

Time and Punishment: How Individuals Respond to Being Sanctioned in Voluntary Associations¹

Laura Doering
University of Toronto

Amandine Ody-Brasier
Yale University

Little consensus exists on how group members respond when sanctioned by their peers. One school of thought suggests individuals become more cooperative, or prosocial, toward the group. Another line of research shows that individuals have negative emotional reactions to being punished and become less cooperative. We reconcile these seemingly conflicting viewpoints in the context of voluntary associations, where cooperation is crucial. Building on social psychological theories of dependence, we propose that responses to sanctions shift over time as individuals become increasingly dependent on other members to achieve valued outcomes. We draw on data from Colombian microsavings groups to develop this proposition, using qualitative data to flesh out the proposed mechanism and longitudinal, quantitative records to test our hypothesis. We find that individuals initially respond to sanctions by reducing prosocial contributions, but their responses become increasingly prosocial over time. This study generates a fresh vision of sanctions as temporally and relationally dependent.

INTRODUCTION

Groups often rely on sanctions to encourage members to comply with norms (Horne 2009; Di Stefano, King, and Verona 2015; Reilly 2018). When groups

¹ For their comments, we are grateful to Sarah Brauner-Otto, Jan Doering, Oliver Hahl, Marissa King, Vanina Leschziner, Bill McEvily, Kristen McNeill, Patricia Roach, Rania

sanction norm violators, they not only make salient the rules of the community; they also highlight its boundaries (Garland 1991), affirm collective values and identities (Tyler and Boeckmann 1997; Bartley and Child 2014), engender a sense of solidarity (Durkheim 1995), and foster increased commitment (Kanter 1968). Given these outcomes, scholars tend to view sanctioning as a crucial mechanism for ensuring collective order (Heckathorn 1988; Hechter and Opp 2001), and many sociologists treat sanctions as an essential component of effective group functioning (Coleman 1990; Horne 2009; Simpson and Willer 2015).

By extension, this literature suggests that when group members are sanctioned, they respond by behaving more cooperatively (Hechter 1988; Coleman 1990; Opp 2002; Heckathorn 1988, 1989). Being sanctioned typically implies losing some privilege or valuable resource (Horne 2009), so sanctioned individuals learn the cost of deviance and alter their behavior to avoid future punishment (Gibbs 1966; Macy 1991, 1993). By responding prosocially to being sanctioned, individuals can reaffirm their membership in and commitment to the group. In various group settings (Fehr and Gächter 2002; Fehr and Schurtenberger 2018; Hechter 1988; Yamagishi 1986, 1988, 1992), researchers have shown that sanctions can effectively promote cooperation and prosocial behavior.²

While most sociological research anticipates that sanctioning norm violators induces members to behave more cooperatively (Simpson and Willer 2015), research in the psychology of punishment (e.g., Nadler and Rose 2003; Axelrod 2013) suggests that sanctions can backfire. This research demonstrates that sanctioned individuals develop negative behaviors, attitudes, and emotions that *reduce* cooperation (Fehr and Rockenbach 2003; Mulder, van Dijk, and De Cremer 2006; Irwin, Mulder, and Simpson 2014). Even when they support underlying norms, members may respond negatively to being sanctioned: “A person acknowledges the reason for the sanction, and even supports its goal, but is angry and hostile at being its recipient” (Oliver 1980, p. 1370). Sanctions can precipitate “emotional reactions that have undesirable consequences” (Blau 1964, p. 224). Individuals’ negative

Salem, Dan Silver, and Batia Wiesenfeld, as well as seminar participants at the University of California–Berkeley, Columbia, EM Lyon, McGill, Michigan, Toronto, Stanford, and Yale. We are also grateful to the *AJS* reviewers for their suggestions. We appreciate research assistance from Pablo Guzmán Lizardo, Juan Ortega, Priyanka Saini, Paz Villar, and Monica Tapia Viteri, as well as access provided by Banca de las Oportunidades. This research was funded by SSHRC and the Lee-Chin Institute at the University of Toronto. Direct correspondence to Laura Doering, Rotman School of Management, 105 Saint George Street, Toronto, Ontario M5S 3E6, Canada. E-mail: laura.doering@utoronto.ca

² We view cooperation and prosocial behavior as related constructs. Following Simpson and Willer (2015, p. 44), we define cooperation as “an individual behavior that benefits a group or collective” and prosocial behavior as “an individual behavior that benefits one or more others.”

reactions to sanctions can make them less motivated to contribute private resources to the group (Ostrom 1990) and may even lead them to retaliate or incite group conflict. Accordingly, this line of work suggests that individuals do not necessarily respond to sanctions in a prosocial manner but instead become *less* likely to cooperate as a result of being punished (Geddes and Stickney 2011; Li et al. 2018).

Taken together, these findings present a puzzle. One line of research anticipates that violators will respond to being sanctioned by behaving more prosocially; however, another body of work shows that violators have negative emotional responses when punished and become less cooperative as a result. Thus, “consensus is still lacking over whether punishment is effective at promoting cooperation” (Bone et al. 2015, p. 1). In this article, we seek to reconcile these expectations by specifying when—rather than whether—sanctions elicit prosocial responses.

We start from the premise that cooperation emerges through repeated interactions (Thibaut and Kelley 1959; Homans 1961; Blau 1964). Over time, participants become more “dependent” on fellow members—meaning that they increasingly “value their relationships and the goods they can gain from them” (Horne 2009, p. 23; see also Horne 2001).³ In this article, we follow social psychological theory and conceptualize dependence as a multifaceted concept that operates both at the interpersonal (person-to-person) and relational (person-to-group) levels. In this line of work, scholars show that dependence emerges through various mechanisms. These include social integration, which involves the development of positive emotions or feelings of attachment (Homans 1961; Lawler and Yoon 1993; Lawler, Thye, and Yoon 2008), and social learning, which involves the discovery of common interests and common goods (Hechter 1988). Although the specific mechanisms undergirding dependence can vary, we argue that the general tendency for members of certain groups to become increasingly dependent over time can help resolve the theoretical puzzle outlined above.

