Firearms Licensee Characteristics Associated with Sales of Crime-Involved Firearms and Denied Sales: Findings from the Firearms Licensee Survey

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Efforts to prevent firearm violence focus in part on federal licensees—gun dealers and pawnbrokers. Some licensees account for disproportionate sales of firearms later used in crime or denied because of failed background checks. These characteristics tend to co-occur and have been used to identify licensees who may be important point sources of firearms used in crime. Using data from a forty-three-state survey, this study finds licensee and community attributes associated with these characteristics, including sales of inexpensive handguns, exposure to illegal activity, and location in a major metropolitan area. Respondents with disproportionate sales and denied sales express increased concern about firearm violence and support for policies to prevent it, suggesting that some important sources of crime-involved firearms could be significant partners in prevention efforts.

Keywords: firearms, crime, violence, law enforcement

Firearm violence is a significant health and social problem in the United States. A total of 12,979 firearm homicides were recorded in 2015 and an estimated 284,910 "serious violent victimizations" involving firearms (CDC 2017; Bureau of Justice Statistics 2016).

Federally licensed retail sellers of firearms (gun dealers and pawnbrokers) play an important, complex, and mostly unintended role in the provision of firearms for criminal use. Although most criminal users acquire their firearms from unlicensed private parties (Vittes,

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Vernick, and Webster 2012), acquisition from licensees also occurs: directly through purchase (Scalia 2000; Harlow 2001) or theft (ATF 2000b; Braga and Kennedy 2001; Braga et al. 2012), or indirectly through surrogate—straw—purchases (ATF 2000b; Braga and Kennedy 2001; Braga et al. 2012; Wintemute 2007, 2009b; Mayors Against Illegal Guns 2008). Data from a national survey of licensees suggest more than thirty thousand attempted straw purchases annually (Wintemute 2013).

Anecdotal reports and criminal case evidence establish that some licensees knowingly participate in illegal firearm sales (ATF 2000b; Braga and Kennedy 2001; Wintemute 2009b; Sorenson and Vittes 2003; Wintemute 2010; City of New York 2009). Licensees themselves estimate that about 3 percent of their colleagues do so (Wintemute 2013). Other licensees refuse such transactions, act to prevent them, and report suspicious activity to law enforcement (ATF 2000b; Wintemute 2009b, 2010; City of New York 2009; NSSF 2000; Wintemute 2013).

The objective of this study is to further efforts to identify licensees who might be important *point sources* of firearms used in crime (Braga et al. 2002; Pierce et al. 2004). Such efforts have focused on two characteristics of licensees: disproportionate sales of firearms that are later recovered by law enforcement and subjected to ownership tracing by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), and frequent denials of sale by the Federal Bureau of Investigation (FBI) because the prospective purchaser has failed a background check (Pierce et al. 2004; Koper 2007; Wintemute, Cook, and Wright 2005; Wintemute 2009a; Wright, Wintemute, and Webster 2010; Koper 2013). These characteristics tend to occur together (Wintemute, Cook, and Wright 2005; Wintemute 2012). They may result from the licensee's business practices, clientele, or community characteristics that the licensee cannot control, willingness on the licensee's part to engage in illegal activity, or some combination of these. Prior studies in this area have been conducted on small samples, in limited geographic areas, or with limited data (Pierce et al. 2004; Koper 2007; Wintemute, Cook, and Wright 2005; Wintemute 2009a; Wright, Wintemute, and Webster 2010).

We conducted the Firearms Licensee Survey (FLS) in 2011 to gather detailed nationwide information on retail firearm commerce from licensees, along with their perspective and opinion on illegal commerce in firearms and selected firearm policy measures. The target population was the owners, managers, or other senior executives of licensees actively engaged in retail firearm sales. Previous reports from the survey address licensees' business and clientele characteristics (Wintemute 2012), frequency of and responses to attempted straw purchases and other illegal activities (Wintemute 2013), participation in illegal firearm sales by other licensees (Wintemute 2013), and beliefs regarding selected policy proposals (Wintemute 2014).

This final report from the FLS assesses which characteristics of licensees' businesses, clienteles, and communities are associated with the disproportionate sales of firearms that result in traces or with frequent denials of sale. The existence of such characteristics and their distribution among licensees could facilitate proactive identification of licensees who might be important point sources of crime-involved firearms. This in turn might provide a basis for interventions, ideally in collaboration with these licensees, to prevent firearm violence.

PRIOR RESEARCH

An early study of the uneven distribution of sales of firearms later used in crime finds that in 1998 more than 57 percent of all recovered firearms traced by ATF were first sold by just over 1 percent of federal firearms licensees (ATF 2000a). Firearm sales were also concentrated among relatively few licensees, however, leaving open the possibility that sales of large numbers of crime-involved firearms reflected nothing more than sales volume (FBI 2000).

