The effect of perceived risk and victimization on plans to purchase a gun for self-protection

Gary Kleck a, Tomislav Kovandzic b,⁎, Mark Saber b, Will Hauser a

a College of Criminology and Criminal Justice, The Florida State University, Tallahassee, FL 32306–1127, United States
b Criminology Program, University of Texas at Dallas, Richardson, TX 75080–3021, United States

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A B S T R A C T

Purposes: To determine if perceived risk of criminal victimization, and past criminal victimization experiences, increases the likelihood of a person owning a gun for self-protection, and to determine if defects in past research concerning the way gun ownership was measured had obscured such effects.

Methods: We analyzed data on over 2,500 U.S. adults, using different ways of measuring gun ownership, and also analyzed future plans (among persons who did not own a gun at the time of the survey) to acquire a gun for self-protection. The latter procedure avoids the causal order problem attributable to the possibility that acquiring a gun might affect victimization risks and perceived risks, as well as the reverse.

Results: The estimated effect of perceived risk and prior victimization changed from being nonsignificant when household gun ownership was the dependent variable (as in most prior research) to being increasingly strong, and statistically significant, when gun ownership of the individual respondent for defensive reasons was measured. Further, once the causal order issue was side-stepped, risk and victimization showed even stronger, significant positive effects on planning to get a gun.

Conclusions: Crime affects gun ownership, in addition to any effects that gun ownership may have on crime.

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Introduction

In both absolute and per capita terms, the United States is by far the most heavily armed country in the world. By the end of 2008, there were probably over 300 million guns in private hands (Kleck, 1997, pp. 96–99; Shooting Industry, 2010 and previous years). Results from a recent national survey indicates that 42 percent (±4 percent) of Americans have a gun in their home, and that 29 percent of U.S. adults personally own a gun (Gallup, 2009). These facts have led some scholars to assert that America’s high level of civilian firearm possession is an important factor contributing to the nation’s high level of violence (Newton & Zimring, 1969; Sloan & Rivara, 1990; Wintemute, 2008).

Others have concluded that, although aggressor’s possession and use of guns has many effects on the outcome of violent encounters, the net impact of widespread gun possession, among both prospective victims and aggressors, is probably a statistical wash (Kleck, 1997; Wright, Rossi, & Daly, 1983).

Why do millions of Americans bring deadly weapons into their homes? While national surveys of Americans have consistently shown that most gun owners and long-gun owners in particular, own them primarily for hunting or target shooting, the surveys also reveal that a large subset of gun owners, and most handgun owners, own them primarily for self-protection (see Kleck, 1997, Ch. 3). In a 1994 national survey, for example, 46 percent of all gun owners reported that the primary reason they owned guns was for self-protection (the National Survey of the Private Ownership of Firearms (NSPOF) - Cook & Ludwig, 1996, p. 38). Further, among persons who owned only handguns, 74 percent reported that protection was their primary reason for owning the gun, with target/sport shooting a distant second (10.8 percent). While those who own only long guns own them primarily for target/sport shooting, even among this subset of owners, 15 percent owned them primarily for protection (Cook & Ludwig, 1996, p. 39). The finding in the NSPOF survey that self-protection is the primary motivator of most handgun ownership is largely consistent with results from other national surveys, and is noteworthy because it is primarily this subcategory of guns that have been the target of the strongest control efforts (Kleck, 1997). This is probably because of the greater involvement of such guns in violent crime, and the fact that gun types within this category (e.g., Saturday Night Specials, assault weapons) are more politically susceptible to government regulation as they are owned by smaller numbers of voters (Cook, 1991; Kleck, 1997).

Understanding the factors that lead people to obtain guns for self-protection is important for both theoretical and policy reasons. Theoretically, the identification of significant individual and contextual determinants will provide for a better understanding of the nature of protective gun ownership. It can also help clarify why high rates of crime and high levels of gun ownership are often found in the...
same places and times. Practically, knowledge of these factors should prove useful to policymakers who consider gun control an effective strategy for preventing violence since these factors will ultimately play an important role in the willingness of defensive gun owners to remove guns from their homes or induce prospective owners to forego acquiring them in the first place (Kleck & Kovandzic, 2009).

The most widely cited theoretical explanation for why people acquire firearms for self-protection, and the focus of the present study, derives from the “fear of crime” or “perceived risk” (hereafter referred to as fear/risk), and “victimization” traditions (Cao, Cullen, & Link, 1997; Dejong, 1997; Kleck, 1997; Williams & McGrath, 1976). This perspective views defensive gun ownership as an individualistic psychological coping mechanism for dealing with the “threat - actual, perceived, or emotional - posed by crime” (Cao et al., 1997; Reid et al., 1998). Thus, fear or perceived risk of criminal victimization could motivate gun acquisition.