We focus on a kind of group for which securing cooperation is crucial: voluntary associations. These are organized groups whose members are not financially compensated for participation (Knoke 1986; Bonikowski and Mcpherson 2007). Members join of their own volition and often discover additional value in “doing things together” (Kuwabara 2011, p. 560). Because members can exit voluntary associations if they choose, remaining in the group is an indication that a member derives some value from participating. Through repeated interactions and continued involvement, members

³ Our conceptualization of dependence differs from that of Emerson (1962), whose classic definition refers to the value of outcomes controlled by other parties and the availability of alternatives. This definition of dependence is rigorous but omits other possible features of social exchange, such as positive emotions.

of voluntary associations form relationships that make them increasingly dependent on one another and the group. We theorize that an individual's response to sanctions is directly linked to her level of dependence. Specifically, we anticipate that, over time, members will respond more prosocially to being sanctioned by their peers, as they increasingly depend on fellow members to achieve valued outcomes and wish to maintain productive relationships with them.

To investigate this possibility, we leverage fine-grained qualitative data and longitudinal quantitative data from microsavings groups in Colombia. This setting offers three key advantages that allow us to understand the temporal effects of sanctioning in ways that have not—to our knowledge—been possible in previous research. First, the microsavings groups are voluntary associations in which members have the opportunity to become increasingly dependent on their groupmates over time. We draw on qualitative data to illustrate the key factors contributing to increased dependence in our setting. Second, the groups' meeting ledgers provide simple, compelling measures of norm violations, imposed sanctions, and prosocial contributions. We take advantage of the clarity of groups' explicit norms against absence and their attendance records to capture norm violations and the accompanying sanctions (or lack thereof). Then, we measure members' contributions to a collective emergency fund to capture individuals' prosocial responses to being sanctioned by their peers. The third key advantage is the fact that the microsavings groups repeatedly met over approximately one year. The longitudinal nature of our data allows us to investigate how members respond differently to the same sanctions as they organically develop relationships with fellow group members. We examine 14,884 unique participant-meeting observations from 1,425 individuals who participated in 88 groups. Whereas the vast majority of sanctions research comes from laboratory settings—and thus faces limitations around capturing groups' gradual relational development—this study offers important advances by studying real-world groups in their natural environments as they develop ties over time.

Consistent with our predictions, we find that individuals respond differently to being sanctioned for the same violation at different points in time. We show that, when individuals are fined earlier in their group tenure, they respond less prosocially by reducing contributions to the group's collective emergency fund. Yet as time goes on, individuals respond to the same sanctions more prosocially, with *increased* contributions to the collective fund. In extended analyses and appendices, we consider a number of alternative explanations and specifications. Notably, we use an alternative measure of dependence—whether an individual receives emergency financial support from the group—and, consistent with our theory, find that members respond more prosocially to sanctions when they have received critical financial support from fellow members. We also investigate possible differences

in who gets sanctioned over time, as well as whether our results stem from members' perceptions of sanctions as surprising or unjust. Across a range of tests, we consistently find that alternative explanations cannot fully account for members' increasingly prosocial reactions to sanctions, providing greater confidence that changes in dependence underlie shifting responses to sanctions. Through these findings, we resolve a tension in scholars' understanding of punishment and offer a fresh vision of sanctions as dynamic events that prompt different degrees of prosociality across time.

We anticipate that our findings apply to voluntary associations—groups that are central to many sociological studies of communities, organizations, and local economies (Tocqueville 1900; Marwell 2007; Eliasoph 2011; Fridman 2017). In many voluntary associations, members are unsure how much value they will derive from the group when they join but uncover this value through repeated interactions. For example, imagine that an individual uses an online forum to join a newly founded book club in his neighborhood. Although he does not know other members prior to joining, he may be cautiously hopeful that the group will broaden his literary horizons. Over time, he may learn that he values the group not only for the intellectual stimulation it provides but also for the bonds of friendship with other members that develop slowly. We expect individuals' responses to sanctions will become more prosocial under these conditions: when members are unsure of the group's value at the outset and become increasingly dependent over time.

The article makes three key contributions to extant literature. First, our field-based approach introduces a novel, dynamic view of sanctioning. Research on norm enforcement is typically conducted in laboratory settings and is often time insensitive, leading to "static theories of inherently dynamic phenomena" (Bendor and Swistak 2001, p. 1496). Although it is notoriously difficult to measure sanctioning in the field (Horne 2009), this research capitalizes on a unique setting that affords a new view of sanctions as time dependent. Of course, field data have their own limitations; throughout the study, we address or acknowledge these limitations, often suggesting generative avenues for future research. Second, social psychologists have criticized the field's reliance on Western, educated research subjects (Henrich, Heine, and Norenzayan 2010). Our study makes an empirical contribution by broadening the range of research subjects and studying sanctioning in a developing-country context.

Most importantly, this study reconciles conflicting theoretical expectations about the behavioral consequences of sanctions. By showing how individuals' responses to sanctions change over time with increasing dependence, this study offers insights into why scholars have found that sanctioning can prompt both cooperative and noncooperative responses. By helping to reconcile conflicting claims from prior research, we clarify an important aspect of the "microfoundations" of social order in small groups (Simpson and Willer

2015, p. 44) and reveal how temporal patterns affect the development of cohesion (e.g., Kuwabara and Sheldon 2012).

THEORIES OF INDIVIDUAL RESPONSES TO SANCTIONING

We define sanctioning as the act of treating someone who engages in a particular behavior differently from—and worse than—those who do not (Horne 2009). Typically, it involves removing some privilege or valuable resources. Although sanctions can be collective as well as positive (e.g., Heckathorn 1990), in this study, we focus on the more common case of selective sanctions, where those who transgress group norms are treated worse (Oliver 1980).