This possibility was tested in a study of data for each handgun sold by the 421 licensees in California with sales of one hundred or more handguns annually between 1996 and 2000 (Wintemute, Cook, and Wright 2005). The study finds that it was not a likely explanation for the skewed distribution of sales of crime-involved firearms; some retailers sold crime-involved firearms not just frequently, but disproportionately—more frequently than

expected based on sales volume alone. The strongest predictor of disproportionate sales of crime-involved firearms is the percentage of sales denied after a background check found the prospective purchaser to be a prohibited person.

This raises a seeming paradox: how are sales of crime-involved firearms increasing when a higher percentage of purchasers are being turned away? The study suggests as a potential resolution that "retailers who sell disproportionate numbers of crime guns also deal disproportionately with people who are at high risk of committing crimes with guns. Some of these people are prohibited from purchasing guns, usually because they have been convicted of serious crimes, and their detection by a background check increases denied sales for these retailers. But others at high risk would not be prohibited people" (Wintemute, Cook, and Wright 2005, 361). Individuals with nonprohibiting criminal records and straw purchasers are two examples of such high-risk, nonprohibited purchasers.

That study is limited by its reliance on data routinely collected by law enforcement agencies. A subsequent study adds information from observations in the field of sixty California licensees with disproportionate sales of crime-involved firearms and 240 controls, all drawn from the 573 California licensees with sales of fifty or more handguns annually (Wintemute 2009a). In multivariate analysis, denied sales are again an important predictor of case status; data collected on site add little. Based on a mediation analysis, this study raises the possibility that "some risk factors may be mediated by purchaser characteristics for which denied sales are a proxy measure." It suggests that some retailers might function as "bad guy magnets," following the lines of the argument in the previous paragraph, but did not address how bad guy magnetism might operate or the key question of whether and to what extent licensees might deliberately participate in activities that would create bad guy magnet status.

Other studies directly test licensees' willingness to participate in suspect or illegal sales. In these studies, research personnel propose to purchase a firearm under conditions that suggest a straw purchase. (A straw or surrogate purchase is one in which the ostensible purchaser is actually buying the firearm for someone else, who typically is a prohibited person or for some other reason wishes not to be recorded as the purchaser of the firearm. Straw purchases are felonies under federal law.) For example, Susan Sorenson and Katherine Vittes present handgun dealers with telephone callers who stated, "my girl/boyfriend needs me to buy her/him a handgun" and asked how to proceed (2003). Most dealers were willing to make the sale. A follow-up study uses only female callers and removes the ambiguity: "I need to buy a gun for my boyfriend. He knows what he wants, but asked me to buy it for him. Can I do that?" (Wintemute 2010). One in five respondents agreed to proceed. In this case, additional data were available; neither disproportionate sales of crime-involved firearms nor a high proportion of denied sales are associated with a yes response. Finally, an experimental study conducted at gun shows video-recorded licensees willingly participating in transactions that the licensees clearly believed to be straw purchases (City of New York 2009).

One of the goals of the Firearms Licensee Survey was to learn from retailers themselves how common they thought deliberate illegal behavior was among firearms licensees (Wintemute 2013). The relevant section of the questionnaire presents this introductory text: "*Shooting Sports Retailer* recently published an article about what they called 'bad apple' retailers, operating outside the law, who give a black eye to firearms retailers in general." Subjects were then asked, "In your opinion, what percentage of licensed retailers might be 'bad apples' who participate knowingly in illegal gun sales?" Estimates varied widely—yielding a median of 3 percent and interquartile range (IQR) of 1 to 10 percent. This result is consistent with law enforcement evidence that perhaps 5 to 10 percent of firearm trafficking operations involve deliberate participation by a firearms licensee (ATF 2000b; Braga and Kennedy 2001). By extrapolation to the 64,617 retail licensees as of June 2017, the FLS result yields an estimated 1,939 (range, 646 to 6,462) firearm dealers and pawnbrokers nationwide who knowingly sell firearms illegally (ATF 2017).

Subjects were then asked "When a straw purchase is taking place, about what percentage of the time, in your opinion, does the salesperson either strongly suspect or know for certain about it, but sell the gun anyway?" The result is similar to that for illegal sales—a median estimate of 4.5 percent and an IQR of 0 to 10 percent.

The FLS also sought to learn what motivations retailers themselves ascribed to licensees who broke the law (Wintemute 2013). Subjects were asked to rate the importance of five reasons for "a retailer's decision to participate knowingly in illegal gun sales." The options "he wants the extra income" and "he thinks that there is little risk of being caught and prosecuted" were seen as most important. Subjects were also asked to rate the importance of five reasons why "a retailer has more gun traces than would be expected from the number of guns he sells." The option most frequently rated as very important was "the retailer is known to 'go along' and not ask questions when selling a gun."

