

COMPREHENSIVE FIREARMS TRACING: STRATEGIC AND INVESTIGATIVE USES OF NEW DATA ON FIREARMS MARKETS

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I. INTRODUCTION

In 1999, more than 150,000 firearms were submitted by law-enforcement agencies for tracing by the Bureau of Alcohol, Tobacco, and Firearms (ATF), three times as many as in 1993.¹ This growth in trace requests indicates the success of ATF's program to persuade state and local agencies of the strategic value of comprehensive firearms tracing. About four dozen cities now submit all firearms confiscated by the police for tracing, and the growing database of trace results has provided the raw material for improved intelligence on the channels by which guns are acquired by criminals. But the proper interpretation and use of these data remains controversial.

Firearms tracing is nothing new. The Gun Control Act of 1968² established the regulations that make 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.³ Best practice in a police investigation of a gun homicide or assault often includes submitting the gun (if available) for tracing, in the hope of

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1. The data on traces in 1999 were made available to us by an ATF official in the form of a computer file. There are several ways to count the yearly number of firearms trace requests received by ATF. Firearms trace data can be temporally ordered by any of the following: the date of the firearms recovery; the date the trace request was submitted; the date the trace request was completed; and, if the trace is successful, the date the firearm was first sold at retail. In this paper, we counted the number of traces in 1999 by the date of the firearms recovery. If the recovery date was not known, we used the date the firearms trace request was submitted to ATF.

2. 18 U.S.C. § 922 (1994).
3. *See id.*

identifying a suspect or developing the case against a suspect.⁴ But law-enforcement agencies obtain hundreds of thousands of firearms every year that are not linked to a particular violent crime, having been confiscated for some other reason—most often because they were being carried or possessed illegally. While tracing such guns is unlikely to provide information useful in solving a particular homicide or assault, such comprehensive gun-trace data can provide guidance to the regulatory- and criminal-enforcement activities of ATF and more generally provide a statistical basis for understanding the supply side of the gun-violence problem.

The Treasury Department's success in expanding and improving ATF's tracing capacity, persuading more jurisdictions to submit all recovered guns for tracing if they are linked to a crime, and making the results generally available, has created a new tool for combating gun violence. The promising uses for these data can be placed in three categories: (1) informing strategic planning efforts to interdict the transactions by which criminals tend to acquire their guns; (2) identifying specific firearm dealers and traffickers as targets for enforcement actions; and (3) providing a basis for evaluating the effects of changes in gun-control laws. Critics have questioned all three of these uses on the grounds that firearms recovered by police and successfully traced do not constitute a representative sample of firearms used in violent crime, and that the information provided by a typical trace is rather limited.⁵ In what follows, this Article discusses these concerns and provides a preliminary assessment of the promises and pitfalls of these data.

The case for comprehensive tracing of firearms rests on the belief that these data will increase the effectiveness of efforts to restrict the availability of guns to youths and criminals. If in fact guns are so widely and readily available as to render futile any effort to regulate their supply, more data will not be helpful.⁶ The trace data by themselves cannot resolve that issue, but do provide guidance about promising lines of attack on the illicit supply of guns. The efficacy of such supply-side enforcement is the ultimate measure of the value of comprehensive trace data.

Part II provides details on the tracing process and offers new tabulations based on 1999 data for how guns are successfully traced, and the reasons for failure when they are not. Part III provides a brief history of the development of comprehensive tracing as a component of the supply-side strategy conducted by the Clinton administration. Part IV discusses the statistical relationship of the trace

4. See YOUTH CRIME GUN INTERDICTION INITIATIVE, U.S. BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS, U.S. DEP'T OF THE TREASURY, CRIME GUN TRACE ANALYSIS REPORTS: THE ILLEGAL YOUTH FIREARMS MARKET IN 17 COMMUNITIES 4 (1997).

5. See, e.g., CONG. RESEARCH SERVICE, REP. 92-434, "ASSAULT WEAPONS": MILITARY-STYLE SEMI-AUTOMATIC FIREARMS FACTS AND ISSUES 65 (1992); Paul H. Blackman, *The Limitations on BATF Firearms Tracing Data for Policymaking and Homicide Research*, in PROCEEDINGS OF THE HOMICIDE RESEARCH WORKING GROUP MEETINGS, 1997 AND 1998 61; Gary Kleck, *BATF Gun Trace Data and the Role of Organized Gun Trafficking in Supplying Guns to Criminals*, 18 ST. LOUIS U. PUB. L. REV. 23, 29-37 (1999).

6. See Kleck, *supra* note 5, at 42-43.

“sample” to the relevant “population” of guns in the hands of criminals. Part V provides an analysis of what the trace data tell us about trafficking patterns: that newer guns are over-represented in crime even though criminal users are rarely among the first purchasers, and that the percentage of crime guns imported from out of state tends to be closely linked to the stringency of local controls. Taken together, these findings suggest that licensed dealers are playing a significant role in “supplying the suppliers” of guns to criminals and that firearms trafficking may be one of the important channels by which guns reach criminals, especially in the tight-control states. Part VI then reviews the case for using trace data to guide ATF’s enforcement efforts against specific dealers and traffickers and the limitations of this approach. Part VII illustrates the use of these data in the evaluation of gun-control laws. The final Part offers conclusions concerning the promise and pitfalls of wholesale tracing.

II. TRACING THEORY AND PRACTICE

The rather cumbersome procedure used by ATF to trace firearms reflects the fact that most of the relevant commercial-transactions records are not centralized, but rather are kept piecemeal by the dealers, distributors, and manufacturers. This arrangement reflects the intention of Congress to create a mechanism for tracing guns used in crime without establishing a national registry of firearms owners.

A. The Legal Framework

The Gun Control Act of 1968 (“GCA”) and its accompanying regulations established the legal framework for regulating firearms transactions and the associated recordkeeping.⁷ The Act was intended to limit interstate commerce in guns so that states with strict regulations were insulated from states with looser regulations.⁸ To that end, the GCA established a system of federal licensing for gun dealers and required that all individuals engaged in the business of selling guns must be a Federal Firearms Licensee (“FFL”).⁹ The FFLs serve as the gatekeepers for interstate shipments: only they may legally receive mail-order shipments of guns, and they may not sell handguns to residents of other states. FFLs are explicitly required to obey state and local regulations in transacting their business.¹⁰

The GCA also sets forth conditions on the transfer of firearms. FFLs may not sell handguns to anyone under the age of twenty-one, or long guns to anyone under the age of eighteen, nor may they sell any gun to someone who is proscribed from possessing one.¹¹ The list of those proscribed by federal law includes individuals with a felony conviction or under indictment, fugitives from justice,

7. See 27 C.F.R. § 178.124 (1968); see also Franklin E. Zimring, *Firearms and Federal Law: The Gun Control Act of 1968*, 4 J. LEGAL STUD. 133, 150 (1975).

8. See Zimring, *supra*, at 133.

9. See 18 U.S.C. § 922(a) (1994); see also Zimring, *supra* note 7, at 149.

10. See 18 U.S.C. § 922(a).

11. See *id.*

illegal aliens, and those who have been committed to a mental institution.¹² FFLs must require customers to show identification and fill out a form swearing that they do not have any of the disqualifying conditions specified in the GCA. Beginning in 1994, the Brady Violence Prevention Act required that FFLs initiate a background check on all handgun purchasers through law-enforcement records;¹³ as specified in the Act, the background-check requirement was expanded to include the sale of long guns beginning in 1998.¹⁴

Most important for our purposes, the GCA established a set of requirements designed to allow the chain of commerce for any given firearm to be traced from its manufacture or import through its first sale by a retail dealer.¹⁵ Each new firearm, whether manufactured in the United States or imported, must be stamped with a unique serial number.¹⁶ Manufacturers, importers, distributors, and FFLs are required to maintain records of all firearms transactions, including sales and shipments received.¹⁷ FFLs must also report multiple handgun sales and stolen firearms to ATF and provide transaction records to ATF in response to firearms trace requests. When FFLs go out of business, they are to transfer their transaction records to ATF, which then stores them for use in tracing.¹⁸ Thus, the GCA created a paper trail for gun transactions that, at least in principle, can be followed by ATF agents.

B. The Tracing Process

The tracing process begins with a law-enforcement agency's submission of a trace-request form to ATF's National Tracing Center ("NTC").¹⁹ The form requests information regarding the firearm type (pistol, revolver, shotgun, rifle, etc.), the manufacturer, caliber, and serial number, the location of the recovery, the criminal offense associated with the recovery, and the name and date of birth of the firearm possessor.²⁰ This information is entered into ATF's Firearms Tracing System at the NTC, where it is first checked against two partially computerized databases kept by ATF: records of out-of-business FFLs that are stored by ATF and records of multiple handgun purchases reported on an ongoing basis by FFLs.²¹

If there is no "hit" from these two databases, NTC contacts the firearm manufacturer (for domestic guns) or the importer (for foreign guns) and requests

12. *See id.*

13. Brady Violence Prevention Act of 1993, Pub. L. No. 103-159, 107 Stat. 1536 (1993) (codified at 18 U.S.C. §922(q)-(t) (1994)).

14. *See* 18 U.S.C. § 922(t)(1) (1994).

15. *See* 27 C.F.R. § 178.124 (1968).

16. *See* 27 C.F.R. § 178.92(a)(1) (1968).

17. *See* 18 U.S.C. § 923(g)(1)(A) (1994).

18. *See* 18 U.S.C. § 923(g)(4) (1994).

19. *See* U.S. BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS, U.S. DEP'T OF THE TREASURY, COMMERCE IN FIREARMS IN THE UNITED STATES 19 (2000) [hereinafter COMMERCE IN FIREARMS IN THE UNITED STATES].

20. *See id.*

21. *See id.* at 20.

information on which distributor first handled the gun.²² ATF then follows the chain of subsequent transfers until it identifies the first retail seller. That FFL is then contacted with a request to search his or her records and provide information on when the gun was sold and to whom.²³ Under current law, FFLs are required to comply with such requests, and usually do.