Researchers hold conflicting expectations about how individuals will respond to being sanctioned by their peers. One perspective predicts that imposing sanctions on a norm violator will curb harmful behaviors and elicit prosocial responses (for a recent review, see Fehr and Schurtenberger 2018). Following a consequentialist perspective (Horne and Mollborn 2020), these scholars expect that individuals will be discouraged from repeating the sanctioned behavior when they face material and/or social costs (Gibbs 1966; Fehr and Gächter 2000; Fehr and Gächter 2002; Sigmund 2007; Wille 2009). Similarly, the “law of effect” (Herrnstein 1970) suggests that experiencing adverse consequences prompts an adaptive response (Molm 1994) and promotes cooperation, especially in repeated interactions (Balliet, Mulder, and Lange 2011). In addition to curbing harmful behaviors, researchers anticipate that being sanctioned may stimulate prosocial behavior because sanctioning norm violators restores confidence in social order (Durkheim 1984) and prompts greater levels of group solidarity (Hechter 1988). Further, scholars expect that sanctioning helps norm violators discover and appreciate the benefits of cooperation as well as the rationale—or meaning—underlying sanctions (Macy 1993). Supporting these predictions, a number of studies show that the use of punishment effectively suppresses undesirable, self-interested behavior (Patterson 1982; Van Houten 1983) and that sanctions facilitate prosocial behaviors in various group settings (Yamagishi 1986, 1988, 1992; Fehr and Gächter 2002).

Yet a different perspective emphasizes the negative emotional responses to being sanctioned, such as irritation, frustration, anger, or hostility (Thorn-dike 1932; Skinner 1938; Estes 1944). As Homans (1961, p. 26) writes, “Punishment . . . is apt to produce hostile emotional behavior in the person punished.” Scholars sharing this view often depict punishment as harmful (Molm 1997), arguing that “many people do not react calmly to punishment” (Oliver 1980, p. 1370) and noting that sanctions can encourage retaliation by the target, with a possible escalation of conflict. Such hostile reactions reduce cooperation, especially if the sanctioned individual comes to enjoy hindering the group’s functioning (Oliver 1980). Accordingly, individuals may respond

to being sanctioned by reducing the amount of private resources they contribute to the group (Geddes and Stickney 2011; Li et al. 2018).

Overall, the existing research offers divergent expectations: some research suggests that individuals respond to sanctions by regulating their behavior and showing increased prosociality, while other scholarship shows that individuals experience negative emotional responses that suppress prosocial responses. How can we reconcile these findings?

INCORPORATING THE THEORY OF DEPENDENCE

In this study, we draw on social psychological theories of dependence. Our approach differs from certain sociological theories of dependence, such as power dependence (Emerson 1972) or resource dependence (Pfeffer and Salancik 1978); it also differs from the word “dependence” as used in common parlance, which tends to have a negative connotation. As we outline below, the concept of dependence, as articulated by social psychologists, is particularly well suited to addressing the conflicting theoretical expectations about individual responses to sanctions.

We start from the premise that people depend on each other for much of what they value in life (Thibaut and Kelley 1959; Emerson 1962; Blau 1964). They often initiate relationships to access a variety of goods they need but cannot produce by themselves (Hechter 1988). For example, microsavings groups provide members with a secure place to deposit savings and create accountability for accumulating funds. When individuals can freely move into and out of groups—as in voluntary associations—repeated interactions suggest that the relationship produces some social, emotional and/or material benefits; otherwise, the individual would interact with the group less frequently or leave it entirely (Emerson 1972).

Many social psychologists anticipate that, when individuals participate in groups of their own volition, their dependence tends to increase over time (Horne 2009), facilitating cohesion among members (Hechter 1988; Kuwabara 2011). Increasing dependence can be driven by many factors, but researchers often highlight social learning and social integration as important processes that occur gradually over time and contribute to dependence. For example, members often learn that their relationships yield unexpected benefits—beyond those that motivated their joining the group (Emerson 1962). Some of these unexpected benefits include additional joint goods produced by the group. For instance, people may join a rotating credit association to gain access to cheaper credit and later discover that these relationships also confer prestige in the community (Kuper and Kaplan 1944). Another reason why an individual’s dependence gradually increases is that some joint goods take time to produce, their benefits take time to materialize, and these benefits may grow over time. For example, members can build personal relationships

that become valuable in and of themselves (Horne 2009). Social integration—one of the most important goods that groups provide (Hechter 1988)—can only be produced as members interact: “Personal ties tend to arise with repeated interactions—and thus only in the course of time” (Hechter 1988, p. 47). Thus, an individual’s tenure in a voluntary association reveals the extent to which he values his relations and the goods he can receive through them (Molm 1997; Horne 2001; Baldassarri 2015).

While exchange theorists rarely consider these temporal dynamics, perhaps due to their reliance on experimental research designs (but see Kuwabara and Sheldon 2012), we expect that they shape how individuals respond to being sanctioned. In adopting this view, we follow scholars who treat dependence as a dynamic construct, with the potential to change over time (Blau 1964; Hechter 1988; Lawler and Yoon 1996, 1998), conceptualizing dependence as “an emergent property of ongoing relations of social exchange” (Cook et al. 2013, p. 64)

TEMPORAL VARIATION IN RESPONSE TO SANCTIONS

We suspect that, in the early days of one’s participation in a voluntary association, members tend to respond to being sanctioned with negative emotional reactions that suppress prosocial group contributions. At that point, the sanctioned individual has yet to discover and/or take advantage of the various benefits that her relationships with other members may offer.⁴ She may view the sanction as a simple punishment for “bad behavior” because, early in her tenure, the sanction has no further meaning.

Yet as group members produce meaning through interactions (Horne 2009, p. 7), they develop “rationales,” which “provide reasons for a norm, explaining why adhering to a norm is a good thing (or not)” (Horne and Mollborn 2020, p. 477). Dependence highlights the linkages between individual behavior and increasingly valued outcomes, thus facilitating the development of compelling rationales through which members grasp the purpose of group norms (Macy 1993). Whereas members might initially view sanctions as mere cues for appropriate behavior (e.g., “I am expected to attend group meetings and I’ll be punished if I don’t”), they might later view sanctions as connected to actual consequences and the common good (e.g., “We can only produce valuable joint goods if we all attend meetings, and sanctions help uphold these standards”). The sanction is no longer mere

⁴ Note that these expectations would not apply if the member is already deeply dependent on others upon joining the group. For instance, if a member already knows that the group will generate a valued outcome, then we would expect her to be concerned with establishing a good reputation early on in her group tenure. Under such circumstances—when group dependence does not increase over time but instead starts high and remains high—we would not expect responses to sanctions to change over time.

punishment—some retribution for bad behavior—but represents a procedural guardrail legitimated by a compelling rationale (Xiao and Tan 2014). Such a shift in the meaning of sanctions would hardly be possible without an increase in dependence.