Respondents held a very negative view of retailers who participated in illegal activity. Asked to recommend sentencing for a retailer convicted of selling fifty firearms to a trafficking operation, their median term of imprisonment was ten years (IQR five to twenty years) and their median fine was $100,000 (IQR $25,000 to $250,000). These recommendations are very similar to those for an individual convicted of purchasing fifty firearms for a trafficking operation and exceeded those in federal sentencing guidelines.

METHODS

The design and execution of the survey are described in detail elsewhere and summarized here (Wintemute 2012, 2013; see also the appendix). The term *retailer* refers only to an individual person.

Identifying the Study Population

We used the February 2011 roster of federal firearms licensees to identify 55,020 retail licensees: dealers and gunsmiths (type 01 licenses), and pawnbrokers (type 02 licenses) (ATF 2012). Study eligibility was restricted to the 9,720 licensees who sold an estimated fifty or more firearms annually, based on data supplied by the FBI (see appendix). These data were not available for licensees in seven states: California, Connecticut, Hawaii, New Jersey, Nevada, Pennsylvania, and Virginia. A random sample of 1,601 licensees in the forty-three remaining states, stratified by license type, was drawn using PROC SURVEYSAMPLE in SAS software (SAS for Windows 2012). The sample size provides 95 percent confidence intervals of ±3 percent when equal proportions of respondents provided alternate responses to questions with two possible answers and the response rate was 60 percent (Dillman, Smyth, and Christian 2009).

Questionnaire Design

Recommendations by Don Dillman and colleagues guided the design of the questionnaire (Dillman, Smyth, and Christian 2009; Dillman, Gertseva, and Mahon-Haft 2005; see appendix). To provide a basis for estimating traced firearms as a proportion of firearms sold, subjects were asked three questions: "On average over the past five years, about how many times a year has ATF contacted your firearms business for help in tracing a gun?" "In 2010, about how many guns did your firearms business sell, including handguns, rifles, shotguns, and any other guns?" "About how many handguns did your firearms business sell in 2010?" To quantify denied sales, subjects were asked "On average over the past five years, about what percentage of gun buyers at your firearms business have been denied after a background check?"

Much of the questionnaire dealt with stigmatized behavior. To increase the validity of responses and minimize nonresponse bias, subjects were asked to estimate the frequency of and motivations for stigmatized behavior by others, not themselves.

Survey Implementation

The survey was conducted by mail, again following procedures developed by Dillman and his colleagues, beginning June 16, 2011 (Dillman, Smyth, and Christian 2009; see appendix). This time of slower business activity (FBI 2010a) was chosen to improve the response rate.

The questionnaire was not tested on a sam-

ple of licensed retailers out of concern for the possibility of adverse effects on the implementation of the survey should its existence be disclosed prematurely. In place of pretests, extensive, multisession cognitive interviews were conducted with two independent experts in the firearms industry and its practices. Three policy development experts reviewed a draft of the questionnaire.

The survey protocol required up to three questionnaire mailings; a $3 cash incentive was included in the first. During survey implementation, responses were monitored to detect unanticipated problems. Early on, the response rate for corporations with multiple licensees in the study population (chain stores) was lower than that for other subjects. Personalized letters were sent and follow-up phone calls made to the chief executive or regulatory officer of the twenty-five corporations with more than one licensee in our sample requesting that they authorize store managers to participate.

External Event Monitoring

To detect any external events that might affect the survey, we also established procedures to identify discussion of the survey on the Internet. The primary interest was in any attempt to discourage subjects from participating or to encourage collective or strategic responding. Searches were conducted daily on an array of relevant keywords and phrases, beginning one week before the first questionnaire mailing. Just two days after the first questionnaire was mailed, in fact, the National Shooting Sports Foundation (NSSF) issued a notice "strongly discouraging retailers from participating," which was widely circulated and, with minor modifications, issued a second time. The National Rifle Association posted a notice to retailers on its website shortly thereafter and distributed it as a personalized email, apparently to its entire membership (NRAILA 2011). A prior analysis suggests that the effect of these communications on results was small at most (Wintemute 2012).

Community Variables

Most sociodemographic data were aggregated at the county level. Population data were obtained from the 2010 Census (Census Bureau 2010). Poverty and unemployment data were obtained from the 2011 American Community Survey (Census Bureau 2011). Urban-rural status is expressed using the Department of Agriculture's 2013 Rural-Urban Continuum Code, a 9-point scale on which 1 represents counties in metropolitan areas of one million population or more and 9 represents those that are completely rural or have fewer than 2,500 urban residents and are not adjacent to a metropolitan area (U.S. Department of Agriculture 2013). Violent and property crime rates for 2010 were derived from counts provided by the Federal Bureau of Investigation (2010b). The state-level prevalence of firearm ownership was incorporated using a validated proxy measure, the proportion of all suicides committed with a firearm (Azrael, Cook, and Miller 2004). No nationwide county-level data or validated proxy measures are available for firearm ownership.

