

## II. Experiments



# Using Experiments to Test Criminological Theory

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## A. Introduction

I may be the only contributor to this Festschrift who is not a lawyer or economist with deep roots in law and economics or legal theory. I am instead a criminologist and statistician. My professional relationship with Christoph began about fifteen years ago when he invited me to Bonn to give a seminar on the state of the criminological literature on the deterrent effect of criminal sanctions, a topic of longstanding interest to me dating back to my dissertation. I was puzzled as to why the invitation was extended but I accepted because I had never been to Bonn. I thank my lucky stars that I did. Since then, our professional relationship has evolved into a valued friendship. It has also blossomed into a highly productive scholarly collaboration late in both of our careers.

The substance of that collaboration will be the focus of my contribution but first I want to share my impressions of Christoph. Other contributors are better placed than me to comment on the importances of his contributions to law and economics and legal theory. In this regard, I will observe that with over 150 publications in refereed journals and his authoring fifty books Christoph's contributions are voluminous. More importantly, however, they are cutting edge as evidenced by his countless keynote lecture invitations and the long list of his recognitions including honorary degrees from two of the world's leading universities – Hebrew University and the University of Copenhagen.

Based on personal experience, I am better positioned to comment on three characteristics of Christoph that make him a valued collaborator and friend. They are his farsightedness, the clarity and rigor of his thinking and writing, and his genuine regard for others.

Concerning his farsightedness, in retrospect I now understand that the purpose of his Bonn invitation was to recruit me to his mission to bring the use of experimental methods, a staple of the law and economics research, to criminology. Criminology is a discipline that is deeply rooted in sociology and more recently developmental psychology. Experimental

methods are sparingly used in both these disciplines. With delay, he was successful in convincing me to join his mission and importantly there is evidence that our mission is bearing fruit! My point here is that remarkable careers such as Christoph's are rarely based on a single magisterial contribution but rather on an accumulation of linked scholarship based on a farsighted vision. Christoph clearly has the gift of vision.

Beyond a long-term vision, a successful scholarly career also requires clarity and rigor in thinking and in writing. I tell my graduate students that you don't understand it until you can write it with crystal clarity. I am consistently impressed by the clarity of his writing and the crispness of his logic; a skill I am sure he brings to all his scholarship.

I have come to a point in my career where I only collaborate with individuals whose company I enjoy and who treats others with respect and dignity. Christoph is a joy to interact with, and he treats everyone the same regardless of their station – with respect for their humanity.

## B. Bringing experimental methods to criminology

Experimental methods in criminology have mostly been used to evaluate the crime preventions effectiveness of police deployment strategies such as concentrating police presence at crime hot spots or to test the efficacy of interventions to reduce recidivism of individuals under the supervision of the criminal justice system. Use of experimental methods to test criminological theories is rare.

Our first attempt to demonstrate to criminologists the usefulness of experimental methods to test criminological theory was a failure. Engel and Nagin (2015) was ultimately published in a behavioral economics journal. Recently, however, we have had a major success with the publication of Engel, Lanfear, and Nagin (2025) in the *Journal of Quantitative Criminology*, a prominent criminological outlet. The paper titled “When Do Guardians Deter Offending? An Experimental Test of Informal Social Control Mechanisms” is an outgrowth of my recent line of research on guardianship. Guardianship refers to actions taken by private citizens to disrupt or to prevent crime. It is central to collective efficacy theory (Sampson, et al., 1997), a highly influential theory in criminology and sociology which itself is a form of informal social control theory. As described by Sampson (2006a, p. 153, emphasis added), “The term collective efficacy is meant to signify an emphasis on shared beliefs in a neighbor-

hood's capability for action to achieve an intended effect, *coupled with an active sense of engagement on the part of residents.*"

My guardianship research has largely been supported by the Max Planck Society in my capacity as a Max Planck Legal Fellow. It has been heavily influenced by law and economics theoretical perspectives Christoph has shared with me.

Nagin, Barnum, and Herman (2024) distinguish two distinct forms of guardianship, reactive and proactive. *Reactive guardianship* involves an individual or a small group responding to an ongoing criminal incident or a potentially harmful situation with the aim of disrupting it. People balance prosocial motivation to help others against safety and social costs associated with intervening. The large psychological literature on bystander intervention and prosociality, along with research on personal safety, physical prowess, and social and moral attitudes, illuminate the complex decision-making processes underlying reactive guardianship. *Proactive guardianship* involves community members coming together to improve public safety, such as organizing block watches. It requires ongoing participation rather than a one-shot reactive decision to intervene. A key challenge to devising a theory of proactive guardianship which Christoph impressed upon me is to overcome the free rider problem of individuals who benefit from improved public safety without contributing to it. Collective efficacy theory and the economics literature on public goods provision provide frameworks for identifying factors that influence individual choices to contribute that might overcome the free rider problem. These include willingness to contribute, knowledge that others are contributing, and active social approval of contributors and disapproval of non-contributors.

Our recent successful foray in convincing criminologists of the value of laboratory-like experiments involved what I believe to be the first experimental demonstration of proactive guardianship. The design of the experiment, which Christoph was largely responsible for, adapts experiments from the law and economics literature on mechanism designs for discouraging free riding in the provision of public goods based on voluntary contributions.