Note that dependence might be especially strong if, over time, individuals not only recognize the instrumental benefits embedded in their relationships but also develop feelings of moral obligation to their peers. Such processes are relatively common with repeated interactions (Simpson and Willer 2015) as frequent interactions often take on expressive value (Kuwabara 2011) and generate positive evaluations of one's partners (Homans 1961; Molm 1991; Lawler and Yoon 1993). Over time, members may develop a deep commitment to the group and a strong attachment to its members (Lawler and Yoon 1996). The stronger this attachment, the more members' self-interest will be redirected toward their peers' interest (Markovsky and Lawler 1994).

We expect that individuals who are sanctioned later in their tenure will respond in a way that signals that they understand the significance of the norm they transgressed and remain committed to the group and its members. From this perspective, a prosocial response to being sanctioned can even be framed as an opportunity for reintegration (Braithwaite 1989)—a chance to repair and restore the relationship. As members become more dependent, they may use their response to demonstrate that, despite the violation, they are willing to bear personal costs to protect the norm (Posner 2000), thereby reaffirming their commitment to the group. We thus expect that individuals in voluntary associations will become increasingly dependent on fellow members over time, and we hypothesize that they will react to being sanctioned with increasingly prosocial behaviors:

HYPOTHESIS 1.—Individuals will respond less prosocially to sanctions incurred earlier in their group tenure and more prosocially to sanctions incurred later in their group tenure.

As discussed above, our prediction applies to contexts where individuals participate in groups of their own volition and gradually become more dependent on those groups over time. If an individual is already deeply dependent on others upon joining, she is likely to respond prosocially from the outset in order to secure her position in a group she already values. For example, if an individual is an avid cyclist and joins a weekend cycling group consisting of good friends, she might strive to maintain a good reputation even from the outset. Her response to being sanctioned may therefore be prosocial from the beginning with little change over time.⁵ By comparison,

⁵ One might wonder whether an individual might not progressively relax her efforts over time, as she becomes more secure in her membership. While plausible, we expect this is unlikely to occur when an individual's dependence on the group increases over time. As the group becomes more valuable to her, she should exert more—rather than less—effort

if she cautiously joins a group of individuals unknown to her but finds over time that the group is valuable, we would expect her to respond less prosocially at the outset and more prosocially over time.⁶ We believe that this scope condition on the orientation of new group members—that they have low levels of dependence upon joining with gradual increases over time—is likely to be met in a variety of voluntary groups.

COLOMBIAN MICROSAVINGS GROUPS

We test our hypothesis using data from microsavings groups in Colombia. In what follows, we present qualitative data to provide contextual information with two aims in mind. First, we describe the unique practices and interactions that unfold in the savings groups, thereby making it easier for readers to understand members' lived experiences in the groups. Second, we demonstrate how and why members became increasingly dependent on fellow members over time, thereby providing contextual validity for our theorized mechanism. Dependence can manifest in a variety of ways (Molm 2007), and we specify the three primary benefits that group members identified as emerging for them over time: personal relationships, financial accountability, and community events. In line with these emerging benefits, we present data suggesting that members attached different meanings to sanctions as dependence increased.

Our qualitative data consist of field notes from group meetings and interviews with members collected between 2016 and 2018. The data come from housing projects in and around the cities of Bogota, Barranquilla, and Pasto. During that time, the first author and research assistants conducted ethnographic observations at 28 group meetings and interviewed 105 group participants and facilitators. Appendix A details the qualitative data and methods.

Group Functioning: Financial Contributions

Following international enthusiasm for group-based microsaving (Demirgüç-Kunt et al. 2018), the Colombian ministry of financial inclusion, Banca de las

to secure her position. Further, we expect that such a relaxation of effort is unlikely in groups that have formed relatively recently. Research suggests that individuals generally do not feel secure enough to practice nonconformity when they have only recently achieved social acceptance (Berkowitz and Macaulay 1961).

⁶ Note that our prediction does not *require* that individuals develop positive emotions toward their peers. Our theory would apply even if the cyclist felt neutrally toward her fellow group members but increasingly valued the act of cycling in a group—something she cannot achieve independently. Conversely, our theory does not require that individuals discover utilitarian benefits of the group. It would apply even if the cyclist felt neutral about the act of cycling in the group but developed positive emotions toward her fellow group members.

Oportunidades, implemented a program designed to increase saving and financial sector engagement among poor citizens. Over 46,000 Colombians across 15 provinces participated in the program between January 2016 and October 2017.⁷ Participants came from state-run public housing complexes and self-selected into the program. To join, participants had to be registered with the government program for low-income citizens (Red Unidos), ensuring that all came from Colombia's poorest economic stratum. Government facilitators assigned participants to groups of about 15 members based on housing proximity, grouping neighbors who lived in the same or nearby buildings. The housing projects opened in 2013 or later, and residents were assigned to apartments at random by lottery (Minvivienda, n.d.). As a result, neighbors generally did not know one another prior to relocating to the housing projects and thus did not have long-standing relationships at the time the savings groups commenced. Most members continued participating across the group's life, and approximately 8% of members quit, on par with attrition rates in other microfinance groups (Baland, Somanathan, and Vandewalle 2008; Chavan and Birajdar 2009). In appendix B, we outline attrition-related information and demonstrate that our results are robust to excluding members who quit.