Data Management and Statistical Analysis

Response and refusal rates and questionnaire completeness were determined using established guidelines (AAPOR 2011). The response rate was the percentage of subjects in the sample who returned filled-out questionnaires. Complete questionnaires provided answers to more than 80 percent of questions, partial questionnaires to 50 percent to 80 percent, and break-off questionnaires to less than 50 percent.

Four respondents from Puerto Rico or the U.S. Virgin Islands were excluded. Respondents known not to be owners, managers, or other senior executives (n=21, of whom eighteen were salespeople) or of undetermined status (n=27) were excluded from analyses of respondents' opinions on policy proposals.

Based on results from prior research on these data (Wintemute 2012, 2013, 2014), the population of primary interest is defined as licensees who ranked in the top stratum (approximately a quartile) for traced firearms as a percentage of firearms sold (2 percent or higher), or for denied sales as a percentage of sales (5 percent or higher). For convenience, the term HTD is used to denote these high-trace or high-denial licensees. Three defini-

tions of the population of primary interest were tested: respondents in the upper stratum for traced firearms, without regard to denied sales; those in the upper stratum for denied sales, without regard to traced firearms; and those in the upper stratum for both traced firearms and denied sales.

Continuous variables were stratified, generally into quartiles, to minimize effects due to outliers and clustering. Descriptive analyses used the Pearson or Mantel-Haenszel chi squared test to assess significance. Multivariable logistic regressions, expressing results as odds ratios with 95 percent confidence intervals model associations between the outcome and explanatory variables. Forward stepwise regression was used for multivariable models, with entry and retention criteria of $p \leq .30$ and $\leq .10$, respectively. The threshold for statistical significance was $p < .05$. Analyses were performed using SAS 9.4 for Windows (SAS for Windows 2012).

RESULTS

The survey's overall response rate is 36.9 percent. Of returned questionnaires, 96.3 percent are complete and 3.7 percent are partial. Individual question completion rates are 90 percent or higher; the 535 of 587 respondents eligible for this study (91.1 percent) provided information on sales, traces, and denials and could be classified as to HTD status.

Response rates for dealers and pawnbrokers are similar: 37.2 percent and 36.3 percent, respectively, $p = .75$. Further detail on response rates associated with licensee characteristics is reported elsewhere (Wintemute 2012). Response rates are below the overall rate among licensees in major metropolitan counties (Rural Urban Continuum code 1, 30.5 percent; code 2, 34.3 percent), and higher otherwise. Differences between respondents and nonrespondents on other community variables are small and not always statistically significant (data not shown).

Among respondents, 377 (64.2 percent) were dealers and 210 (35.8 percent) were pawnbrokers. The medians, interquartile ranges, and sample ranges (SR) for firearm traces and denials among all respondents, both expressed as percentages of firearm sales, are as follows: median 0.7, IQR 0–2, SR 0–29 for traces, and median 1, IQR 1–5, SR 0–70 for denials. After stratification, 235 licensees (43.9 percent) are classified as HTD.

Characteristics Associated with HTD Status

Pawnbrokers are overrepresented among HTD licensees (table 1). Sales of inexpensive handguns, exposure to attempted straw purchases, and theft of firearms are strongly associated with HTD status. Associations between HTD status and lower sales volume and more frequent sales to women are smaller but statistically significant. Among community characteristics (table 2), HTD status is particularly associated with the prevalence of firearm ownership. Associations are also smaller but statistically significant with the region in which the business was located (HTD licensees were most common in the South), with location in a major metropolitan county, and with increases in the violent crime rate, unemployment rate, and percentage of the population who were African American.

Findings for alternative definitions of the population of primary interest—respondents in the upper stratum for traced firearms, without regard to denied sales; those in the upper stratum for denied sales, without regard to traced firearms; and those in the upper stratum for both traced firearms and denied sales—are similar (data not shown).

In multivariate models (table 3), HTD status remains positively associated with sales of inexpensive handguns, exposure to illegal activity such as attempted straw purchases and theft, and location in the South or in a major metropolitan area. Large-volume licensees are least likely to have HTD status. The association with firearm ownership is inconsistent.

Opinions and Beliefs of HTD Respondents

Only respondents known to be owners, managers, or other senior executives were included in this analysis. HTD respondents were more likely than others to be concerned that their firearms might be stolen or used in a crime, and less likely to endorse the statement that "there are too many gun control regulations"