Studies assessing the effect of fear/risk and criminal victimization on gun ownership have obtained wildly varying results. The inconsistency of these results may reflect either of two major methodological problems. The first and more easily corrected flaw is the failure to measure the theoretically relevant dependent variable. Fear/risk is not hypothesized to affect all types of gun ownership - no one argues it is a major factor driving acquisition of rifles and shotguns. Rather, fear/risk is hypothesized to affect handgun acquisition. Even more specifically, it is hypothesized to increase the likelihood of handgun ownership for protective or defensive reasons. Since about two thirds of the guns owned by Americans are long guns (rifles and shotguns) (Kleck, 1997), most of the variation in gun ownership across households and individuals is probably due to variation in long gun ownership. Studies that defined the dependent variable as ownership of any type of gun were therefore primarily analyzing variation in the ownership of types of guns that are largely irrelevant to the fear/guns hypothesis. Null results concerning fear, risk, or victimization variables are therefore not surprising, but also may say little about whether these factors actually influence ownership of defensive weaponry.

Further, many of the studies failing to find a link between gun ownership and fear/risk or criminal victimization did not establish whether respondents (Rs) personally owned guns. Instead, they were based on surveys that determined only whether someone in the R's household owned a gun, and researchers were forced to effectively assume that the respondent owned a gun, even in cases where it might actually have been other household members who owned the guns. On the other hand, fear of crime and prior victimization was measured with regard to the individual Rs interviewed. Thus, gun ownership as measured in studies that only determined household gun ownership did not necessarily pertain to the same persons for whom fear/risk was measured - in many cases, gun ownership pertained to the “wrong” person. This flaw could be conceptualized as a form of random measurement error. Random measurement error in the dependent variable will increase the standard errors of coefficient estimates of the explanatory variables, and thereby artificially favor the null hypothesis. Unless corrective measures are taken, the analyst may commit a Type II error when testing whether fear/risk or victimization has an impact on protective gun ownership - i.e., wrongly conclude there is no effect of these variables.

Second, all of the prior studies suffer from potential endogeneity bias due to reverse causality in the fear/risk, victimization, and gun ownership relationships. Fear/risk might motivate gun acquisition, but once a gun is acquired it can reduce fear or perceived risk of crime victimization. Indeed, that is probably one of the main benefits that the typical defensive gun buyer hopes to gain from gun acquisition. Thus, a person who started out more fearful than average might consequently be motivated to acquire a defensive gun, which reduces his fear level back down to an average level (Wright et al., 1983, pp. 128–129). A one-shot survey would miss the motivational effect of fear on gun acquisition because it was cancelled out by the fear-reducing effect of gun ownership. Similarly, victimization might stimulate an individual to acquire a gun for self-protection, but gun acquisition might help the gun owner avoid victimization. From a statistical standpoint, if the endogeneity problem is not successfully addressed, what is asserted to be the impact of fear/risk and victimization on protective gun ownership will in fact also include the impact of protective gun ownership on fear/risk and victimization. OLS estimates of the former will suffer from “endogeneity bias” because the regressors (fear/risk and victimization) are themselves endogenous in a system of simultaneous equations, making them correlated with the error term in the structural gun ownership equation.

This study addresses the question of whether there is an effect of perceived crime risk and prior victimization on protective gun ownership, using data from the 1994 National Study of Private Ownership of Firearms in the United States (NSPOF) (Cook & Ludwig, 1996). We take advantage of an item in the NSPOF questionnaire that allows us to avoid endogeneity bias by eliminating reverse causality as a source of endogeneity. Instead of estimating the relationship between the risk-related variables and current gun ownership, which could influence those variables, we assess their relationships to an individual's plans to acquire a firearm for self-defense in the next 12 months, among those who do not already own a gun. This sidesteps the two-way causation problem because merely planning to get a gun in future cannot influence one's current fear or perceptions of victimization risk. In effect, we are simulating the situation that prevailed among gun owners before they became gun owners, and thus before their gun ownership could have affected their fear, perceptions of risk, or victimization.

Further, since this item pertains to the individual respondent, we also reduce measurement error in the dependent variable by testing links between the individual's plans to acquire a gun and the individual's personal attributes such as perceived risk and prior victimization.

Section 2 reviews the prior literature on fear/risk and victimization on protective gun ownership, and discusses in detail the survey procedures used in the NSPOF to alleviate the endogeneity problems. Section 3 discusses the data and the analytic strategy used in this study. The results are presented in Section 4, and Section 5 concludes.

Prior research

Effects of personal victimization

Numerous studies have assessed the relationship between gun ownership and criminal victimization, with very mixed results. Lizotte and Bordua (1980) (see also Lizotte et al., 1981), Marciniak and Loftin (1991), and Whitehead and Langworthy (1989) found significant positive associations between gun ownership and criminal victimization, while Cao, Cullen, and Link (1997), Defronzo (1979), Glaser and Glendon (1998), Jiobu and Curry (2001), and Williams and McGrath (1976) did not. Wright and Marston (1975) found an association for some measures of criminal victimization but not others. Importantly, however, none of these studies did anything to resolve the issue of causal order. As discussed above, criminal victimization might motivate gun acquisition, but gun acquisition might help the gun owner avoid victimization.

Effects of fear of crime, perceived risks, and crime rates

Some scholars in this field have treated fear of crime and perceived risk as largely interchangeable concepts. Ferraro and LaGrange (1987) and Ferraro (1995), however, have noted that although fear of crime and perceived risk are conceptually related, they are nevertheless distinct, both conceptually and empirically. Ferraro (1995, p. 23)
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