Participants met approximately fortnightly in members' apartments. They stored their savings in a wooden box that remained in the host's apartment and was locked with keys possessed by three other members. At meetings, participants had the opportunity to make two kinds of financial contributions. First, members contributed to an individual savings fund. Participants purchased "shares" that were credited to their savings account, with each group establishing a cost per share at the initial meeting.⁸ For example, in a group where shares cost 2,000 pesos, a member might purchase five shares at a given meeting, thus contributing 10,000 pesos to her account. Members had discretion over how much to contribute at any meeting. They could withdraw their savings only if they wished to leave the group. Otherwise, they were expected to leave their savings untouched until the program concluded. As such, members understood that the groups were time bound, but they could continue saving as a group even after the program formally concluded, since they would retain the program materials (the savings box, printed ledgers, etc.). Commitment savings groups like these have been shown to help the poor accumulate capital by providing external accountability and a means of "hiding" funds from family and friends (Ashraf, Karlan, and Yin 2006; Dupas

⁷ Although the program formally concluded in October 2017, our data conclude in August 2017. Thus, for some groups, the observations are right censored.

⁸ Members would generally contribute up to five "shares" to their savings fund at each meeting. For instance, if a group decided that savings shares would be worth 500 pesos, a member would generally contribute anywhere between 0 and 2,500 pesos but would not be limited to this upper bound.

and Robinson 2013). In our sample, participants contributed an average of 6,399 pesos (\$1.90 USD) to their savings funds each meeting, with a standard deviation of 7,246.87 pesos.

Second, members contributed to a collective fund. The collective fund was required and served as an emergency account for participants who experienced financial shocks. For instance, participants might request money from the collective fund following job loss or a death in the family. Like the savings funds, members established a cost per share for collective fund contributions at the initial meeting. Members generally contributed one share to the fund at each meeting, but this amount could vary at a member's discretion. Participants contributed an average of 458 pesos (\$0.14 USD) to their collective funds per meeting, with a standard deviation of 397 pesos. This variance suggests that members did not always contribute the exact "share" amount but made higher or lower contributions as they saw fit.

Ideally, members who borrowed from the collective fund would repay it promptly and, at the program's conclusion, be reimbursed for their collective fund contributions. But in reality, members who experienced crises might not be able to repay borrowed funds. Thus, participants faced the risk that they would not recoup their collective fund contributions, making such contributions acts of solidarity with and in support of one's fellow members, rather than auxiliary savings accounts. (In our quantitative analyses, we operationalize prosociality as the proportion of a member's contributions allocated to the collective fund at each meeting.)

Members were also likely to view the collective fund as a form of insurance against unpredictable events. Yet the collective fund differs from private insurance, where policyholders remain anonymous. When one policyholder reaps the benefits of insurance coverage, other members go unaware. By comparison, savings group members know one another personally. When one member benefits from the collective fund, other members learn about the emergency and may feel gratified that they helped their neighbor in a time of crisis. As one member characterized the collective fund, "When people have difficulties, we give them a hand. . . . So when someone gets sick or [they say], 'Help me out with this!', well, we help them" (interviewee 23).⁹ Indeed, such collective funds have been shown to encourage cohesion and solidarity in small-scale savings and lending groups in other contexts (Desai 2013; Weingärtner and Pichon 2017).

Savings Groups in Action

Savings group meetings were often lively, social affairs—complete with coffee, snacks, and local gossip—but they nevertheless followed a formulaic,

⁹ Quotes are translated from Spanish by the first author.

almost ritualistic structure. The field note below captures the formalized, merry-go-round nature of fund contributions:

When we arrive at the apartment, Yolanda welcomes us into her home and begins setting up plastic chairs in a circle in the living room. Within about 15 minutes, there are six women participants gathered in attendance, along with one baby seated on a lap. . . . Ana, the group president, begins by welcoming everyone to the meeting. Yennifer then nudges them to begin gathering the collective fund money by saying “Partner number 1 . . . ?” Diana, the group accountant, then takes over, calling each member by their number and prompting them to deposit funds. One by one, as they go around the circle, each individual drops 500 pesos in coins to the collective fund, with the change clanging loudly against the plastic bowl as it falls in. . . . Carmen, the group secretary, announces the closing amount of the collective fund. Yennifer confirms and Diana counts the money. She affirms that there are indeed 7,000 pesos in the [collective] fund. Diana then begins the roll call for the savings fund, and they begin the process again. (Field notes, July 2016)¹⁰

A few features of the contribution process are noteworthy. First, members make contributions publicly. This highly visible process ensures that members know what others give and creates social pressure to contribute. Second, the process unfolds in a ritualized fashion, reminiscent of a religious ceremony. Members sit in a circle, awaiting their turn from a leader, repeatedly engaging in the same act (dropping money into a container). The structured, repetitive nature of this process contains aspects of ceremony that can heighten feelings of emotional energy and group solidarity (Durkheim 1995; Collins 2004). Third, when invited to make financial contributions, members are often called by their group names (e.g., “Partner Number 5”) rather than their given names. As in other contexts where members take on group-specific monikers, this practice makes group membership salient and heightens feelings of belonging and group exclusivity (Rymes 1996).

Growing Dependence over Time

Dependence is a multifaceted construct, and several factors may contribute to individuals’ increasing group dependence. While our goal is not to test or adjudicate among these, we now outline the factors that appeared to contribute to growing dependence in microsavings groups. Consistent with research in comparable settings (e.g., Ardener 1964), our interviews reveal that microsavings groups provided members with several kinds of goods—many of which came as unexpected benefits over time. Specifically, as they

¹⁰ All names are pseudonyms. Members used the Spanish word *socio/a*, which translates to “partner,” to reference one another in meetings. *Socio/a* is often used in the formal sense of a business partner but also has more informal connotations as the member of a club or cooperative (Pérez Porto and Merino 2012).

continued attending meetings, members reported coming to value three things: (1) developing stronger relationships with neighbors, (2) having a source of financial accountability, and (3) participating in group-sponsored community activities.