The statistics in Table 1 are for the 154,000 firearms submitted for tracing in 1999.²⁴ Of these, just fifty-four percent were successfully traced, usually through the FFL who first sold the gun at retail. About one gun in ten was traced through the out-of-business records or multiple-sales reports from FFLs. The forty-six percent of trace requests that failed did so for a variety of reasons. About ten percent of the traces failed because the gun was too old.²⁵ Similar proportions failed because of problems with the serial number, errors in the submission form, or problems obtaining the necessary information from the FFL that first sold the gun at retail.

22. *See id.*

23. *See id.*

24. This total omits the 11,000 requests from foreign agencies.

25. Firearms manufactured or imported before 1968 cannot be traced in most cases because they were not subject to the serial-number and record-keeping requirements of the GCA. *See* Identification of Firearms, 27 C.F.R. § 179.102 (2000); YOUTH CRIME GUN INTERDICTION INITIATIVE, *supra* note 4. Until recently the National Tracing Center's ("NTC") policy was not to trace firearms manufactured before 1990, unless specifically requested by law enforcement officials. *See* YOUTH CRIME GUN INTERDICTION INITIATIVE, *supra* note 4, at 3. However, with an increased budget and enhanced technology, the NTC greatly improved its capacity to trace firearms and ended that policy in 1999. *See* U.S. BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS, U.S. DEP'T OF THE TREASURY, CRIME GUN TRACE REPORTS, 1999: NATIONAL REPORT 52 (2000) [hereinafter CRIME GUN TRACE REPORTS, 1999: NATIONAL REPORT].

TABLE 1: TRACE RESULTS: GUNS SUBMITTED FOR TRACING, 1999

Trace Result	Count	Percentage
Completed Traces (how)	82,662	53.5
Out of Business records	13,166	8.5
Multiple sale reports	3,627	2.3
FFL record	60,526	39.2
Other	5,343	3.5
Not Traced (reason)	71,832	46.5
Too old	14,046	9.1
Serial number problem	16,917	10.9
Error on Trace request	15,738	10.2
Dealer record problem	16,610	10.7
Other	8,521	5.6
Total	154,494	100.0

Source: Original computations from ATF's 1999 firearm-trace-requests database

It should be clear that even when a trace is "successful", it provides rather limited information about the history of the gun. Most successful traces only access the data on the dealer's record for the first retail sale of the gun. Generally, subsequent transactions cannot be traced from the sorts of records required by federal law.

There are two rather minor exceptions where a transaction involving a used (i.e., second-hand) gun can be traced. First, if a used gun is included in a sale of more than one handgun to the same purchaser, that transaction is reported by the FFL and will become part of the NTC's multiple-handgun-transfer database. Second, if the trace involves a gun that was sold second-hand by an FFL who subsequently went out of business and, as the law requires, transferred his transactions records to ATF, that transaction will also be accessible at the NTC. As shown in Table 1, only eleven percent of traces (about twenty percent of successful traces) were completed by use of one of these two databases in 1999. The number of successful traces that involved the sale of used guns is unknown, since the transaction form does not indicate whether the gun is new or used.

In any event, most transactions involving used guns are either off-the-books transfers by private individuals, which cannot be traced because no record keeping is required, or are documented transactions by FFLs that are not reported to ATF. Hence, they are not included in one of their computerized databases.²⁶ In

26. Between 30% and 40% of firearms are acquired from someone who is not an FFL. See PHILIP J. COOK & JENS LUDWIG, GUNS IN AMERICA: RESULTS OF A COMPREHENSIVE NATIONAL SURVEY ON FIREARMS OWNERSHIP AND USE 27 (1996).

exceptional instances where a firearm is involved in a particularly important crime, ATF may launch an "end to end" or "investigative" trace in an attempt to document the chain of possession beginning with an interview of either the first or the most recent known owner.²⁷ Needless to say, this type of trace is expensive and far from routine.²⁸

Someone learning about tracing for the first time may find it a remarkably cumbersome process in this age of computers and telecommunications. Modest changes in the current system could make a big difference.²⁹ For example, if FFLs were required to report serial numbers for all sales to NTC, the tracing process would be greatly facilitated without creating a central registry of gun owners. The states could also develop reporting or registration systems. Currently, only eleven states do have such a system, and only three (California, Maryland, and Massachusetts) are useful for tracing purposes.³⁰

III. THE IMPLEMENTATION OF COMPREHENSIVE TRACING

Until recently, most law-enforcement agencies did not trace firearms unless they needed the information to solve a particular crime. In 1993, about 55,000 trace requests were submitted to ATF.³¹ A concerted effort by ATF and the Clinton Administration has generated a considerable increase in the volume of trace requests.³² This effort entailed enhancements in the capacity and efficiency of the NTC and an outreach effort that has persuaded a number of jurisdictions to submit all guns for tracing and provided local officials with training in how to do so.³³

The expansion in firearms tracing was part of a campaign to strengthen ATF's licensing and regulatory-enforcement efforts while attacking illicit gun trafficking. This focus on reducing the availability of firearms is not a new idea,³⁴

27. CRIME GUN TRACE REPORTS, 1999: NATIONAL REPORT, *supra* note 25, at 54-55.

28. The Youth Crime Gun Interdiction Initiative ("YCGII") program soon will commence "end to end" tracing for all firearms recovered from persons under 21. *See id.*

29. Jeremy Travis & William Smarrito, *A Modest Proposal to End Gun Running in America (Big Cities, Big Problems: Solutions for the 1990's)*, 19 *FORDHAM URB. L.J.* 795 (1992).

30. Kleck asserts that law-enforcement agencies in states with registration systems initiate their traces with the state registration database. If true, such traces would not be included among the traces tabulated by the NTC. *See Kleck, supra* note 5, at 24-25. The 11 states are California, Connecticut, Hawaii, Maryland, Massachusetts, Michigan, New Jersey, New York, Pennsylvania, South Carolina, and West Virginia plus Washington, D.C. and Puerto Rico. Telephone interview with John Freeman, ATF Crime Gun Analysis Branch (Dec. 4, 2000).

31. *See* COMMERCE IN FIREARMS IN THE UNITED STATES, *supra* note 19, at 21.

32. *See id.*

33. *See id.* at 20.

34. *See* STEVEN BRILL, FIREARM ABUSE: A RESEARCH AND POLICY REPORT 3-4 (1977); Mark H. Moore, *The Bird in the Hand: A Feasible Strategy for Gun Control*, 2 *J. POL'Y ANALYSIS & MGMT* 185, 187 (1983); Mark H. Moore, *Keeping Handguns from Criminal Offenders*, 455 *ANNALS AM. ACAD. POL. & SOC. SCI.* 92, 94 (1981) [hereinafter Moore, *Keeping Handguns from Criminal Offenders*]; Franklin E. Zimring, *Street Crime*

and ATF has a history of investigating and seeking prosecution of firearms traffickers.³⁵ However, the priority given to this supply-side approach has varied over the decades. During the Nixon years, ATF's criminal-enforcement efforts were targeted on locking up violent criminals who happened to be in violation of firearms statutes.³⁶ Beginning in 1976, the Ford Administration initiated an effort to make broader use of the licensing and enforcement authority of the ATF, with particular focus on stemming the flow of guns to street gangs and organized crime.³⁷

This shift in enforcement priorities proved controversial. The National Rifle Association ("NRA") opposed the gun-trafficking focus on the grounds that the ATF was violating the constitutional rights of gun owners by their overzealous enforcement strategies.³⁸ After the election of Ronald Reagan in 1980, and the election of a Republican majority in the Senate, ATF made a deliberate effort to disassociate itself with controlling the illegal gun trade and instead refocused on using the firearms laws as a tool for controlling criminals.³⁹ It shifted virtually all of its enforcement resources to apprehending armed street-level drug traffickers and armed criminals, in support of the drugs and crime initiatives of the Reagan and Bush Administrations.⁴⁰

The political environment changed again with the election of President Clinton. Congress enacted the Brady Act in 1993⁴¹ and a partial ban on assault weapons in 1994.⁴² The President expressed his belief that the ready availability of guns contributed to the violence problem in his 1993 *Memorandum on Gun Dealer Licensing to the Secretary of the Department of the Treasury*:

A major problem facing the nation today is the ease with which criminals, the mentally deranged, and even children can acquire firearms. The gruesome consequences of this ready availability of guns is found in the senseless violence occurring throughout the country with numbing regularity. While there is not one solution to

and New Guns: Some Implications for Firearms Control, 4 J. CRIM. JUST. 95, 102-03 (1976).

35. WILLIAM J. VIZZARD, *IN THE CROSS FIRE: A POLITICAL HISTORY OF THE BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS* 49 (1997).

36. *See id.* at 45-7.

37. *See id.* at 49.

38. *See* DAVID HARDY, *TASK FORCE TO INVESTIGATE THE ENFORCEMENT OF POLICIES OF THE BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS, THE BATF'S WAR ON CIVIL LIBERTIES* 10 (1979).

39. *See* VIZZARD, *supra* note 35, at 93.

40. *See id.* ATF's ability to make a successful case against firearms traffickers was undermined by the NRA-sponsored McClure-Volkmer Firearms Owners Protection Act in 1986, which made it difficult to prove that an unlicensed seller was in the business of selling guns, rather than simply someone who happened to be selling off his private collection. *See* Anthony A. Braga, *More Gun Laws or More Gun Law Enforcement*, 20 J. POL'Y ANALYSIS & MGMT 545, 47 (2001).

41. Brady Violence Prevention Act of 1993, Pub. L. No. 103-159, 107 Stat. 1536 (1993) (codified at 18 U.S.C. § 922(q)-(t) (1994)).

