



Self-protection against crime victimization: Theory and evidence from university campuses

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ABSTRACT

Economic analysis of self-protection against crime has a lengthy history, but we have not extensively investigated how people simultaneously engage in self-protection alongside routine activities that expose individuals to the risk of crime victimization in the first place – behaviors such as recreation and work. This paper addresses three essential questions along these lines: how people decide to self-protect, how they blend self-protection with the other activities, and the influence of the social and economic environment around them. Conceptually, answers emerge when we apply the classic state-preference theoretical framework and carefully consider the role of the probability of victimization, the presumed effectiveness of self-protection, and the outcome of the self-protection decision in the context of recreation and work. To investigate the empirical environment of self-protection, I use a unique data set containing detailed information about the self-protective, recreational, and employment practices of over 3000 U.S. university students. A series of statistical probes provides a profile of personal as well as wider social and economic circumstances that shape the individual self-protection decision; the empirical patterns illustrate how individuals selectively use social and personal resources when protecting themselves against crime as they go about their everyday lives.

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1. Introduction

All of us gain utility, directly or indirectly, from numerous activities that we undertake in society – shopping, sporting events, movies and concerts, even work – but those activities also expose us to the risk of crime victimization. The criminologists [Cohen and Felson \(1979\)](#) noted the keen irony of how the elements of an enjoyable life also expose us to a greater crime threat. The possibility of victimization ultimately motivates self-protective activities aimed at reducing this risk – from locking doors, to deploying alarms, to carrying weapons. But while self-protection makes us safer, it also incurs costs – even if a crime victimization never happens. When we think about social (or recreational) activity, market work activity, and self-protection as economic behaviors, we immediately encounter their inherent analytical tension and simultaneity and the fact that they occur not in isolation but within a broader social and economic environment. In this paper, I pointedly examine the contextual nature of self-protection: how people decide to self-protect, how they blend self-protection with the other activities, and the influence of the environment around them.

In economics, [Ehrlich and Becker \(1972\)](#) seminally modeled and framed self-protection in the context of other forms of

protection against losses; [Landes and Posner \(1975\)](#) later analyzed the pervasive division between public and private enforcement of the law, where self-protection becomes part of the latter. [Bartel \(1975\)](#) studied the demand for self-protection by firms, recognizing that entrepreneurs have alternatives to self-protection, most notably security-guard and public protection. Some have also recognized that self-protection coexists with other common activities. [Komesar \(1973\)](#) viewed self-protection as one of many inputs used in household production, a security mechanism that requires costly allocations of time away from other pursuits. [Clotfelter \(1977a\)](#) similarly emphasized that self-protection incurs both monetary and opportunity costs, an easily overlooked element of the “total social cost of crime” (p. 503). [McDonald and Balkin \(1983\)](#) incorporated the demand for activities that expose a person to crime as a way of refining how we *measure* crime and victimization.

This paper builds on these earlier works by adopting the state-preference theoretical approach and by incorporating insights from criminology. Classically, an economic agent faces a possible loss state in which crime victimization occurs or a non-loss state in which it does not. Social activity and work (and their respective benefits) may occur in either state, as might self-protection, but the cost of any self-protection accrues in either state and the cost of victimization accrues in the loss state. In Section 2, I examine three elements central to the economic model of self-protection: the likelihood of victimization, the effectiveness of self-protection, and the nature of the self-protection decision itself. Doing so allows us to

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see the fundamental importance of individual exposure to crime, the manner by which individuals gain information about the threat of crime, and how their self-protection, social activity, and work vary in key exogenous factors. This discussion lays a foundation for the empirical investigation (Section 3).

For empirical analysis, I use a data set that contains, among other information, variables quantifying the social activity, work activity, and self-protective practices of over 3000 U.S. university students. The data set allows us not only to investigate empirical patterns suggested by theory but also how self-protection and other patterns unfold on university campuses – an empirical setting with growing policy relevance in recent years.¹ Empirical results obtained through a series of statistical probes provide a snapshot of how economic agents blend self-protection with recreation and work (“routine activities”) in a social context. Among other patterns, the analysis reveals that the students under analysis apparently regard self-protection as complementary with the other activities, which has implications for the essential effectiveness of self-protection; at the same time, a greater threat of victimization discourages social activity and work even as it encourages self-protection. And while previous victimization strongly influences the fear of crime, which in turn strongly influences self-protection, only some crime fears influence recreation and work. Furthermore, distinctly social resources affect not merely self-protection but indeed specific forms of self-protection. Previous research in the economics of crime and victimization has scarcely considered the contextual nature of self-protection.