Developing personal ties was an often-mentioned benefit. Many interviewees explained that they appreciated the group because it allowed them to create and maintain strong personal bonds with their neighbors, which they did not have at the outset:

I really liked getting to know my neighbors, seeing another side of them. It's like, you know, even if you live right in front of someone, you only know their name, but nothing else. So, this has been really great. (interviewee 8)

The nicest thing about the groups is learning to live with others, I think. Because through the groups, well, sometimes you see a person, but you don't know them, you just say hi and you don't know who they are. But now, we talk, we chat, and we're becoming better friends, and we're getting to know each other and we're becoming better neighbors. This is what I like [about the group]. (interviewee 73)

Naturally, such relationships take time to forge. The regular, predictable nature of savings group meetings—combined with their convenient location in a neighbor's home—made the groups a useful platform from which members could gradually build stronger ties. Indeed, members explained that, although they were unsure of what might be gained from the group when they first joined, they came to appreciate the personal relationships that emerged. One interviewee, when asked about her initial aims in joining the savings group, said, “The truth is, at first, for as much as you think about it, you don't really have a clear idea of what this [savings group] is going to be about. You keep saving, but you also keep observing what is going on as we get to know each other. Because the group is a way for the neighbors to get to know each other and get along better. As time passes, we get to know each other better, and that's good” (interviewee 73).

Beyond developing personal ties with neighbors, members also valued the ability to deposit money in a secure place and, in doing so, to resist capital requests from friends and family—a concern highlighted in prior research (e.g., Portes and Sensenbrenner 1993). One interviewee explained, “[What I like best about the group] is the opportunity to save. Sometimes, [my kids] ask me, ‘Mom, can I have that candy?’ But now I know that I can't, since I have to save that little bit of money for the next meeting” (interviewee 40). As this interviewee suggests, members developed the capacity to resist capital requests by participating in the savings groups. Additionally, members described how the groups allowed them to develop basic saving skills. As scholars have found in other settings (Dupas and Robinson 2013), individuals who live in poverty often struggle to save even small sums. Interviewees often

reported that they did not or could not save previously but learned to save by participating in the group. For example, interviewee 10 said, “I’ve always been one of those people who didn’t like to save, and this group taught me to save. I was one of those people who just wasn’t interested [in saving]. Maybe it was because I was younger and didn’t care about anything! [laughs] But now, yeah, this group has taught me to save.”

Lastly, interviewees emphasized group-sponsored community events as another benefit of membership that they came to value over time. As one respondent described, members appreciated that groups served as a forum for bettering their communities—an outcome that members were unlikely to achieve independently: “Well, there [in the group] I can distract myself. It is different because, without the group, I would be saving at home. I mean, at the house it’s always the same. But with the group I can relieve some stress. We come up with ideas: ‘Let’s do this, let’s do that, let’s clean the tower. Look at this, let’s fix it up.’ But at the house, I would just be here by myself. So, it’s different” (interviewee 11). As one might expect, community activities were rare when groups first formed and became more frequent over time. For at least some members, the opportunity to plan and participate in community activities was an unexpected and enjoyable feature of the savings groups. Beyond organizing community cleanups or beautifying their buildings, many groups organized raffles. Interviewees from different groups described being particularly excited about egg raffles:

We did these raffles, like egg raffles. And that was awesome! You get really excited about it. . . . Because you see that with the little bit that you contribute from your home, you get a lot back. What I mean is, it’s not much, but it shows a real effort. Because in our group we had 17 members and each person brought two eggs [to the meeting]. So when you won the raffle, you got not two eggs but 30-something eggs! So obviously that makes you excited and you go [to the meeting] with the expectation, “I might win today!” like that. And we all had the same experience. We all contributed, and we all won. So for me, that activity is great. (interviewee 47)

I like it because it’s a way that you can—for a moment you can forget. Because with the raffles, at least with the egg raffles, we put these pieces of paper in a bag, and the last one whose name is in the bag wins the eggs. So then we all look at each other and start to joke with each other, to say things to each other, but in a good way. (interviewee 71)

As members began to organize community events like egg raffles, they further heightened the sense of excitement and bonhomie. Indeed, some aspects of group events appear to have encouraged a feeling of collective effervescence (Durkheim 1995), with members temporarily transcending mundane experiences (in the words of interviewee 71, “For a moment you can forget”) in the excitement of group solidarity.

Over time, members learned about the value the groups could offer: personal relationships, financial accountability, and community events. Although, as one member explained, “At first . . . you don’t really have a clear idea of what this [savings group] is going to be about,” many members became increasingly dependent upon one another to enjoy these rewards. Next, we examine how members’ view of sanctions also shifted as their dependence increased.

Sanctions: Practice and Meaning

Importantly for our study, savings group participants had the capacity to fine one another for violating group norms. At the group’s inaugural meeting, members agreed upon punishable behaviors and their associated fines, and each member signed an agreement to abide by these norms. For example, a group might decide that members would be fined 500 pesos (\$0.16 USD) for answering a phone call during the meeting, 750 pesos (\$0.23 USD) for showing disrespect to other members, 500 pesos (\$0.16 USD) for arriving late, and 1,000 pesos (\$0.31 USD) for failing to participate in a meeting.¹¹ The fine amount associated with each violation was set at the first meeting and did not change across the life of the group. Although these amounts may appear small, they are meaningful quantities to individuals living in poverty, who earn approximately \$2 USD per day on average in Colombia (DANE 2015).

Our qualitative data provide suggestive evidence that members perceived and responded to sanctions differently in the early and late stages of group tenure. These data suggest that, initially, members were uncertain about the purpose of the sanctions and responded more negatively to them. Yet as members increasingly saw the groups as valuable, they also saw sanctions as valuable practices that encouraged members’ best behavior and helped achieved important outcomes. For example, the following quote captures how two interviewees characterized members’ changing reactions to and understandings of sanctions:

Interviewer: And how did people react when they received fines at the beginning?

Interviewee 49: No, they didn’t like it.

Interviewee 50: At first, no, they didn’t want [to pay fines].

Interviewer: And what would they say, for example?

Interviewee 49: “No way!”

¹¹ Six of 88 groups opted not to make absence a punishable offence.

Interviewee 50: They were like, “Why?!”

Interviewee: But they stayed in the group?

Interviewee 49: Yes, they stayed. They understood later that they have to follow the rules.