42. Violent Crime Control and Law Enforcement Act of 1994, Assault Weapon Ban, Pub. L. No. 103-322: 18 U.S.C. §922(v) (repealed).

the plague of gun-related violence, there is more than sufficient evidence indicating that a major part of the problem involves the present system of gun dealer licensing, which encourages a flourishing criminal market in guns.⁴³

Following this directive, ATF put more resources into crime gun tracing, regulating gun dealers, and investigating gun traffickers.⁴⁴

Before President Clinton's memorandum, obtaining a federal dealer's license from ATF was just a matter of paying a small fee and filling out a form. By 1993, there were over 280,000 people who had done so—most of whom were not actually in the business of selling guns to the public.⁴⁵ ATF at that time lacked the authority and resources to screen applicants effectively or to inspect their operations after issuing the license.⁴⁶ Thus, the federal licensing system, which had been intended to regulate retail commerce in guns, was itself unregulated. After the Clinton memorandum, ATF stiffened license-application requirements and worked with state and local agencies to ensure that FFLs were complying with applicable state and local laws governing firearms retailing.⁴⁷ Further, the Crime Control Act of 1994 increased the fee for a three-year license from \$30 to \$200.⁴⁸ The cumulative effect has been to reduce the number of federal licensees to about 100,000, thereby enhancing ATF's ability to serve its regulatory function.⁴⁹

ATF's push to expand firearms tracing was in part grounded in the development of new applications for trace data. In the early 1990s, methods for utilizing firearms-trace data to detect gun traffickers were developed by several ATF field divisions and ATF's National Tracing Center. ATF's Boston Field Division was among the pioneers of a comprehensive approach, tracing all guns

43. William Clinton, Memorandum for the Secretary of the Treasury on Gun Dealer Licensing, August 11, 1993, 58 Fed. Reg. 50,833 (1993).

44. See COMMERCE IN FIREARMS IN THE UNITED STATES, *supra* note 19, at 15–16.

45. See U.S. BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS, U.S. DEP'T OF THE TREASURY, OPERATION SNAPSHOT 9 (1993). Operation Snapshot, an ATF study of 400 randomly selected licensed retail dealers, revealed that nearly half of them had made no gun sales in the 12 months prior to the study. See *id.* Just 20% had sold as many as 10 guns during the prior year and only 7% had sold at least 50 guns. See *id.* ATF concluded that most licensed dealers did not appear to be making a livelihood from the business of firearms dealing. See *id.* at 12. Rather, most seemed to be gun enthusiasts using their FFL privileges, particularly their ability to purchase guns through the mail at wholesale prices, to enhance their personal collections and perhaps make transfers to family, friends, and acquaintances. See *id.*

46. See JOSH SUGARMANN, MORE GUN DEALERS THAN GAS STATIONS: A STUDY OF FEDERALLY LICENSED FIREARMS DEALERS IN AMERICA I (1992).

47. Garen J. Wintemute, *Guns and Gun Violence*, in THE CRIME DROP IN AMERICA 45 (Alfred Blumstein & Joel Wallman eds., 2000).

48. See 18 U.S.C. §923(a) (1994).

49. GLENN L. PIERCE ET AL., NATIONAL REPORT ON FIREARMS TRACE ANALYSIS FOR 1996–1997 3 (1998); COMMERCE IN FIREARMS IN THE UNITED STATES, *supra* note 19, at 15–17; U.S. BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS, U.S. DEP'T OF THE TREASURY, GUN DEALER LICENSING AND ILLEGAL GUN TRAFFICKING 2–3 (1997).

recovered by the Boston Police Department beginning in January 1991.⁵⁰ In partnership with academic researchers, ATF and the Boston Police Department analyzed the resulting data to describe the nature of the local gun market and provide tactical guidance to investigators.⁵¹

The results of these trace studies, paired with convincing anecdotal evidence on the successful application of trace data in detecting gun traffickers, generated interest in the value of firearms trace data. In July 1996, President Clinton announced the Youth Crime Gun Interdiction Initiative ("YCGII"), with commitments from a number of cities to trace all recovered crime guns.⁵² The program has expanded from seventeen cities in 1996 to thirty-eight cities in 2000, with additional cities to be added in 2001.⁵³ Other jurisdictions have also expanded their use of gun tracing. Six states, for example, have recently adopted comprehensive tracing as a matter of state policy, either by law (California, Connecticut, North Carolina, and Illinois), by executive order (Maryland), or by law-enforcement initiative (New Jersey).⁵⁴

IV. THE STATISTICAL PROPERTIES OF FIREARMS-TRACE DATA

As more jurisdictions adopt a policy of comprehensive tracing, the database on trace requests becomes more useful for statistical purposes in two ways. First, the larger database supports a more detailed analysis than would otherwise be feasible. For example, ATF is able to produce separate reports on the statistical patterns for each city that participates fully in the YCGII. Second, a jurisdiction that submits all confiscated guns for tracing can be confident that the resulting database of trace requests is representative of a well defined population of guns—namely (and trivially), those recovered by the police during a particular time period. But to be useful for strategic-planning purposes, it is important to know how these data relate to a different population of guns—those in the hands of criminals.

50. This arrangement was put in place by retired ATF special agent David Carlson, now of Northeastern University. See David M. Kennedy et al., *Youth Violence in Boston: Gun Markets, Serious Youth Offenders, and a Use-Reduction Strategy*, 59 LAW & CONTEMP. PROBS. 147, 170 (1996).

51. See *id.*

52. See Fox Butterfield, *Federal Program Will Track Sales of Guns to Youth*, N.Y. TIMES, July 8, 1996, at A1. The name of this Initiative is a bit misleading, because it was not limited to youths. *Id.*

53. See U.S. BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS, U.S. DEP'T OF THE TREASURY, TREASURY RELEASES REPORT ON 1999 CRIME GUN TRACES ¶7 (visited April 22, 2001) <<http://www.atf.treas.gov/press/fy01press/113000ycgiirelease.htm>>.

54. See CRIME GUN TRACE REPORTS 1999: NATIONAL REPORT, *supra* note 25, at 51.

A. The Gun Population of Interest

Statisticians use the term “population” to refer to a collection of items, events, or individuals (i.e., guns, shootings, victims).⁵⁵ A “sample” is a subset of a population that may be used to make inferences about the whole.⁵⁶ Whether these inferences are accurate depends on the extent to which the sample is representative of the population, or can be adjusted to be representative, with respect to the characteristics that are being investigated.

The population from which the YCGII guns are sampled are known as “crime” guns, by which is meant any gun “that is illegally possessed, used in crime, or suspected to have been used in crime. An abandoned firearm may also be categorized as a crime gun if there is reason to believe it was used in a crime or illegally possessed.”⁵⁷

Most trace requests are associated with guns that were confiscated in connection with possession or carrying offenses, or with drug dealing (see Table 2).⁵⁸ A subset of the trace requests are associated with violent crimes, and hence can be said to be sampled from that more narrowly defined population. Finally, it could be argued that most all “crime” guns are relatively likely to be used at some point in criminal violence—that is, after all, the rationale for the laws restricting possession and carrying. These may also be viewed as a sample from the population of guns that are at great risk of misuse.

55. WILLIAM MENDENHALL ET AL., INTRODUCTION TO PROBABILITY AND STATISTICS 244–247 (10th ed. 1999).

56. *See id.*

57. CRIME GUN TRACE REPORTS 1999: NATIONAL REPORT, *supra* note 25, at xiii. ATF does not include firearms held for “safekeeping” by law enforcement or “found guns” that are not tied to a crime. *See id.* at 10.

58. To be specific, the statistics in Table 2 indicate that almost two-thirds of the “crime” handguns submitted for tracing from the YCGII cities in 1999 were coded as associated with carrying, possession, or other firearms offenses, while only 13% were associated with specific violent crimes. “Vice and Narcotics” is the third category, accounting for about one-fifth of the guns, presumably those that were picked up in connection with arrests for these crimes. There are far fewer long guns recovered by police than handguns, but those that are recovered exhibit a similar pattern of crime involvement.

TABLE 2: CIRCUMSTANCES OF GUN RECOVERIES: YCGII GUNS SUBMITTED FOR TRACING, 1999, HANDGUNS AND LONG GUNS

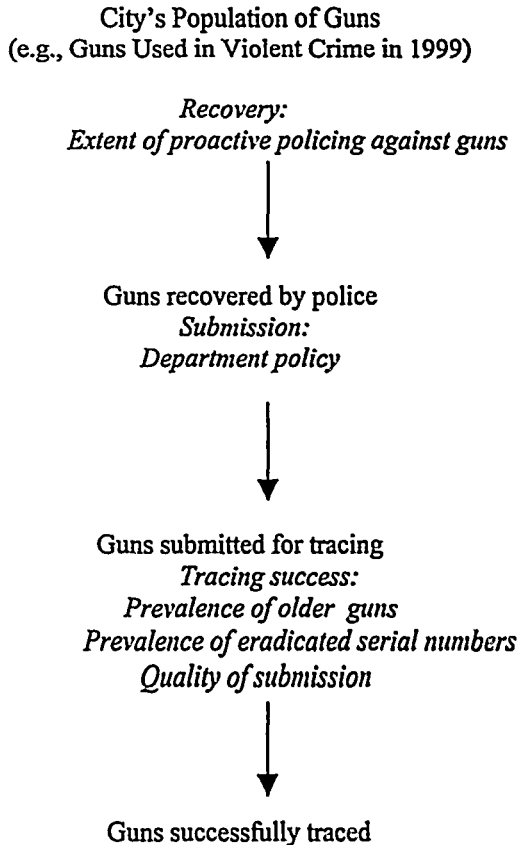
Circumstances	Handgun Count	Handgun Percentage	Long Gun Count	Long Gun Percentage
Homicide	1,427	2.6	338	2.3
Assault and Robbery	5,682	10.5	1,553	10.4
Vice and Narcotics	10,621	19.5	4,116	27.6
Firearms Offenses	35,064	64.5	8,393	56.4
Other	1,569	2.9	493	3.3
Total	54,363	100.0	4,893	100.0

Source: Original computations from ATF's 1999 firearm-trace-requests database for YCGII cities

B. The Sample Selection Process

Consider the population of guns defined as those actually used in criminal violence during the year. The sample of such guns that are successfully traced is the result of a sequence of three selection processes, that may be labeled "recover," "submit for trace," and "trace success." Figure 1 offers a schematic representation of how these three processes operate to produce a sample from the original population. The key question is how representative that sample is of the population of interest.

FIGURE 1
THE SELECTION PROCESS



1. Recover

Only a small fraction of the guns used in criminal violence are recovered by the police. For example, there were about 10,100 homicides in 1999 committed with guns.⁵⁹ The 1427 guns recovered in connection with homicide may represent about ten percent of the murder weapons. It is not possible to be more precise, because not all of those guns coded as "associated" with homicide are in fact murder weapons, and some homicides involve more than one gun. The proportion of guns used in robbery and assault that are recovered is no doubt smaller yet.⁶⁰

59. See U.S. Department of Justice Bureau of Justice Statistics, *Firearms and Crime Statistics* (visited June 2, 2001) <<http://www.ojp.usdoj.gov/bjs/guns.htm>>.