Table 1. Characteristics of Firearms Licensees

Characteristic	High–TD n (percentage)	Other n (percentage)	*p*
Licensee characteristics			
Type			.005
Dealer	136 (57.9)	209 (69.7)	
Pawnbroker	99 (42.1)	91 (30.3)	
Nature of licensee			.0002
Named individual	80 (34.0)	142 (47.3)	
Corporate, single location	119 (50.6)	140 (46.7)	
Corporate, multiple locations	36 (15.3)	18 (6.0)	
Sales			.04
≥500	46 (20.4)	95 (31.7)	
200–499	73 (32.3)	80 (26. 7)	
100–199	56 (24.8)	67 (22.3)	
<100	51 (22.6)	58 (19.3)	
Handgun sales as percentage of sales			.52
≥75	29 (13.1)	38 (13.0)	
50–74	91 (41.0)	103 (35.3)	
25–49	45 (20.3)	76 (26.0)	
0–24	57 (25.7)	75 (25.7)	
Inexpensive handgun sales as percentage of handgun sales			<.0001
≥50	97 (42.9)	75 (25.4)	
25–49	46 (20.4)	49 (16.6)	
10–24	43 (19.0)	78 (26.4)	
0–9	40 (17.7)	93 (31.5)	
"Tactical or modern sporting" rifle sales as percentage of rifle sales			.75
≥20	47 (20.4)	77 (26.3)	
6–19	58 (25.1)	53 (18.1)	
2–5	67 (29.0)	83 (28.3)	
0–1	59 (25.5)	80 (27.3)	
Multiple sales as percentage of sales			.21
≥5	74 (31.5)	69 (23.0)	
2–4	50 (21.3)	78 (26.0)	
1–1.9	56 (23.8)	83 (27.7)	
<1	55 (23.4)	70 (23.3)	
Gun show sales as percentage of sales			.21
>0	28 (11.1)	47 (15.7)	
0	207 (88.1)	252 (84.3)	
Internet sales as percentage of sales			.98
≥10	33 (14.0)	34 (11.3)	
>0, <10	30 (12.8)	55 (18.3)	
0	172 (73.2)	211 (70.3)	
Clientele characteristics			
Sales to law enforcement as percentage of sales			.16
≥10	78 (33.5)	78 (26.1)	
5–9	51 (21.9)	69 (23.1)	

Table 1. (*continued*)

Characteristic	High–TD n (percentage)	Other n (percentage)	*p*
1–4	59 (25.3)	95 (31.8)	
<1	45 (19.3)	57 (19.1)	
Sales to women as percentage of sales			.02
≥25	64 (27.4)	65 (21.8)	
11–24	61 (26.1)	72 (24.1)	
6–10	54 (23.1)	62 (20.8)	
0–5	55 (23.5)	99 (33.2)	
Exposure to illegal activity			
Attempted straw purchase, past year			<.0001
≥Monthly	27 (11.5)	23 (7.7)	
>1 or 2	44 (18.7)	33 (11.1)	
1 or 2	110 (46.8)	126 (42.3)	
0	54 (23.0)	116 (38.9)	
Attempted undocumented purchase, past year			.16
≥Monthly	29 (12.3)	30 (10.1)	
>1 or 2	19 (6.8)	21 (7.1)	
1 or 2	69 (29.4)	70 (23.5)	
0	121 (51.5)	177 (59.4)	
Theft of firearms, past five years			.0002
Yes	77 (33.2)	57 (19.1)	
No	155 (66.8)	242 (80.9)	

Source: Author's tabulation.

Table 2. Characteristics of Firearms Licensees' Communities

Characteristic	High-TD n (percentage)	Other n (percentage)	*p*
Region			.004
Midwest	47 (20.0)	100 (33.3)	
Northeast	5 (2.1)	10 (3.3)	
West	43 (18.3)	42 (14.0)	
South	140 (59.6)	148 (49.3)	
Urban-rural status (RUCC code)			.03
1	60 (25.5)	51 (17.0)	
2	58 (24.7)	66 (22.0)	
3–5	55 (23.4)	99 (33.0)	
6–9	62 (26.4)	84 (28.0)	
Total population			.44
≥290,000	68 (28.9)	62 (20.7)	
≥100,000, <290,000	52 (22.1)	82 (27.3)	
≥35,000, <100,000	49 (20.9)	83 (27.7)	
<35,000	66 (28.1)	73 (24.3)	

(*continued*)

Table 2. (*continued*)