The online laboratory experiment was designed as follows: Participants were randomly assigned to and informed of one of three roles described to them as A, B, and C but which I heretofore will refer to as the Thief, Target, and Proactive Guardian roles. In compensation for their participation, all participants received a 6€ endowment. Those as-

signed to the Thief role were given the option of taking 3€ of the Target's endowment. Those assigned to the Proactive Guardian role were given the option of punishing the Thief for taking from the Target, by inflicting a fine. The amount contributed by the Proactive Guardian toward that fine was deducted from their 6€ endowment, thereby making it costly for them to intervene on behalf of the Target. The Target's endowment is not restored if the Thief chooses to take regardless of the fining decision of the Guardian. Target participants, the would-be victims, are passive. We manipulated (a) the presence of Guardians and their number; (b) the cost of punishment for the Guardian and (c) the maximum punishment power of Guardians.

From the perspective of those in the Proactive Guardian role, the experiment was intended to mimic the dilemma confronting real world would-be agents of informal social control. Unlike police officers who have a duty to intervene if they encounter a problematic event that might escalate into a crime, would-be proactive guardians are not so obligated and must balance their sense of duty, if any, to contribute to the safety of their community against the potential cost to themselves of serving as proactive guardian (Barnum et al. 2024; Jin et al. 2024). In the real world, that cost is mainly personal safety, something that cannot be ethically manipulated in an experiment. Instead in the experiment the cost is monetary – a reduced payout for serving as a Guardian who punishes a Thief were the Thief to take. In recompense to the external validity loss resulting from this abstraction, the design makes it possible to investigate what is invisible in research on reactive guardianship: the conditions under which knowing of potential guardian intervention deters would-be perpetrators.

Key findings were:

- 1) Proactive guardianship works; we found that guardians are willing to intervene to punish infractions even as punishing is costly for them. Importantly, in conditions in which proactive guardians had sufficient punishment power to make taking unprofitable some would-be thieves were deterred. Specifically, in four of six punishment conditions proactive guardians role participants had sufficient punishment power to making taking unprofitable. In two other conditions the would-be thief could either take with impunity or take with no risk that the fine would exceed 3€, making taking at worst a breakeven proposition. Taking rates were significantly lower in the four higher punishment conditions than in these two conditions.

- 2) In addition to this deterrent effect of guardians, we observed an even more effective mechanism of prevention that is intrinsic to the individual: regard for others. Regard for others was measured by self-reports of the inappropriateness of taking and a standard incentivized test of social value orientation (SVO, Murphy et al. 2011) in which participants make six different allocations of a monetary reward between themselves and an anonymous other. Some participants with high revealed social value orientation and who self-reported that taking was inappropriate refrained from stealing, seemingly as a matter of principle. This regard for others had a far larger impact on taking decisions than the capacity of guardians to punish, which suggests individual predispositions toward offending may generally be more consequential than situational incentives such as guardianship.
- 3) We also found a pronounced interaction between deterrence and regard for others. Punishment exerted a deterrent effect only for those with low regard for others. On the one hand, participants high in social value orientation refrained from stealing, even in the absence of the threat of punishment. On the other hand, participants low in social value orientation were willing to steal, but less often when the threat of punishment was more severe.
- 4) The finding that deterrence and social value orientation strongly interact with deterrence is consistent with research that finds deterrence is relevant only for a subset of individuals for whom offending is perceived as a potential choice. Zimring & Hawkins (1973) and Pogarsky (2002) argue that some individuals will not commit a crime for ethical or moral reasons even in the absence of a sanction threat. Pogarsky calls such individuals “acute conformists”.

Moral considerations, also, play a central role in Wikstrom’s (2006) Situational Action Theory – morals act as a perceptual filter that governs whether crime is considered a viable option. When the moral filter rules out offending, the act will be excluded entirely from cognitive consideration. This in turn makes sanction threats irrelevant because the behavior is precluded regardless of the magnitude of the sanction threat. To our knowledge we are the first to demonstrate this prediction in an incentivized experiment that manipulates real costs of both intervention and punishment, in so doing further building our case for the use of lab experiments to test criminological theories.

One important limitation of our study is that it is unlikely that many participants in the Thief role had histories of serious criminal involvement. At the time of this writing we are embarking on a study to address this limitation by recruiting individuals incarcerated in a US local jail to serve in the would-be thief role. Participants in the Target and Proactive Guardian Roles will continue to be drawn from the public. Participants from the public will also be recruited for the would-be thief role to serve as a comparison group for jail participants in that role.

Another extension we are embarking on is administering an adaptation of the experiment to participants from across the globe to study whether we replicate the findings of our largely US and UK sample to samples of participants from selected countries with varying average levels of SVO and of an index of the rule of law.

A final important gap in this line of research is examining the linkage of individual-level willingness to serve as a proactive guardian with the level of collective efficacy in the community in which they reside – a key prediction of collective efficacy theory is willingness to serve as a proactive guardian will be positively associated with community-level collective efficacy. Collective efficacy theory also predicts that would-be thieves in higher collective efficacy communities will more likely be deterred due to their knowledge that intervention is more likely. Testing these two predictions requires measuring collective efficacy in a sample of communities and then recruiting individual members of the community to serve in the Proactive Guardian and Thief roles.

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