60. See GARY KLECK, *TARGETING GUNS: FIREARMS AND THEIR CONTROL* 9 (1997). Of course, the number of guns that are recorded as being associated with violent crimes may understate the true number of such guns that are recovered, since some portion

2. *Submit for Trace*

Each police agency has discretion whether to submit a recovered gun for tracing. In jurisdictions where tracing is only used for investigative purposes, the guns submitted for tracing will be among those associated with particular violent crimes where it is hoped that the trace result will provide evidence useful in solving the case. These guns will constitute a small and unrepresentative subset of the recovered guns, and even of the recovered guns that are associated with violent crimes. In any event, that problem has been eliminated in most of the YCGII cities and in some other jurisdictions by the adoption of a comprehensive-tracing policy where every gun associated with any sort of criminal activity is traced.

3. *Trace Success*

The success rate for 1999 submissions of violent-crime guns submitted from YCGII cities was about sixty percent (see Table 4). The guns that are successfully traced are not a representative sample of those submitted. Among other things, older guns and those with eradicated serial numbers are unlikely to be traced. To some extent, the bias introduced at this stage can be delimited by information on why the trace failed. For example, the percentage of recovered guns that were in circulation less than three years can be calculated (as we do below) under the assumption that the guns identified as too old for tracing are more than three years old. However, there is useful information in the NTC database even for guns that are not successfully traced, including the make and model of the gun, the circumstance that led to the confiscation of the gun, and the age of the possessor.

ATF's efforts to expand comprehensive tracing and enhance the capacity of the NTC ensures that the sample of traced guns is more representative of guns recovered by the police. However, the first selection process, "recovery," remains problematic. The relationship between the recovered-guns sample and the underlying population of guns used in crime is not well defined. Further, this relationship will differ among jurisdictions and change over time simply because police-department policies are not uniform in this regard. Chicago, for example, has a long tradition of proactive policing against illegal carrying, a tradition that has resulted in far more guns being confiscated, year in and year out, than would be expected based on its population and gun-crime levels.⁶¹ In general, the rate of gun recovery in a city will depend on the priority given by the police to getting guns off the street, which may vary over time.

Using recovered guns as a basis for estimating the characteristics of all guns used in crime is analogous to using arrestees as a basis for estimating the characteristics of all criminals. Both "samples" are unrepresentative of the relevant populations in various ways and are constituted in a way that is heavily influenced

of the guns recovered in the context of carrying, possession, or vice offenses will also have been used in homicide, robbery, or assault. *See id.*

61. *See* Mark H. Moore, *The Police and Weapons Offenses*, 452 ANNALS AM. ACAD. POL. & SOC. SCI. 22, 24.

by police priorities and procedures.⁶² But criminologists have nonetheless made extensive use of arrest data because these data are the best available for some purposes.⁶³ Similarly, in analyzing data on recovered guns, the validity of the conclusions depends on the application and the care that is taken to provide appropriate qualifications.

The three important applications for these data are: (1) informing strategic planning efforts to interdict the transactions by which criminals tend to acquire their guns; (2) identifying specific firearm dealers and traffickers as targets for enforcement actions; and (3) providing a basis for evaluating the effects of changes in gun-control laws. We assess each of these in turn.

V. TRAFFICKING INDICATORS

Perhaps the most important use of the data generated from comprehensive tracing has been to make the case that FFLs play an important role in the diversion of guns to the hands of youths and criminals. This use has also been the most controversial, since it contradicts the conventional wisdom that criminals, for the most part, obtain their guns from the huge inventory already in private hands.⁶⁴

That inventory exceeds 200 million, with thirty-five to forty percent of households owning at least one gun.⁶⁵ Since guns are highly durable commodities, used guns appear to be a close substitute for new ones. Over 500,000 guns are stolen each year from private homes and vehicles, a number which is apparently sufficient to satisfy the "needs" of robbers and drug dealers.⁶⁶ These stolen guns merge with informal voluntary sales to supply a vast secondary market which is largely unregulated.⁶⁷

A. Survey Evidence

Prior to the advent of comprehensive tracing, the importance of theft and the secondary market in supplying youths and criminals was documented by three surveys: Wright and Rossi's survey of prisoners,⁶⁸ the survey of state prisoners

62. See Donald Black, *The Production of Crime Rates*, 35 AM. SOC. REV. 736-48 (1970).

63. See ALBERT D. BIDERMAN & JAMES P. LYNCH, UNDERSTANDING CRIME INCIDENCE STATISTICS 101 (1991).

64. See Kleck, *supra* note 5, at 25.

65. See COOK & LUDWIG, *supra* note 26, at 13.

66. See *id.* at 29; Kleck, *supra* note 5, at 40.

67. The term "secondary market" was coined by Cook, Molliconi, and Cole in 1995, and refers to firearms transactions that do not involve an FFL. See Philip J. Cook et al., *Regulating Gun Markets*, 86 J. CRIM. L. & CRIMINOLOGY 59, 68 (1995). For a discussion of the practical difficulties of regulating this market, see James B. Jacobs and Kimberly Potter, *Keeping Guns Out of the 'Wrong' Hands: The Brady Law and the Limits of Regulation*, 86 J. CRIM. L. & CRIMINOLOGY 93, 96 (1995).

68. See JAMES D. WRIGHT & PETER H. ROSSI, ARMED AND CONSIDERED DANGEROUS: A SURVEY OF FELONS AND THEIR FIREARMS 183 (expanded ed. 1994).

reported by Beck et al.,⁶⁹ and Sheley and Wright's survey of youths in juvenile correctional institutions.⁷⁰ Some of the results of these survey data are summarized in Table 3. They should of course be interpreted with caution, since the samples are not representative of the relevant populations of criminals,⁷¹ and the respondents' self-reports on their criminal activities are not necessarily reliable.⁷²

TABLE 3: SOURCES OF GUNS TO CRIMINALS: RESULTS FROM THREE INMATE SURVEYS

	Most recent handgun acquired Male prisoners in 1982 ⁷³	Most recent handgun acquired Prisoners in 1991 ⁷⁴	Most recent handgun acquired Juvenile male inmates 1991 ⁷⁵
Purchase from retail outlet	21	27	7
Black market, "street"	26	28	43
Theft	(32)*	9	12
Family or friends	44	31	36
Other	10	5	2

*In this survey, unlike the others, "theft" was not a "source," but rather a transfer mechanism. Theft could involve any of the source categories.

69. See ALLEN BECK & DARRELL K. GILLIARD, U.S. DEP'T OF JUSTICE, SURVEY OF STATE PRISON INMATES 1991 10-14 (1993).

70. See JOSEPH F. SHELEY & JAMES D. WRIGHT, IN THE LINE OF FIRE: YOUTHS, GUNS AND VIOLENCE IN URBAN AMERICA 47, 53 (1995).

71. In two cases the samples are what is known as "convenience samples." They are selected from just a few institutions, and within those institutions, the respondents were those who were willing and available to participate. More generally, prisoners are not representative of the population of active criminals.

72. Some analysts have argued that this kind of survey research cannot definitively establish how firearms are diverted to proscribed possessors because the possessors themselves may not know, and that the surveys systematically underestimate the importance of diversion from retail sources by considering only the most recent transferor of firearms to juveniles and adult criminals. See Julius Wachtel, *Sources of Crime Guns in Los Angeles, California*, 21 POLICING: INT'L J. POLICE STRATEGIES & MGMT., 220, 223-39 (1998). Felons and juveniles may not know whether a firearm they had just bought from a street source had been stolen in a house burglary or purchased from a store. Moreover, a firearm counted in surveys as being obtained from a "family member or friend" may have been straw purchased from an FFL.

73. Survey of inmates in ten states. Of the respondents, 1,032 admitted to ever owning a handgun. See WRIGHT AND ROSSI, *supra* note 68, at 183. Note that "theft" in their tabulation is not a source, but rather a means of obtaining the gun. *Id.*

74. See BECK AND GILLIARD, *supra* note 69 (providing a survey of state prisons).

75. Survey of juvenile inmates of six facilities located in four states, over 800 of whom admitted to ever owning a handgun. See SHELEY & WRIGHT, *supra* note 70, at 6.

Some respondents in these surveys admitted that they stole their most recent gun, although that is less frequent than might be supposed. Sheley and Wright found that just 12% of their juvenile inmates had obtained their most recent handgun by theft, while Beck et al. found that only 9% of the handgun-using state prison inmates had stolen their handgun. On the other hand, Wright and Rossi found that 32% of the most recent handguns acquired by their prison respondents were stolen by the respondent himself, and that a total of 46% of these handguns had in the opinion of the respondent been stolen at some time.⁷⁶ And while the juvenile respondents of Sheley and Wright were much less likely to have stolen their most recent handgun, they had in many cases stolen guns at some point in their "careers": "About 30% of the inmates said they had stolen rifles, shotguns, and military-style weapons; 50% had stolen revolvers; and 44% had stolen automatic or semiautomatic handguns at some point in their criminal careers."⁷⁷ Indirect evidence of the importance of theft in supplying the black market comes from the low prices inmates typically report paying for their guns in the informal market.⁷⁸

The survey data actually complement the trace data in suggesting a fairly substantial role, either direct or indirect, for the FFLs. About one quarter of the respondents in the survey of state prisoners said that they had acquired their most recent gun from a retail outlet. While this percentage is much lower for the juvenile respondents, Sheley and Wright note that "[t]hirty-two percent of the [juvenile] inmates...had ...asked someone to purchase a gun for them in a gun shop, pawnshop, or other retail outlet."⁷⁹ In most cases, these straw-purchase arrangements involved family or friends as the purchaser. All three survey studies find that "street" and "black market sources" are important, sources that may well include traffickers who are buying from retail outlets and selling on the street.⁸⁰

The comprehensive-trace data serve to focus greater attention on that part of the market that links sales by FFLs to criminal use. The evidence is indirect but quite compelling. FFLs either unwittingly or corruptly sell to straw purchasers or to purchasers with false identification, or sell guns off the books.⁸¹ The YCGII reports note, for example, that while "crime" guns are rarely recovered from the person who is listed as the first retail buyer on the dealer's record, a relatively high percentage of these guns were first sold less than three years before they are

76. See Kleck, *supra* note 5, at 39.

77. See SHELEY & WRIGHT, *supra* note 70, at 47. Another study analyzed the results of interviews with arrestees in 11 cities that were conducted as part of the Drug Use Forecasting system, finding that 13% of arrestees admitted to having stolen a gun; among juvenile males, fully one quarter admitted to theft of a gun. See SCOTT H. DECKER ET AL., U.S. DEP'T OF JUSTICE, *ILLEGAL FIREARMS: ACCESS AND USE BY ARRESTEES 2* (1997).