Characteristic	High-TD n (percentage)	Other n (percentage)	*p*
Firearm suicide, percentage of all suicide			.03
≥62	76 (32.3)	63 (21.0)	
≥57.13, <62	48 (20.4)	90 (30.0)	
≥52.10, <57.13	71 (30.2)	73 (24.3)	
<52.10	40 (17.0)	74 (24.7)	
Violent crime rate			.03
≥497	58 (26.9)	65 (22.7)	
≥310, <497	62 (28.7)	66 (23.1)	
≥178, <310	53 (24.5)	77 (26.9)	
≥0, <178	43 (19.9)	78 (27.3)	
Property crime rate			.23
≥3,804	53 (24.5)	69 (24.1)	
≥2,880, <3,804	61 (28.2)	62 (21.7)	
≥2165, <2,880	52 (24.1)	75 (26.2)	
≥0, <2,165	50 (23.2)	80 (28.0)	
Unemployment, percentage			.009
>10.4	70 (29.8)	55 (18.3)	
≥8.7, ≤10.4	59 (25.1)	81 (27.0)	
>7, <8.7	52 (22.1)	82 (27.3)	
≤7	54 (23.0)	82 (27.3)	
Poverty, percentage			.63
≥19	61 (26.0)	69 (23.0)	
≥16, <19	58 (24.7)	77 (25.7)	
≥12, <16	59 (25.1)	82 (27.3)	
<12	57 (24.3)	72 (24.0)	
African American, percentage			.02
≥18.9	74 (31.5)	63 (21.0)	
≥6, <18.9	54 (23.0)	71 (23.7)	
>1.1, <6	49 (20.9)	83 (27.7)	
≤1.1	58 (24.7)	83 (27.7)	
Hispanic, percent			.13
>10	65 (27.7)	76 (25.3)	
≥5.6, ≤10	61 (26.0)	65 (21.7)	
≥2.5, <5.6	57 (24.3)	74 (24.7)	
<2.5	52 (22.1)	85 (28.3)	
Male age fifteen to twenty-nine, percentage			.20
>11.1	60 (25.5)	72 (24.0)	
≥9.9, ≤11.1	65 (27.7)	66 (22.0)	
≥8.98, <9.9	57 (24.3)	83 (27.7)	
<8.98	53 (22.6)	79 (26.3)	

Source: Author's tabulation.

Table 3. Multivariate Regression Results

Characteristic	Odds Ratio	95 Percent Confidence Interval	
Sales			
500+	0.4	0.2	0.7
200–499	0.8	0.4	1.5
100–199	0.9	0.5	1.8
<100	Referent		
Inexpensive handgun sales, percentage of handgun sales			
≥50	3.4	1.9	5.9
25–49	2.1	1.1	4.0
10–24	1.3	0.7	2.3
0-9	Referent		
Attempted straw purchase, past year			
≥Monthly	3.1	1.3	7.2
>1 or 2	3.5	1.7	7.0
1 or 2	1.5	0.9	2.5
Never	Referent		
Theft of firearms, past five years			
Yes	2.7	1.7	4.5
No	Referent		
Region			
Midwest	0.4	0.2	0.8
Northeast	0.3	0.1	1.4
West	1.0	0.5	2.0
South	Referent		
Urban-rural status (RUCC code)			
1	2.5	1.3	4.7
2	1.7	0.9	3.1
3–5	0.9	0.5	1.5
6–9	Referent		
Firearm suicide, percentage of all suicide			
≥62	0.9	0.4	2.2
≥57.13, <62	0.4	0.2	0.9
≥52.10, <57.13	1.8	0.9	3.4
<52.10	Referent		

Source: Author's tabulation.

(table 4). Their estimate of the percentage of retailers who "participate knowingly in illegal gun sales" was higher than that for other respondents (median 5 [2–10] and 2 [1–5], respectively, $p<.0001$). They were more likely to support a background check requirement for all firearm sales and most expansions of current criteria for denial of firearm purchase. Differences in support for expanded denial criteria are not always statistically significant, in part

Table 4. Respondent Characteristics and Beliefs

Characteristic	Hi-TD n (percentage)	Other n (percentage)	*p*
"Private ownership of guns is essential for a free society"			.46
Agree	219 (94.0)	287 (96.3)	
Neutral	10 (4.3)	5 (1.7)	
Disagree	4 (1.7)	6 (2.0)	
"It is too easy for criminals to get guns in this country"			.08
Agree	142 (61.5)	152 (51.5)	
Neutral	44 (19.1)	78 (26.4)	
Disagree	45 (19.5)	65 (22.0)	
"My guns might be stolen"			.02
Very concerned	69 (30.0)	59 (19.7)	
Somewhat concerned	72 (31.3)	107 (35.7)	
Not at all concerned	89 (38.7)	134 (44.7)	
"I might sell a gun that gets used in a crime"			.0006
Very concerned	70 (30.6)	72 (24.0)	
Somewhat concerned	103 (45.0)	104 (34.7)	
Not at all concerned	56 (24.5)	124 (41.3)	
"There are too many gun control regulations"			.05
Very concerned	87 (37.7)	128 (42.7)	
Somewhat concerned	83 (35.9)	117 (39.0)	
Not at all concerned	61 (26.4)	55 (18.3)	
Estimated percentage of retailers who make illegal sales			<.0001
≥10	89 (39.4)	60 (21.4)	
4–9	50 (22.1)	57 (20.4)	
1–3	64 (28.3)	123 (43.9)	
<1	23 (10.2)	40 (14.3)	
Estimated percentage of straw purchases with retailer aware and participating			.51
≥10	95 (41.9)	98 (34.6)	
4–9	23 (10.1)	47 (16.6)	
1–3	39 (17.2)	52 (18.4)	
<1	70 (30.8)	86 (30.4)	
Policy proposals			
Require "that gun sales by private individuals include background checks"			.002
Favor	151 (64.3)	152 (50.7)	
Neutral	34 (14.5)	55 (18.3)	
Oppose	50 (21.3)	93 (31.0)	
Expand denial criteria: "persons convicted of this crime . . . should not be able to purchase handguns"			