This exchange reveals members’ initial uncertainty about the purpose sanctions served, but a later commitment to “the rules”—the groups’ standards and practices. Another interviewee explained this shift as one in which she and her fellow members were initially uncertain about the value of the sanctions and later adjusted. She said, “Of course, at first people didn’t know [why we had sanctions], and then later people adapt. They ‘catch’ the culture, you know?” (interviewee 55).

Although many interviewees reported that members had responded negatively to being sanctioned—as one individual summarized, “Nobody likes to have their pockets touched” (fieldnotes)—others shared more positive views of and reactions to sanctions. They described fines as important tools for encouraging accountability and ensuring successful group functioning. Importantly, members needed to understand the group’s overall value to see sanctions as worthwhile. Interviewees described sanctions as valuable for creating order and reminding members of their responsibilities to the collective: “The fines are a way to create order, in a way, or discipline. I mean, they remind us of the commitments that we’ve made to the group. They are the rules of the game that allow us to do this thing—even if initially it may seem like a game—in a serious way” (interviewee 8). As this quote suggests, at first members may see the groups as “a game” but over time come to treat them in “a serious way.” Sanctions, then, become tools that help “create order” and “remind us of the commitments we’ve made to the group.” Another member explained how sanctions highlight one’s obligations to fellow members in her well-established group: “Yeah, when [the members] don’t come, then there are fines. But we don’t take them as ‘fines,’ but instead as responsibilities that we haven’t met” (interviewee 30).

As members become increasingly dependent on their groups—learning more about the aspects of the group they value—their understanding of sanctions appears to shift. Members expressed initial uncertainty about the value and purpose of both the group and the sanctions. Yet as they came to understand the group’s value and became more dependent, many described viewing sanctions as productive tools that create structure and remind members of their collective responsibilities. In this way, as members became more dependent, the meaning they attached to sanctions appears to have evolved in tandem.

These data, along with the literature reviewed above, lead us to anticipate that members will respond differently to being sanctioned as they become increasingly dependent on their groups. At the outset, members may respond negatively to being fined since the group’s value is still unclear. Yet

we expect that, over time, members will respond increasingly prosocially to being sanctioned. Such prosocial responses signal a continued commitment to the group, despite having violated agreed-upon norms. We now turn to quantitative records of members' fines and prosocial contributions to test this hypothesis.

QUANTITATIVE DATA AND METHODS

The quantitative data for this study—which constitute the heart of our analysis—capture sanction applications and financial contributions from micro-savings group participants. These data comprise 14,884 unique participant-meeting observations from 1,425 individuals in 88 groups. The data include meetings at which members were present, as well as those at which they were absent and did not make financial contributions. Table 1 reports the summary statistics, and appendix A contains a discussion of the challenges associated with data collection in the field. The groups were located in three areas: Soacha, Pasto, and Yacauquer. Soacha lies in the Cundinamarca province, approximately one hour outside of Bogota. Pasto and Yacuanquer are located in the more rural province of Nariño in southwestern Colombia. Although the microsavings program took place across the country, participant-meeting observations are available for these areas only. Because we are interested in small-group dynamics—rather than regional variation or overall program evaluation—drawing data from a subset of all participants should not significantly affect our results.

Empirical Strategy

We estimate how being sanctioned influences a member's proportional contribution to the collective fund over time. To estimate these effects, we use a linear regression model with individual fixed effects. We include individual fixed effects to account for time-invariant personal characteristics (Allison 2009)—like sociability, gender, and nonfluctuating income—that may influence participants' likelihood of being sanctioned, as well as their capacity to contribute funds. We also model and present the results without individual fixed effects to demonstrate their consistency. The results are robust to using a generalized linear model with the logit link function (models available upon request), which accounts for the fractional nature of the dependent variable (Papke and Wooldridge 1996).

Dependent and Independent Variables

Collective fund contributions (%).—Our dependent variable captures the percentage of members' total monetary contribution at each meeting allocated

TABLE 1
SUMMARY STATISTICS

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Collective fund contribution (%)	16.12	24.61	1.00										
2. Collective fund contribution (pesos)	458.38	397.32	.15	1.00									
3. Savings fund contribution (pesos)	6,399.22	7,246.87	-.37	.20	1.00								
4. Absence fine (binary) . . . . .	.01	.09	.00	.03	.02	1.00							
5. Absence fine (categorical)	1.95	.26	-.02	-.04	-.02	-.70	1.00						
6. Group duration (days)	113.15	90.61	.10	.04	.00	.02	-.05	1.00					
7. Group duration (days, centered) . . . . .	.00	90.61	.10	.04	.00	.02	-.05	1.00	1.00				
8. Members present (<i>n</i>)	14.93	3.21	-.16	-.03	.15	.00	.04	-.14	-.14	1.00			
9. Cumulative group absence fines	5.87	7.25	.01	.14	.11	.12	-.12	.43	.43	.03	1.00		
10. Christmas season . . . . .	.18	.39	-.02	.00	.01	.01	.00	.02	.02	.06	.08	1.00	
11. Unfined absence . . . . .	.20	.40	.06	.12	.04	-.05	-.24	.23	.23	-.12	.20	.02	1.00

NOTE.—In U.S. dollars, the mean and SD of *collective fund contribution (pesos)* are \$0.14 and \$0.12, respectively. The mean *savings fund contribution (pesos)* is \$1.90, and the SD is \$2.15. Observations come from 1,425 members in 88 savings groups. *N* = 14,884.

to the collective fund. For example, if a member contributes \$0.80 USD to his individual savings fund and \$0.20 USD to the collective fund, the variable is coded 20%. Members can access the collective fund if they face an emergency, and they are expected to repay. Nevertheless, there is no guarantee that those who face an economic emergency will be able to repay, so members run the risk of not recouping their collective fund contributions. On average, participants allocate 16% of their total contributions to the collective fund at any given meeting.