78. See SHELEY & WRIGHT, *supra* note 70, at 48; Kleck, *supra* note 5, at 39.

79. See SHELEY & WRIGHT, *supra* note 70, at 48.

80. See Kennedy et al., *supra* note 50, at 170; Wachtel, *supra* note 72, at 223.

81. By themselves, trace data do not demonstrate that FFLs sell either unwittingly or corruptly to straw purchasers or to purchasers with false identification. A recent analysis of firearms trafficking investigations provides evidence that FFLs sometimes do make improper sales. See U.S. BUREAU OF ALCOHOL, FIREARMS, AND TOBACCO, U.S. DEP'T OF THE TREASURY, *FOLLOWING THE GUN: ENFORCING FEDERAL LAWS AGAINST FIREARMS TRAFFICKERS 14-16* (2000) [hereinafter *FOLLOWING THE GUN*].

recovered by police.⁸² In states that have the most stringent regulations, a majority of crime guns (including those that are quite new) are first sold out of state.⁸³ And a disproportionate number of traced handguns are part of a multiple sale when new.⁸⁴ The suggestion, then, is that a substantial portion (albeit a minority) of the guns that end up in crime are first purchased from an FFL by a “straw purchaser”—someone who intended to resell them to a trafficker (illicit dealer) or to a proscribed individual. Alternatively, the first purchaser may in fact have been the same person as the possessor, but presented false identification at the time of purchase. The FFL in such illicit transactions may be negligent, or at worst a knowing confederate. In any case, these findings suggest that FFLs, straw purchasers, and traffickers play important roles in diverting guns to crime. If true, then the ATF’s efforts to regulate FFLs and investigate trafficking may have the potential for effecting a reduction in gun violence.

B. The Importance of Newer Guns

Newer guns are greatly overrepresented among the crime guns submitted for tracing, despite the fact that it appears quite rare for the purchaser and possessor to be the same person. Tables 4 and 5 report the most recent trace evidence in support of this view. Both tables are based on the data on handguns submitted by the YCGII cities in 1999. Overall, 54% of these were successfully traced so that the first retail sale could be dated. Of these, about 15% of the guns were less than one year old, and 32% were less than three years old. The results in this regard are remarkably uniform across the different recovery-circumstance categories, from homicide to vice to firearms offenses.⁸⁵ But in one way these statistics overstate the percentage of guns submitted for tracing that are “new,” since one of the important reasons why a gun cannot be traced is that it is too old.⁸⁶ Adjusting for that consideration reduces the percentages to 13 for those less than one year and 27 for those less than three years.⁸⁷ By comparison, the annual sale of new handguns represents less than 3% of the number of handguns in circulation.⁸⁸

82. See CRIME GUN TRACE REPORTS 1999: NATIONAL REPORT, *supra* note 25, at 24.

83. See *id.* at 36–37.

84. See *id.* at 40.

85. See *infra* tbl. 4.

86. See *supra* tbl. 1.

87. This adjustment assumes that about 10% of all trace attempts fail because the gun is too old, and that the other guns that are not successfully traced have the same age distribution as those that are. See *supra* tbl. 1.

88. The “time to crime” (time elapsed from the date of the first retail sale to the date of confiscation by the police) differs across firearm types and across age groups. The median time-to-crime of semiautomatic pistols (4.3 years) is shorter than revolvers (11.7 years), shotguns (7.1 years), and rifles (7 years). See CRIME GUN TRACE REPORTS 1999: NATIONAL REPORT, *supra* note 25, at 26. The median time-to-crime of firearms recovered from youth (4.8 years) is shorter than adults (5.6 years) and juveniles (6.3 years). See *id.* There are also significant differences in the time-to-crime among manufacturers and types of firearms. Among the quickest time-to-crime guns, Bryco Arms 9mm semiautomatic pistols had a median time-to-crime of 1.6 years, and 68.3% were recovered in three years or less of their first retail sale; Bryco Arms .380 semiautomatic pistols had a median time-to-

It should be noted that some of the untraceable guns are also likely to be quite new. In some cases FFLs may sell guns off the books, either in their state or another. Guns from such sales can be traced to the dealer but will generally be recorded as incomplete when there is no record of the sale. About ten percent of all traces are unsuccessful due to problems with dealer records.⁸⁹

TABLE 4: TIME FROM RETAIL SALE TO RECOVERY BY POLICE, BY CIRCUMSTANCE OF THE RECOVERY: YCGII HANDGUNS SUBMITTED FOR TRACING, 1999

	Homicide	Assault and Robbery	Vice and Narcotics	Firearms Offenses	Total
Number submitted for tracing	1,427	5,682	10,621	35,064	54,433
Number traced	818 (57%)	3,357 (59%)	5,962 (56%)	18,233 (52%)	29,302 (54%)
1 year old or less	14.9%	15.0%	14.0%	15.8%	15.3%
3 years old or less	32.4%	33.5%	30.6%	32.7%	32.4%

Source: Original computations from ATF's 1999 firearm-trace-requests database for YCGII cities

Note that only 18% of the handguns that are identified as less than three years old were in the possession of the original buyer at the time they were recovered by police.

crime of 2.5 years, and 54.4% were recovered in three years or less of their first retail sale. *See id.* at 28. The production history of these firearms only explains a fraction of the observed time-to-crime distribution for the quick time-to-crime guns. For example, 34% of Bryco 9mm semiautomatic pistols recovered by law enforcement in 1999 had a time to crime of less than one year. *See* GLENN PIERCE ET AL., U.S. DEP'T OF JUSTICE, ANALYSIS OF ILLEGAL GUN MARKETS IN 5 CITIES: FINAL REPORT TO THE NATIONAL INSTITUTE OF JUSTICE 22 (2001). However, only 6% of all Bryco 9mm semiautomatic pistols were manufactured in 1998. *See id.*

89. *See supra* tbl. 1.

TABLE 5: LIKELIHOOD OF PURCHASER AND POSSESSOR BEING THE SAME NEW GUNS (UP TO 3 YEARS FROM SALE TO RECOVERY) BY CIRCUMSTANCE, YCGII HANDGUNS SUBMITTED FOR TRACING, 1999

	Homicide	Assault and Robbery	Vice and Narcotics	Firearms Offenses	Total
Number traced	265	1,128	1,823	5,961	9,501
Number with complete information ⁹⁰	149 (56%)	746 (66%)	1,040 (57%)	4,280 (72%)	6,439 (68%)
Percent same owner ⁹¹	12%	26.5%	17%	17%	18%

Source: Original computations from ATF's 1999 firearm-trace-requests database for YCGII cities

There are two caveats. First, in only 68% of these successfully traced "new" guns is there a possessor identified. Second, some fraction of the cases in which the purchaser and possessor are identified as having different names may in fact be the same person, if false identification was used in the purchase. However, in making the case for regulatory enforcement, the distinction between false identification and straw purchaser actually does not matter much: whether the first purchase was by a criminal with false identification, or a straw purchaser, it remains true that the FFL is implicated in the transaction.

From one perspective, the disproportionate representation of new guns among those recovered by the police provides a basis for optimism about the potential crime-reducing effects of gun control measures. Franklin Zimring was the first analyst to document this pattern and interpret it.⁹² He suggested that "new" guns and "old" guns were not perfect substitutes for criminal use, so that an intervention that was successful in reducing the rate of introduction of new guns into a jurisdiction might have greater leverage on criminal gun use than would be expected, given the large inventory of guns in private hands.

A still more optimistic interpretation is that the "new guns" pattern is simply a reflection of a broader (but more speculative) pattern. This view posits that people who use guns in crime usually acquire them shortly before the criminal use. Hence the time since first retail sale is less important in determining the likelihood of criminal use than the time since the most recent transaction.⁹³ The

90. All guns for which the possessor is identified in the trace request and the trace was successful in identifying the first buyer.

91. The percentage of cases with complete information in which the identified possessor is the same as the first buyer listed in the dealer's records.

92. See FRANKLIN ZIMRING, STREET CRIME AND NEW GUNS: SOME IMPLICATIONS FOR FIREARMS CONTROL 97 (1976); Zimring, *supra* note 7, at 150-51.

93. See PHILIP J. COOK, THE TECHNOLOGY OF PERSONAL VIOLENCE, IN CRIME AND JUSTICE: AN ANNUAL REVIEW OF RESEARCH 1 (M. Tonry ed., 1991). We are not arguing

population of active street criminals is characterized by brief careers and a high turnover rate.⁹⁴ Further, there is considerable evidence that gun-using criminals go through a number of guns during the course of their brief "careers."⁹⁵ Therefore we expect that gun use by gang members, robbers, and drug dealers occurs shortly after the gun is acquired, if at all. The trace data do not tell us about the time from the most recent transaction, but rather (in most cases) the time from the first retail sale. We suspect that even the older guns had a short time to crime measured from the (unobserved) most recent transaction. Thus the new guns may show up disproportionately because new guns tend to be in more active circulation.⁹⁵

But this interpretation, with the focus on the transaction, does not detract from the strategic importance of the "new guns" finding. Some types of transactions are easier for authorities to interdict than others, and the transactions that divert guns from the licit to the illicit market may be particularly vulnerable to enforcement efforts.⁹⁷ Those transactions include off-the-books sales of new guns by FFLs and sales to straw purchasers.⁹⁸ The importance of the "new guns" finding, then, is to identify transactions involving FFLs as being among those that lead more-or-less directly to criminal use.