2. Conceptual analysis

2.1. Model set-up

Suppose an individual faces a probability of crime victimization, p , which varies in three activities under the control of that person – social activity (a), self-protection (s), and market work (h) – such that $\partial p/\partial a > 0$, $\partial p/\partial s < 0$, and $\partial p/\partial h > 0$. Following the treatment by McDonald and Balkin (1983), these properties indicate that social activity (recreational behavior in the company of other people, including acquaintances and strangers) and work activity increase the risk of victimization, while self-protection reduces it, other things equal.² In functional terms, the victimization probability becomes $p = p(a, s, h)$ and the non-victimization probability $1 - p(a, s, h)$. Suppose the agent gains utility from social activity and disutility from work so that $U = U(a, h)$, $\partial U/\partial a > 0$, and $\partial U/\partial h < 0$.³ Casting a as an argument in p and U imposes the idea that social activity contributes simultaneously to utility and victimization risk.

Suppose self-protection incurs a (utility) cost c directly proportional to the degree of self-protection, so that $c = c(s)$, $c'(0) = 0$, and $\partial c/\partial s > 0$. That is, the individual incurs no self-protection cost if engaging in no self-protection but incurs a greater cost given more pronounced self-protection, of whatever form. Self-protection that involves no monetary expenditure still may involve a person

¹ As Palmer (1996) recognized, university campuses serve as microcosms of society with respect to crime, victimization, and the circumstances surrounding both. That fact in part motivated the passage of the Student Right-to-Know and Campus Security Act of 1990, which mandates that federally funded institutions regularly disseminate campus crime statistics, as well as amendments to the act requiring covered schools to develop and promulgate programs on sexual violence prevention. For additional discussion, see Potter, Krider, and McMahon (2000).

² In this way, one can contrast self-protection with market- or self-insurance, activities designed to reduce the magnitude, rather than the probability, of a loss. See Ehrlich and Becker (1972).

³ Equivalently, the agent obviously receives positive marginal utility of leisure (nonwork time), l . One can directly impose the implicit time constraint $h + l = T$, T representing the total amount of time available, and alternatively write $U = U(a, l)$, with $\partial U/\partial l > 0$.

diverting time away from other activities or perhaps taking the effort to persuade associates to assist in her self-protection efforts. The agent earns labor income wh in either state, where w represents the wage available per unit of time; earnings equal zero given a wage offer of zero or if the person does not work ($h = 0$).⁴ In the loss state, the individual incurs a victimization cost k that, in essence, captures the severity of the crime that might occur; greater severity implies a greater potential loss. While social activity directly impacts the probability of victimization, it exerts no assumed influence on the potential victimization loss magnitude, a treatment that follows that of McDonald and Balkin (1983).⁵

We can then write the agent's objective function as expected utility $Z = p(a, s, h)[U(a, h) - wh - c(s) - k] + [1 - p(a, s, h)][U(a, h) - wh - c(s)]$. If the agent self-protects, the cost of self-protection will exist in both the loss and non-loss states, as also seen in the models of Ehrlich and Becker (1972), Bartel (1975), McDonald and Balkin (1983), and Lakdawalla and Zanjani (2005). The objective function simplifies algebraically to $Z = U(a, h) + wh - p(a, s, h)k - c(s)$.

In this classic formulation, the probability of victimization becomes a central component of the agent's decision process: social, labor-market, and self-protective activities all influence it as functional arguments. This fact motivates the three essential questions that this paper ultimately seeks to confront empirically. First, how do potential victims of crime come to know or perceive the probability of victimization? How an economic agent obtains information about the threat of victimization would seem to inform how the person generally reacts to the likelihood of victimization. Second, how do potential victims know or perceive the essential effectiveness of self-protection? Expressed more formally, what affects the magnitude of the assumed relationship $\partial p/\partial s < 0$? Finally, how does a potential victim, in the presence of information surrounding the first two questions, ultimately act on his or her plans to self-protect? The inherent simultaneity of self-protection, social activity, and work makes the answer to this question less than obvious. I examine each of these questions in greater detail in the following subsections, incorporating insights from within both economics and criminology. The analysis motivates specific empirical inquiries pursued later using data on university students.

2.2. The probability of victimization

By construction, the probability of victimization, $p = p(a, s, h)$, embodies confounding simultaneous effects of the agent's endogenous actions on that probability. Even as the agent's social and work activity enhance the risk of victimization, self-protection presumably reduces it.⁶ This structure reflects how a person's ordinary activities coexist with degrees of self-defense against crime, as recognized classically in criminology.

⁴ To reduce unnecessary complication, I do not model work hours h as a (decreasing) function of social activity a . This simpler treatment means that the term $w(\partial h/\partial a)$, capturing the market value of the marginal opportunity cost of social activity, will not appear in the first-order condition for optimal social activity, but it does not affect the outcomes of any of the comparative-static effects discussed in this section.

⁵ This treatment of the victimization loss in the context of self-protection by individuals departs from Bartel's (1975) analysis of self-protection by firms. In her model, a firm's losses from crime (primarily thievery) reasonably emanate in part from its location and output level, both reflecting a firm's current endogenous choices.

⁶ The role of work activity in this respect reflects a reasonable assumption that most work activity takes place outside the home, increasing exposure and vulnerability to victimization. The fact that some individuals work inside the home, whether in wage work or self-employment, does raise the question whether such work offers greater protections against crime victimization. Economic research on the crime-victimization consequences of labor supply choices remains largely undeveloped.

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