Table 4. (*continued*)

Characteristic	Hi-TD n (percentage)	Other n (percentage)	*p*
Possession of equipment for illegal drug use	189 (82.9)	229 (79.0)	.26
Assault and battery, not involving a lethal weapon or serious injury	166 (72.2)	189 (64.1)	.049
Resisting arrest	133 (57.8)	145 (49.7)	.06
Publicly displaying a firearm in a threatening manner	205 (88.7)	243 (82.9)	.06
Expand denial criteria: "persons with this condition . . . should not be able to purchase handguns"			
Alcohol abuse, with repeated cases of alcohol-related violence	210 (90.9)	264 (89.5)	.59
Alcohol abuse, with repeated cases of DUI (driving under the influence) or similar offenses	166 (72.5)	197 (67.7)	.24
Serious mental illness, history of violence	232 (99.2)	294 (98.7)	.60
Serious mental illness, history of alcohol or drug abuse	229 (97.9)	278 (95.9)	.20
Serious mental illness, no violence, alcohol, or drug abuse	213 (91.4)	263 (89.8)	.52

Source: Author's tabulation.

because large majorities of respondents from both HTD and other licensees supported all proposed expansions—except those convicted of resisting arrest.

DISCUSSION

In this forty-three-state sample of active federal firearms licensees, variation was considerable in the self-reported frequency of sales of firearms that were later traced and in the proportion of sales that were denied. Particularly noteworthy are associations between status as a licensee for which these events occur most commonly and sales of inexpensive handguns, exposure to other forms of illegal activity (attempted straw purchases and theft), and location in a major metropolitan area or in the South. These findings are consistent with those of prior research (Pierce et al. 2004; Koper 2007; Wintemute, Cook, and Wright 2005; Wintemute 2009a; Wright, Wintemute, and Webster 2010; Koper 2013).

As discussed earlier, these findings suggest that some licensees are the focus of an array of efforts to acquire firearms for criminal purchases. Attempted straw purchases and denied sales represent failed efforts; they are, almost certainly, attempted purchases by persons with criminal intent or by prohibited persons. Thefts and, arguably, a substantial portion of sales of firearms that are later used in crime represent successes. These "bad guy magnet" licensees could be identified as part of routine law enforcement operations because trace records are available to law enforcement agencies from ATF and denial counts for individual licensees can be obtained from the FBI through the Freedom of Information Act.

No implication is intended that the HTD licensees among respondents are deliberately involved in any of the illegal activities associated with status as a bad guy magnet. On the contrary, it is clear from the findings presented here and explored further elsewhere that, at least among these respondents, levels of concern about criminal use of firearms and support for efforts to intervene rise with exposure to illegal activity (Wintemute 2013, 2014). Response bias might be particularly important, of course; it is quite plausible that licensees

who deliberately participate in illegal commerce are unlikely to participate in a survey such as this. Certainly, respondents in this survey frequently attributed criminal motives to other licensees who have high frequencies of trace requests and denied sales (Wintemute 2013, 2014). Further research on the causes and mediators of disproportionate sales of firearms that were later traced, and on disproportionate denied sales, is sorely needed.

The opinions and beliefs of the HTD licensees in this study suggest that among licensees who serve as important point sources for firearms used in crime is likely a subset interested in collaborative efforts to prevent firearm violence. The existing Don't Lie for the Other Guy campaign is an example of such an effort, but it has never been fully implemented (NSSF 2000). An earlier report from this survey finds that respondents who refused to participate in illegal purchases did not always alert law enforcement and other licensees when such attempts occurred (Wintemute 2013). Licensees could be encouraged to make such notifications routinely and advertise in advance their intent to do so. Perhaps the existing Don't Lie campaign's message could be twofold: Don't Lie for the Other Guy and If You Try, We Will Turn You In.

Financial incentives could play an important role. Rewards could be offered to licensees who provided information leading to the prosecution of persons attempting straw purchases, for example. More important, perhaps, substantial rewards could be offered for assistance in identifying the small proportion of licensees who deliberately participate in illegal commerce. Respondents to this survey clearly believed that such licensees exist. For that matter, such deliberate participation has been directly observed and documented under appropriate conditions (Wintemute 2007, 2009b). Tips from licensees identify trafficking operations (ATF 2000b; Braga and Kennedy 2001), and some speak publicly about the illegal activities of others (Shapiro 2008; Wintemute 2009b).