Cities in tight-control, low-density jurisdictions tend to have a different "new guns" pattern than other cities. Table 6 breaks out the relevant data for Washington, D.C., New York, and Boston, all tight-control cities.⁹⁹ For each of these cities, new handguns form a relatively small percentage of their 1999 crime guns. One explanation is that since there are few legal sales of handguns to residents by FFLs in these cities, most handguns that end up in crime have been imported. New handguns will be relatively expensive in these cities, since the transactions by which the gun moved from the retail dealer to the criminal were conducted under legal threat. Before making any confident generalizations,

that the age of the gun is irrelevant to criminals. For example, the preferences of criminal consumers for certain types of guns may partially explain why semiautomatic pistols have quicker time-to-crime distributions. In Boston, interviews with youthful probationers revealed that they preferred modern and stylish semiautomatic pistols that were "new in the box." See Kennedy et al., *supra* note 50, at 169. The preference for newer semiautomatic pistols arose from "street wisdom" that older, less expensive firearms may have a "body" on them, and they wished to avoid being caught and charged with crimes they did not personally commit. See *id.* at 170.

94. See VOL. 1 CRIMINAL CAREERS AND "CAREER CRIMINALS" 4 (Albert Blumstein et al. eds., 1986).

95. See Cook et al., *supra* note 67, at 65.

96. We are unaware of any documentation on this pattern, but are confident that it is true. Older guns may be war souvenirs or family heirlooms kept in deep storage. A new gun is more likely to be in good working order and to be put to whatever use that the current owner intended at the time that he acquired it.

97. See Christopher S. Koper & Peter Reuter, *Suppressing Illegal Gun Markets: Lessons from Drug Enforcement*, 59 LAW & CONTEMP. PROBS. 119, 127 (1996).

98. See Cook et al., *supra* note 67, at 79.

99. It is not possible for most residents of New York and Washington to obtain a handgun legally. See National Rifle Association, Institute for Legislative Action, *Fact Sheet-Rationing Handgun Purchasing Rights*, July 29, 1999 available at <www.nrila.org>. Boston is also quite restrictive. See Kennedy et al., *supra* note 50, at 148-49.

however, it should be noted that these three cities all have relatively low success rates in tracing guns,¹⁰⁰ and those missing data may be confounding the results on the new-gun percentage.

Also shown in Table 6 are the results on matching names of the first purchaser and the possessor. For new handguns in the three cities, the possessor is less likely to be the retail purchaser than is true in other cities, again bespeaking the importance of informal (and mostly illegal) transactions in supplying these cities.

TABLE 6: TRAFFICKING INDICATORS: THREE TIGHT-CONTROL CITIES, YCGII HANDGUNS SUBMITTED FOR TRACING, 1999

	Washington DC	New York	Boston	YCGII Cities Total
A. Number submitted for tracing	3,809	6,080	447	54,433
B. Number traced ¹⁰¹ (% of A)	1,312 (34%)	2,736 (45%)	188 (42%)	29,302 (54%)
C. Number new guns ¹⁰² (% of B)	252 (19%)	587 (21.5%)	40 (21%)	9,501 (32%)
D. Number of new guns with complete information ¹⁰³	133	380	28	6,439
E. Number with same owner ¹⁰⁴ (% of D)	10 (7.5%)	38 (10.0%)	1 (3.6%)	1,150 (17.9%)

Source: Original computations from ATF's 1999 firearm-trace-requests database for YCGII cities

C. Interstate Movements

Firearms trace data allow law enforcement agencies to determine where recovered firearms were first sold at retail. A key result is that the percentage of crime guns imported from out of state is closely linked to the stringency of local

100. See *supra* tbl. 6 row 2.

101. The number successfully traced that include both a "date of first sale" and a "date of recovery".

102. Three years or less from time of first sale to time of recovery.

103. All guns for which the possessor is identified in the trace request and the trace was successful in identifying the first buyer.

104. The percentage of cases with complete information in which the identified possessor is the same as the first buyer.

firearm controls.¹⁰⁵ In 1999, sixty-two percent of traced YCGII firearms were first purchased from FFLs in the state in which the guns were recovered.¹⁰⁶ However, this fraction was far lower in the tight-control northeastern cities such as Boston, New York City, and Jersey City, where less than half of the traceable firearms were first sold at retail within state.¹⁰⁷ In contrast, Birmingham (Ala.), Gary (Ind.), Houston (Tex.), Miami (Fla.), New Orleans (La.), and San Antonio (Tex.) had at least eighty percent of their traceable firearms first sold at retail in the state in which the city was located.¹⁰⁸

Table 7 provides specific results for Washington, New York, and Boston, as above. The most extreme case is Washington, which has banned the acquisition of handguns by residents since 1975.¹⁰⁹ Boston and especially New York also import most of their crime handguns. The corresponding percentages for "new" handguns (less than three-years old) are just as high, suggesting that the process by which handguns reach criminals in these cities is not one of gradual diffusion; rather, the handguns that make it into these cities are imported directly after the out-of-state retail sale.

TABLE 7: PROPORTION OF HANDGUNS FROM OUT-OF-STATE: OVERALL AND NEW GUNS, YCGII HANDGUNS SUCCESSFULLY TRACED, 1999

	Washington DC	New York	Boston	YCGII Cities Total
All Handguns % out-of-state (number)	100.0% (1,314)	89.3% (2,747)	69.1% (191)	37.9% (29,392)
New Handguns ¹¹⁰ % out-of-state (number)	100.0% (251)	92.5% (584)	67.5% (40)	25.9% (9,473)

Source: Original computations from ATF's 1999 firearm-trace-requests database for YCGII cities

D. Other Indicators of Trafficking

The recovery of firearms with obliterated serial numbers is viewed by ATF as a key indicator of firearms trafficking.¹¹¹ Guns with thoroughly obliterated

105. See CRIME GUN TRACE REPORTS 1999: NATIONAL REPORT, *supra* note 25, at 14.

106. See *id.* at 34.

107. A noteworthy number of firearms originated from southern states with less restrictive legislation such as Virginia, North Carolina, Georgia, and Florida. See CRIME GUN TRACE REPORTS 1999: NATIONAL REPORT, *supra* note 25, at 34

108. See *id.*

109. See D.C. CODE ANN. § 6-2311 (181 & Supp. 2000).

110. Less than 3 years since first retail sale.

111. See CRIME GUN TRACE REPORTS 1999: NATIONAL REPORT, *supra* note 25, at 38.

serial numbers are untraceable, thus protecting a criminal who is concerned about being tied to an illegal use of the gun.¹¹² But the prevalence of obliterated serial numbers among crime guns is not great.¹¹³ In the eleven YCGII cities that reliably submitted information on guns with obliterated serial numbers in 1999, the prevalence was 9% for semiautomatic pistols and 5% for revolvers.¹¹⁴ The percentages for cities where most crime guns are imported appear to be higher—13% of recovered handguns had obliterated serial numbers in New York, and 16% in Boston.¹¹⁵ Obliterated serial numbers are more common among guns recovered from youths than guns recovered from adults. In a study of Boston data, firearms with obliterated serial numbers were found to closely resemble newer crime guns as they were mostly semiautomatic pistols, concentrated among particular brands and calibers, and recovered in neighborhoods suffering from youth gun violence.¹¹⁶

Another possible indicator of trafficking is multiple sales by FFLs. Trace results suggest that handguns that were first sold as part of a reportable multiple sale are much more likely than others to move quickly into criminal use.¹¹⁷

E. Implications

A successful supply-side strategy for reducing gun crime does not require that today's street criminals have guns taken away from them. It is sufficient to block the transactions that supply guns for criminal use. Given the high turnover among the ranks of the criminally active, that strategy could be effective in short order. The transactions that put guns in the hands of criminals take a variety of forms, some of which appear more vulnerable to law enforcement efforts than others. In particular, the illicit, consensual transactions by which guns make the transition from the legal to the illegal market constitute a target that is vulnerable to ATF's capacities for regulation and enforcement. The trace data suggest that these transactions, including the sale of guns by FFLs to straw purchasers and traffickers, figure to a surprising extent as a direct source of crime guns. The importance of FFLs in such transactions is in fact understated by the trace data, since illicit off-the-book sales by FFLs are not traceable.

But what will be the ultimate effect of an enforcement strategy that is effective in reducing the importance of FFLs and traffickers as a direct source of crime guns? In jurisdictions with a high density of gun ownership and lax regulations on sales, other sources, such as theft and informal sales, may provide a ready substitute for straw purchasing and scofflaw FFLs. It may be more feasible to make a difference with a supply-side strategy in cities with tight controls. The stakes are high enough to warrant a direct test.

112. See Kennedy et al., *supra* note 50, at 174.

113. See Kleck, *supra* note 5, at 28–29.

114. See CRIME GUN TRACE REPORTS 1999: NATIONAL REPORT, *supra* note 25, at 38.

115. These figures represent the Author's original calculations.

116. See Kennedy et al., *supra* note 50, at 174.

117. See CRIME GUN TRACE REPORTS 1999: NATIONAL REPORT, *supra* note 25, at 40.

VI. TRACE DATA AS AN INVESTIGATIVE TOOL

Comprehensive trace data provide a lens, however clouded, for viewing the big picture of how guns are diverted into criminal use. They also provide more focused information on the identity of FFLs and others who are most active in this illicit trade. These data have become an increasingly important tool in the enforcement effort.

The use of trace data as an investigative tool has been enhanced by development of Project LEAD, which began in 1993.¹¹⁸ Project LEAD is a computer-software application that contains information on all traced firearms from the NTC's Firearms Tracing System. The system provides ATF agents with data useful in identifying gun traffickers, straw purchasers, and scofflaw FFLs.

One of the more interesting applications of comprehensive trace data has been as a guide to licensing and regulatory enforcement. As it turns out, relatively few FFLs account for the bulk of all first retail sales identified through tracing of crime guns. To be specific, in 1998 1.2% (1020) of FFLs accounted for 57% of all successful traces.¹¹⁹ It makes sense for ATF to focus its investigations on this small group. Indeed, in 2000 ATF began requiring certain FFLs with ten or more crime-gun traces with a time-to-crime of less than three years to report certain firearms transaction information to the NTC,¹²⁰ presumably as a prelude for closer scrutiny of their business practices.

