requests for loans, etc.) could dissuade would-be buyers from purchasing higher value guns.

recovery by law enforcement. This limitation is partly addressed by qualitative interviews with illegal gun market participants. Yet it is important to note that the gang members and drug hustlers and the illegal gun acquisition pathways they described are not representative of the broader population of high-risk individuals and their gun acquisition modalities in Boston or elsewhere.

We further emphasize that the cases of illegal guns we documented, as well as the empirical findings associated with their price structure, are not intended to be representative of "typical" illegal guns—whatever this might mean—or generalizable to other American cities. Indeed, considering the patchwork nature of American gun laws and variation in factors structuring illegal gun markets (i.e., rates of gun ownership, region, crime rates, etc.), empirical research striving for generalizability might achieve it without meaningfully representing social reality in any given locality. Influenced by Small (2009), we argue that, despite the nongeneralizability of our findings, our study has produced two important types of empirical contributions to the research literature. First, we have brought forward discoveries regarding the firearms in circulation among networks exposed to violence, including analysis of their pricing and insights regarding the social nature of their sale, sharing, and movement. These discoveries of new phenomena and processes, embedded in textured description of the social context of illegal gun possession, are examples of what qualitative research can bring to a research area that has traditionally been bereft of it. Second, our empirical results, through a process of logical—rather than of statistical—inference, are generative of understandings of illegal gun markets and corresponding hypotheses that extend beyond our field site. Thus, although we would not expect the mean price of illegal guns circulating among high-risk networks in other cities to be \$636, researchers elsewhere might anticipate seeing price floors based on transaction risk, decreasing returns to guns of higher value, and/or price premiums for semiautomatic pistols and guns of higher caliber.

Analyzing patterns of serious gun violence has been one of the core concerns of criminology of the late 20th and early 21st centuries. Yet, despite its centrality to a range of criminological theories and social facts, criminal gun access itself has not often served as the object of criminological inquiry. Indeed, illicit guns have served as a silent partner in the application of criminological theories ranging from codes of violence (i.e., Anderson, 1999; Fagan and Wilkinson, 1998), through neighborhood-level structural theories of homicide (i.e., Sampson, Raudenbush, and Earls, 1997), to explanations for societal shifts in crime rates (i.e., Zimring, 2008). As such, a slate of influential criminological theories and their corresponding research paradigms have assumed access to illegal guns as part of their explanatory schemas without examining this question directly. Even though we have underscored the importance of studying gun access among those exposed to urban violence, the problem of illicit gun access intersects with a broad range of criminological theories and research applications. For example, gang researchers have demonstrated how gangs can facilitate gun access (i.e., Thornberry et al., 2003); life-course analyses have been used to show how gun carrying can influence risk perception of offending and actual risk of violent victimization (i.e., Loughran et al., 2016); the outcomes of recent investigations of strain theory (i.e., Contreras, 2013) have shown guns to be a crucial tool for criminal innovation; and criminologists interested in gender and masculinity have analyzed gun access and intimate partner violence (i.e., Zeoli and Frattaroli, 2013) and the role of guns as concrete tools in the performance of masculinity (i.e., Carlson, 2015). Even though these examples prove that the study of gun access can be integrated into

mainstream criminological research, in most cases, researchers follow a paradigm of using measures of gun access to explain other phenomena.

Although inspired by preceding research, the portrait of the illegal gun market we present offers a different summary image than those of our predecessors, representing a necessary step for theory development in this research area. Indeed, David Matza, in his classic work *Delinquency and Drift* (1964: 2), recognized the theoretical importance of new scholarly representations of social phenomena, writing, "Systems of action have exemplars and a portrayal of them is a crucial step in the elaboration of causal theory." This representational shift reflects a movement away from exemplars created in the image of abstract economic models—wherein gun transactions are principally influenced by patterns of supply and demand in a unitary black market—and toward concrete representations influenced by economic sociology—wherein gun transactions are deeply embedded in social relations, where transaction risk varies according to social connections between buyer and seller, and where local markets are fragmented by social networks that both enable and constrain transactions. This image of the illicit gun market is not a pure theoretical construction, however, but is built from our data themselves and the uncommon insights afforded by proximity to gun transactions. These data are unusual in criminological research not only because they evidence the complementarity of quantitative and qualitative analytic strategies, but also in so doing, they bring together official state data (BPD/ATF gun recoveries) with data generated "from below" (by those engaged in crime) in service of answering the same question. We hope that our data and the new ideas they suggest will inspire a different sort of gun market analysis, one that is aimed at taking on pressing theoretical and practical questions by attempting to construct gun markets from the ground up rather than by inferring them from survey and administrative data alone.

In revealing the connections between guns used in violent crime in Boston and their origin in places like New Hampshire, Maine, and Virginia, we draw attention to how disadvantaged neighborhoods marked by violence, far from being isolated, remain deeply influenced by social policy currents that originate far beyond their borders. Beyond the direct harms of gun violence, this policy arrangement represents a variation on what some have termed the "overpolicing-underpolicing paradox" (Rios, 2011). Even though end users of illegal guns encounter aggressive local policing and stiff penalties for gun possession, those engaged in the diversion of guns above the street level face comparably lenient laws overseen by an overburdened enforcement agency (ATF) that lacks the staffing capacity for basic oversight, let alone deterrence (Webster and Vernick, 2013). Although some important share of the enormous and ever-increasing stock of guns in the United States will continue to find its way to disadvantaged urban neighborhoods for the foreseeable future, federal legislation mandating universal background checks and recordkeeping requirements for the sale of all guns would be an important first step in reducing the ease of trafficking guns into these areas and stemming the flow of guns to prohibited possessors through secondary market sources (Cook, Molliconi, and Cole, 1995; Webster et al., 2013).14

^{14.} Such policies are overwhelmingly supported by public opinion. For example, McGinty et al. (2013) showed that 89 percent of Americans (including 84 percent of gun owners and 74 percent of NRA members) support mandatory background checks for all gun sales. Such findings offer some hope

The current policy and enforcement regime in Boston, however, seems to be having some effect in reducing the harms of gun violence by making it comparably difficult to acquire illegal guns. Guns are somewhat scarce in Boston, as evidenced by the modest share of robberies committed with firearms (only 26.4 percent of 1,544 robberies in 2015) and the relatively smaller number of yearly gun homicides (only 33 gun homicides in 2015 for a population of some 650,000 residents). Although laborious given the lack of gun transfer records, investigations on the secondary market sources of guns to high-risk individuals are worth pursuing and expanding. The bulk of serious gun violence in Boston is generated by a small number of highly active people involved in gang and drug networks (Braga, 2003; Braga, Hureau, and Winship, 2008). Higher levels of enforcement pressure on gun markets upstream of street users could change risk perceptions, increase transaction costs, raise prices, and decrease the availability of firearms to individuals in these networks, while having the additional benefit of not exacerbating the burdens of incarceration on disadvantaged men of color. Such changes could subsequently reduce gun violence as gang members would need to further economize on gun possession and use. Given the staggering toll of urban gun violence, the time has come to develop, implement, and test powerful policy responses to illicit secondary market transactions that serve to arm those most likely to engage in, and fall victim to, violence.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix A: Online Supplement: Qualitative Research Methods