A follow-up survey might usefully explore licensees' willingness to participate in a collaborative effort of this type to prevent firearm violence, contingent on such factors as the size of the rewards being offered, offers of public recognition for performing a public service (or perhaps the opposite—assurances of anonymity), and the like. An encouraging precedent has been set by collaborative efforts between health professionals and firearm retailers to prevent suicide, which are under way in several locations (Vriniotis et al. 2015; Brink 2014).

Limitations

Overall study limitations are reviewed in detail elsewhere (Wintemute 2012); no additional limitations apply just to this portion of the study. The study population was restricted to licensees with estimated sales above a specific threshold; licensees from seven states were excluded because the necessary data were not available. The response rate is comparable to that of others using similar methods for establishment surveys, including the developer of those methods (Paxson, Dillman, and Tarnai 1995; Kriauciunas, Parmigiani, and Rivera-Santos 2011). An effort was made to interfere with the execution of the survey, but it appeared to have little if any effect (Wintemute 2012). We rely on self-report throughout, which is particularly important for data on firearm traces and denied sales. Given that much of the Firearms Licensee Survey concerned stigmatized behavior, nonresponse bias remains a concern. No alternative data on traces are available, given statutory restrictions on release of those data under the so-called Tiahrt amendments. External validation does exist for the median denial percentage that respondents reported, which is similar to the nationwide percentage that the Bureau of Justice Statistics reports (Frandsen et al. 2013).

CONCLUSION

Disproportionate sales of crime-involved firearms and high proportions of denied sales identify a subset of federal firearms licensees that may be of particular interest for prevention efforts. Status as a pawnbroker, sales of inexpensive handguns, and exposure to illegal activities such as straw purchases and firearm

theft are associated with those characteristics. At least among survey respondents, those characteristics are associated with increased levels of support for policies to prevent firearm violence that might affect retail commerce in firearms. Possibilities for collaborative efforts should be explored. Respondents with and without these characteristics estimated that a small but significant minority of licensees were deliberately involved in illegal activities, suggesting that traditional law enforcement approaches will remain of primary importance.

APPENDIX: METHODS

These materials are modified from the supplement to a previous report from the Firearms Licensee Survey.

Identifying the Study Population

In response to our request under the Freedom of Information Act, the FBI provided a tabulation of background checks on prospective firearm purchasers performed by its National Instant Criminal Background Check System (NICS checks), specific to the individual licensees requesting the checks. Data were for the eighty-eight days from November 13, 2010, through February 9, 2011. These dates were not chosen deliberately; the data were compiled as soon as possible after our request was approved. Because records are retained for only eighty-eight days, data for a longer period are not available.

The number of NICS checks a licensee requests does not equal the number of firearms that the licensee sells, for several reasons. Nonetheless, NICS checks are a reasonable proxy measure for retail firearm transactions. The 9,720 licensees having ten checks or more in the FBI data (representing roughly fifty firearm sales or redemptions per year) account for 17.7 percent of all retail licensees on ATF's roster (Wintemute 2012).

No licensees from California, Connecticut, Hawaii, New Jersey, Nevada, Pennsylvania, and Virginia were included in the FBI's tabulation. Licensees in these states contact a state agency, not the FBI, to request NICS checks (Adams and Frandsen 2005). These states need not identify requesting licensees when transmitting NICS check requests and are excluded because their data are incomplete (Andrew F. Clay, personal communication, December 9, 2011). These states accounted for 12.6 percent of all retail licensees on ATF's roster.

A random sample of 1,601 licensees in the forty-three remaining states, stratified by license type, was drawn using PROC SURVEY SAMPLE in SAS software (SAS 2012). The sample included 16.5 percent of licensees in the sampling frame.

Questionnaire Design

The questionnaire comprised thirty-eight questions on twelve pages. Pretests on retailers were not conducted because implementation could be affected were the study's existence disclosed. This concern proved well founded (Wintemute 2012). We conducted multisession cognitive interviews with two independent experts who had extensive knowledge of firearms industry practices, and three policy experts reviewed a draft questionnaire.

Survey Implementation

The survey design required up to three questionnaire mailings, with a reminder postcard between the first and second. We included a $3 cash incentive in the first. A cover letter explained that the survey was intended "to understand better the unique perspective of firearms licensees on important social issues and the firearms business itself" and to collect "the first nationwide information on the day-to-day business experience of firearms licensees."

During implementation, monitoring determined that licensees affiliated with chain stores had a lower response rate. We sent personalized letters to the chief executive or regulatory officer of the twenty-five corporations with more than one licensee in our sample, requesting that they authorize individual store managers to participate. Multiple attempts were made to contact each corporate officer by telephone.

We established procedures to detect discussion of the survey on the Internet, our primary interest being in attempts to discourage subjects from participating or to encourage collective or strategic responding.

Data Management and Statistical Analysis

We entered data as questionnaires were received, using dual-entry procedures and automated and manual comparisons. The average annual percentage of sales that were denied and number of trace requests, each over five years, were converted to percentages of firearm sales in 2010.

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