It has also been suggested that information of this sort could be used by manufacturers and distributors as the basis for self-policing the industry.¹²¹ The recent settlement of the law suits brought against Smith & Wesson by the U.S. Department of Housing and Urban Development and several cities includes some language concerning this possibility.¹²²

The concerns about using trace data to implicate FFLs begin with the possibility that the concentration of trace data may simply reflect the concentration of sales. If the FFL's sales volume tends to be proportional to the number of traces, then it would be unfair or at least inefficient to use trace data as a basis for singling out certain FFLs. Unfortunately, it has been difficult to determine the distribution of sales among FFLs in most states using available data.¹²³ One

118. U.S. BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS, U.S. DEP'T OF THE TREASURY, PROJECT LEAD: HOW TO GENERATE INVESTIGATIVE LEADS 1-1-1-2(1995).

119. See COMMERCE IN FIREARMS IN THE UNITED STATES, *supra* note 19, at 23-24.

120. See *id.* at 29-31.

121. See *Hamilton v. Accu-Tek*, 935 F. Supp. 1307, 1330 (E.D.N.Y. 1996); NATIONAL ECONOMIC RESEARCH ASSOCIATES, EXPERT REPORT OF LUCY ALLEN AND JONATHAN PORTES 95-CV-0049 (JBW) (Nov. 1998).

122. Agreement between Smith & Wesson and the Departments of the Treasury and Housing and Urban Development, Local Governments and States, March 17, 2000.

123. Since all FFLs are required to initiate a background check before transferring a gun to a buyer, the number of such checks originating from a dealer would provide a good proxy for his volume of sales. But data on the number and distribution of background checks are not generally available from centralized sources. Currently only Brady denial information is centrally compiled by the National Instant Check System ("NICS"). See U.S.

exception is California, where handgun sales by dealers are tabulated by a state agency. One analysis of these data found that sales of handguns are highly concentrated: the 13.1% of FFLs with more than 100 sales during 1996–98 accounted for 88.1% of all sales.¹²⁴ Handgun trace volume from 1998 was strongly correlated with handgun sales volume, and is highly concentrated among the high-volume dealers, yet “...trace volume varied substantially among dealers with similar sales volumes.”¹²⁵ The study did not determine whether this variation was greater than could be explained by chance alone, however.¹²⁶

One would expect that guns sold by some FFLs would be more likely to be traced than others, even if all dealers were equally scrupulous in their dealings, for two reasons that do not imply wrongdoing by the high-trace FFL. First, tracing policies are still highly uneven. FFLs that operate in areas that have not adopted comprehensive tracing are going to be largely invisible to trace results, unless their guns end up in other cities that do trace. Second, FFLs that operate in high-crime urban neighborhoods are more likely to inadvertently supply criminals than those whose clientele are primarily sportsmen. All of this is to say that the guidance provided by the number of traces to a particular FFL is only a rough indicator of the likelihood that the FFL is engaging in negligent or criminal sales practices. The continuing expansion of comprehensive tracing will help, as will continuing efforts to refine the indicators from trace data used to identify bad actors among the FFLs.

VII. USING TRACE DATA IN POLICY EVALUATION

In addition to the uses described above, trace data have increasingly been used in policy evaluation. Of the early uses of this sort, the analysis by Weil and Knox is the most prominent.¹²⁷ They studied the effects of Virginia’s law limiting handgun purchases by any individual to no more than one during a thirty-day period.¹²⁸ Prior to the implementation of this law in July, 1993, Virginia had been one of the leading source states for guns recovered in the Northeast.¹²⁹ The study showed that during the first eighteen months the law was in effect, Virginia’s role

DEP’T OF JUSTICE & U.S. DEP’T OF THE TREASURY, NATIONAL INTEGRATED FIREARMS VIOLENCE REDUCTION STRATEGY 40 (2000).

124. See Garen J. Wintemute, *Relationship Between Illegal Use of Handguns and Handgun Sales Volume*, 284 J. AM. MED. ASS’N 556, 557 (2000).

125. *Id.* at 567.

126. One approach would be to compare the distribution of traces with the distribution that would result from a circumstance in which every gun that was sold, regardless of which FFL sold it, had the same probability of being traced. The latter hypothetical distribution would have the same qualitative characteristic as found by Wintemute, *supra* note 124; FFLs with the same level of sales would have widely differing numbers of traces, just by chance alone.

127. See Douglas S. Weil & Rebecca C. Knox, *Effects of Limiting Handgun Purchases on Interstate Transfer of Firearms*, 275 J. AM. MED. ASS’N 1759 (1996).

128. See VA CODE ANN § 18.2-308.2:2(Q) (1996 & Supp. 2000).

129. See Weil & Knox, *supra* note 127, at 1760–61 (reporting that 41% of a sample of guns seized in New York City in 1991 had been traced to Virginia). The reports also identified Virginia as a primary source state for guns recovered in Boston and Washington, D.C. See *id.*

in supplying guns to New York and Massachusetts was greatly reduced.¹³⁰ In particular, guns recovered in the Northeast corridor that were first sold in the Southeast were much less likely to have originated in Virginia if they were sold after its one-gun-a-month law went into effect, than before.¹³¹ Subsequent studies have made use of the fact that the gun-trace database includes detailed characteristics of these guns.¹³²

To further illustrate the use of trace data for evaluation purposes, we use such data to assess the effects of the Brady Handgun Violence Prevention Act ("Brady Act") on interstate trafficking.¹³³ Implemented in February 1994, the Brady Act required FFLs to conduct a background check on all handgun buyers and mandated a one-week waiting period before transferring the gun to the purchaser. FFLs operating in eighteen states were not affected because state law already required a background check; FFLs in the remaining states were required to institute the change.¹³⁴ Thus the Brady Act created a sort of experiment with a natural control group—the "no change" states. A recent evaluation of this act found that there was no discernible difference in homicide trends in the affected ("Brady") states as compared with the eighteen "non-Brady" states,¹³⁵ concluding that the Brady Act had no direct effect on homicide rates. That result leaves open the possibility that the Brady Act had an *indirect* effect on homicide rates by reducing interstate gun trafficking and hence gun violence in the "no change" states.

Here we limit our illustrative analysis to Chicago, where, as noted above, the police recover an exceptionally large number of guns every year.¹³⁶ It was one of the first cities to adopt comprehensive tracing, in 1996.¹³⁷ In what follows we

130. *See id.* at 1760.

131. *See id.*

132. A recent study used trace data to analyze the effect of the national assault-weapons law implemented in 1994. *See* JEFFREY A. ROTH & CHRISTOPHER S. KOPER, U.S. DEP'T OF JUSTICE, IMPACTS OF THE 1994 ASSAULT WEAPONS BAN: 1994-96 (1999). A study of the Maryland law that banned "Saturday night special" handguns found that these guns were less likely to be recovered by the police in Baltimore than in 15 cities outside of Maryland where no such ban was in effect. *See* Jon S. Vernick & Stephen P. Teret, *New Courtroom Strategies Regarding Firearms: Tort Litigation Against Firearm Manufacturers and Constitutional Challenges to Gun Laws*, 36 HOUS. L. REV. 1713, 1740 (1999).

133. Brady Violence Prevention Act of 1993, Pub. L. No. 103-159, 107 Stat. 1536 (1993) (codified at 18 U.S.C. § 922(q)-(t) (1994)).

134. The 32 states required to implement the provisions of the Brady Act included Alabama, Alaska, Arizona, Arkansas, Colorado, Georgia, Idaho, Kansas, Kentucky, Louisiana, Maine, Minnesota, Mississippi, Montana, Nebraska, New Hampshire, New Mexico, North Carolina, North Dakota, Tennessee, Texas, Utah, Vermont, Washington, West Virginia, and Wyoming. *See* Jens Ludwig & Philip J. Cook, *Homicide and Suicide Rates Associated with Implementation of the Brady Handgun Violence Prevention Act*, 284 J. AM. MED. ASS'N 585, 586 (2000).

135. *See id.* at 588-89.

136. *See* Moore, *supra* note 61, at 24.

137. Telephone interview with Terry Austin, ATF YCGII Director (Dec. 4, 2000); *see* Kennedy et al., *supra* note 50, at 170.

utilize the database on traces conducted on guns recovered in Chicago during the period 1996–99.

Handguns used in crime in Chicago are imported either from the rest of Illinois or other states. Illinois was one of the states that required a background check even before the Brady Act was implemented, and so it did not make any changes in 1994. Hence, if *Brady* requirements affected the flow of guns into Chicago this effect must have been due to reductions in interstate trafficking. And that, according to the trace data, is just what happened.

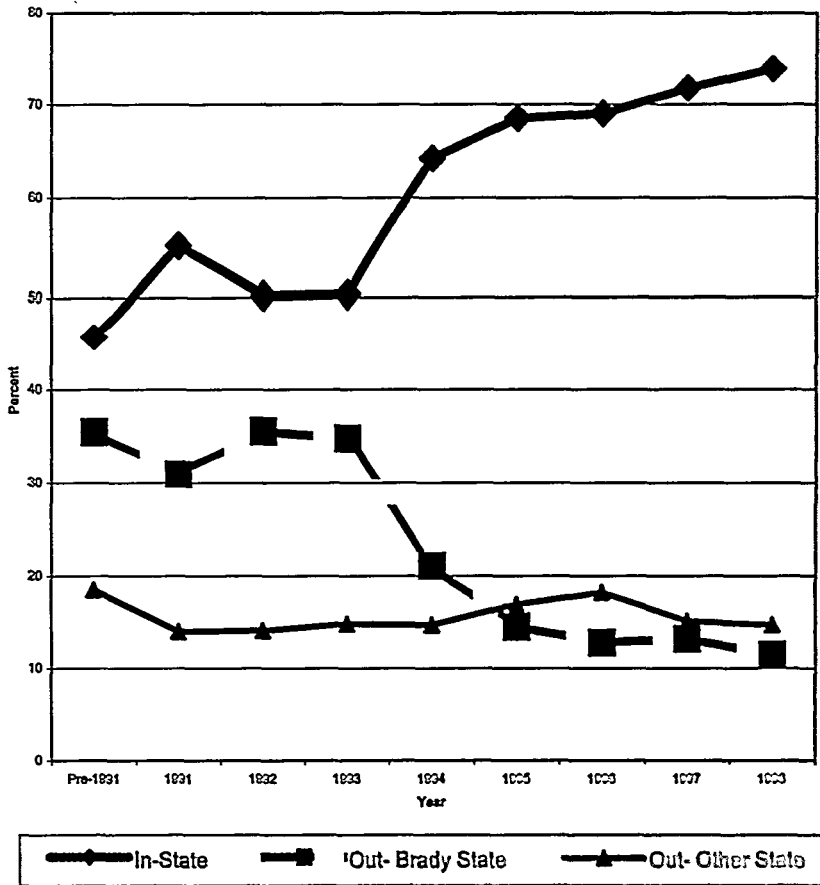
In the years prior to the Brady Act's implementation in 1994, about half of the handguns recovered in Chicago were first sold in Illinois and half in other states.

TABLE 8: THE EFFECT OF THE BRADY LAW ON CHICAGO: COMPREHENSIVE TRACE DATA OF HANDGUNS RECOVERED DURING 1996–1999

Location of First Sale	First Sold before 1994	First sold in 1994 or after
In-State (Illinois)	54.0%	68.3%
Out-State, Brady State	32.5%	16.0%
Out-State, Other State	13.5%	15.7%
Total	100%	100%
(Count)	(14,862)	(11,571)

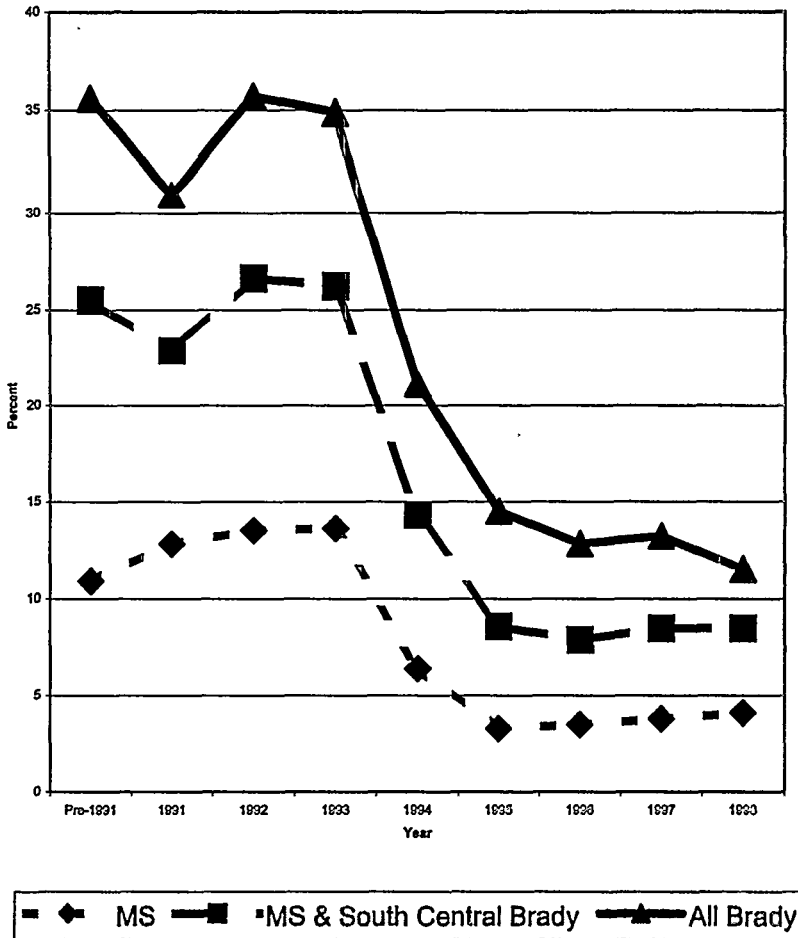
Source: Original computations from ATF's YCGII firearm-trace requests from Chicago, 1996–99

Figure 2. Source States of Traceable Handguns Recovered in Chicago, 1996-1999



Thereafter, the percentage of such handguns first sold in Illinois jumped up to about sixty-eight percent. Handgun imports from other states fell correspondingly, but the fall was confined to those source states (designated “Brady” states) that were required by the Brady Act to institute a waiting period for handgun sales and begin conducting background checks. Figure 3 provides more detail on how interstate flows into Chicago were affected.

Figure 3. Traceable Firearms Recovered in Chicago Imported from Brady States, 1996-1999



As can be seen, the South-Central states, and Mississippi in particular, accounted for most of the out-of-state handguns in Chicago: all of these were *Brady* states. The effect of the Brady Act's implementation appears to have been immediate and large. A natural interpretation of these results is that the Brady Act made interstate gun running from lax-control states to Chicago less profitable by making it more difficult for traffickers to buy handguns from FFLs in those states. The result was a large reduction in imports from those states, replaced (as a portion of the total) by an increase in the use of in-state sources.

The next question, of course, is whether these changes made it more difficult for Chicago residents to obtain handguns in Chicago, and in particular whether gun violence was curtailed. It is certainly plausible that the Brady Act increased the cost of supplying new handguns to Chicago criminals, since new

sources had to be found to replace those that were no longer convenient, due to the new requirements. But that speculation cannot be tested directly, since there are no data available on the street prices of handguns in Chicago. The ultimate question, whether gun use in violent crime was reduced, requires an analysis of data on gun use in violent crime.¹³⁸ Thus the trace data are helpful in suggesting whether the intervention may have been effective in reducing gun availability, but they do not provide a "bottom line" on violence.

Trace data provide a direct basis for assessing the effects of a policy on gun movements or the use of particular types of guns in crime. Of course any results must be qualified since the trace data are not necessarily a representative sample of guns used in crime.¹³⁹ Nevertheless, these data provide an accurate basis for tracking changes over time if the "sample" bears a consistent, albeit imperfect, relationship to the population from one period to the next. It would be surprising indeed if the intertemporal patterns we found in the Chicago trace data were simply some sort of sampling artifact.

Another limitation is that gun-control policies' ultimate purpose is the reduction of gun use in crime, and trace data do not provide direct evidence on that outcome. Rather, trace data provide a basis for tracking the proximate effects of a policy intended to work through the supply side of the gun market. If the intervention is effective in affecting trafficking patterns, then it becomes at least plausible that it also curtails criminal use of guns.

VIII. CONCLUDING THOUGHTS

The case for comprehensive tracing rests on a belief that enforcement efforts directed at the supply of guns to criminals have the potential of reducing the use of guns in violence. That potential can be most efficiently realized if enforcement efforts are guided by data.

The case against comprehensive tracing follows from the belief that guns in America are so readily available, and from such a variety of sources, that efforts to restrict supply are futile. For example, if we view every one of the thirty-five million or so handgun owners¹⁴⁰ as a potential source of a crime gun, then the enforcement task does indeed appear overwhelming. It is conceivable that regulatory measures such as requiring guns to be locked or personalized and stored safely could help restrict criminal access to such diffuse sources. But current enforcement efforts are more tailored to identifying and shutting down what could, in the parlance of environmental regulation, be called "point"

138. In fact, there was little change in the percentage of homicides committed with guns in Chicago during the three years following implementation of the Brady Act, which suggests that access to guns by violent people was not much affected.

139. See *supra* Part IV.

140. See TOM W. SMITH, 1999 NATIONAL GUN POLICY SURVEY OF THE NATIONAL OPINION RESEARCH CENTER: RESEARCH FINDINGS 49 (2000) (providing a survey-based estimate that 17.1% of adults owned at least one handgun in 1999). In 1998, there were about 200 million people in the United States age 18 and over. U.S. CENSUS BUREAU, U.S. DEP'T OF COMMERCE, STATISTICAL ABSTRACT OF THE UNITED STATES, 1999 at 17 (119th ed. 1999).

sources—scofflaw dealers or trafficking rings that are diverting guns to criminals on an ongoing basis.

The trace data provide evidence that these point sources are quite important in supplying criminals, thus strengthening the case for a supply-side strategy. The distribution channels connecting FFLs to criminal uses are often short and well traveled. About one-quarter of crime guns in the YCGII cities are less than three years old and have changed hands at least once since the initial purchase,¹⁴¹ suggesting that the initial purchase was made with the intent of diverting the gun into the black market. In addition, there are an unknown but possibly large number of crime guns that are untraceable because corrupt FFLs sold them “off the books,” presumably to criminals.

These patterns stand side by side with data indicating that more than half a million guns are stolen each year,¹⁴² and that most youths and criminals report obtaining their guns from casual, informal sources.¹⁴³ A reasonable conclusion is that, as in the case of pollution, both point sources and diffuse sources are important. Quite possibly, the actual mix depends on the stringency of state-level controls and the prevalence of gun ownership—systematic gun trafficking may well be more important in strict-control jurisdictions such as Boston and New York than in looser-control jurisdictions such as Atlanta and Dallas.

Given that there is a mix of concentrated and diffuse sources, the question is whether a successful regulatory or enforcement action against the former will reduce gun availability and hence gun use in crime. On that question we have little direct evidence. Given the high stakes in this area, systematic “experimentation” with different tactics appears warranted.

We have sought to document in this paper the potential uses of trace data in guiding a supply-side strategy. Trace data have improved rapidly during the last seven years as more and more jurisdictions have adopted comprehensive tracing and ATF has expanded its capacity to handle trace requests.

The growing database of trace data, together with the LEAD software, are an increasingly important tool in identifying particular FFLs and nonlicensed individuals as being important in trafficking. This seems like the least controversial basis for demonstrating the usefulness of the data.

Trace data are also establishing a unique niche in policy evaluation, providing a basis for exploring the effects of supply-oriented interventions on the types and sources of guns used in crime. The example offered above demonstrates both the usefulness of these data and their limits. We learn that the implementation of the Brady Act was associated with a dramatic change in sources of crime guns in Chicago, but we do not learn what effect the Act might have had on gun violence.

141. See *supra* tbls. 4 & 5.

142. See COOK & LUDWIG, *supra* note 26, at 29.

143. See *supra* tbl. 3.

Comprehensive tracing of firearms is one of the important legacies of the Clinton years. The hope for the future is that this new resource will be utilized with due awareness of its limitations.

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