Absence fine (binary).—Our main independent variable captures whether an individual was fined for failing to participate in a group meeting. *Absence fine* identifies, for each meeting, whether a participant incurred a sanction for missing the previous meeting (*absence fine* = 1). Although members can be fined for various infractions, we focus on absence fines for two reasons. First, we can observe whether a member (1) was absent and (2) was fined. This information allows us to differentiate between the effect of the infraction (failing to participate) and the sanction (the fine). By comparison, for other infractions—like being disrespectful or arriving late—we cannot observe whether individuals engaged in the behaviors but were not sanctioned. Second, unlike disrespect or late arrival, failing to participate in a meeting leaves little room for interpretation. Based on mutually constructed rules, anyone who fails to participate in a meeting is subject to fine.¹² Groups place funds generated via fines into the collective fund.

We lag the absence fine variable by one meeting to capture the sanction event. We summarize this strategy visually in figure 1. When a member misses meeting A, she is fined at meeting B, the next meeting where she is present. Yet we cannot know at what point during meeting B—before or after she makes fund contributions—the sanction is issued. Thus, we lag *absence fine* by one meeting and observe the effect of absence sanctions on financial contributions in meeting C. We find consistent results when measuring absence fines contemporaneously at the meetings in which members paid fines (meeting B).

We observe 125 absence fine events. The low frequency of fining suggests that sanctioning is relatively unusual. These data are consistent with sociological and criminological research showing that individuals rarely punish one another formally for rule violations, instead relying on the threat of punishment to deter undesirable behavior (Durkheim 1984; Coomber et al. 2015). The absence fines are levied across 104 members, suggesting that most fined members are sanctioned once. Groups issue fines at 9% of all meetings, and 42% of all groups issue fines for absence.

Given the relative infrequency of sanctioning events, we take several steps to ensure accurate estimates. First, one might worry that groups issue

¹² The results are robust to excluding observations from the six groups that set the cost of absence sanctions at \$0.

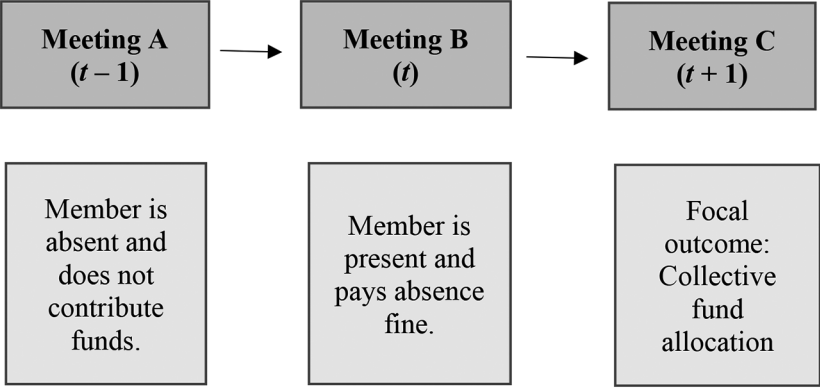


FIG. 1.—Progression of absence, fines, and contributions across meetings

fines only in the first few meetings, which would pose a challenge to our longitudinal approach. Yet descriptive analyses reveal that groups levy fines across meetings, as illustrated in figure 2.

Second, one might be concerned that a few outliers drive the linear interactions. To account for this possibility, we ran a robustness check that includes discrete time periods rather than a continuous measure of time. There, we find trends consistent with our main models, providing confidence that the results are not outlier driven. Finally, one might worry about biased results in our individual fixed-effects models since a small number of individuals

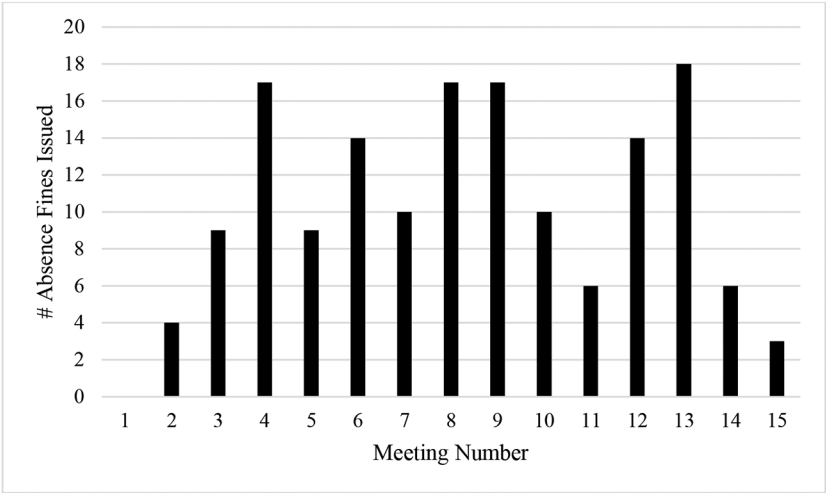


FIG. 2.—Absence fine frequency across group meetings

experience sanctions. To that end, we run all models without individual fixed effects and find consistent results.

Nevertheless, models without individual fixed effects face a different challenge: trends could be driven by different types of individuals being sanctioned at different points in time. We consider this possibility in an extended analysis below by calculating the rate at which members with different status characteristics are sanctioned earlier and later in group tenure. Based on available demographic data, we find no significant differences in the likelihood that higher- versus lower-status members are sanctioned at different points in time.

Absence fine (categorical).—As an alternative measure, we also capture lagged absence fines with a categorical variable indicating whether an individual was fined for absence (*absence fine* = 0), absent but not fined (*absence fine* = 1), or not absent and not fined (*absence fine* = 2). This analysis allows us to disentangle the effects of absence from those of being fined for absence. We find 515 instances of absent members who did not receive a fine.

Group duration.—To examine how the effects of sanctions change over time, we interact *absence fine* with *group duration*. *Group duration* captures the number of days elapsed since the group's inaugural meeting. Because all members join the group at the same time, group duration effectively captures their shared tenure. This variable ranges from 0 days (the initial group meeting) to 504 days, with a mean of 113 days. We use duration in days rather than the number of meetings because there is, naturally, some variation in the time lapse between group meetings and measuring time in days accounts for this variation. Nonetheless, results are consistent when we use meeting number to measure group duration.

Control Variables

We also sought to account for factors beyond the sanctions that might systematically affect contribution patterns. Because our main models include individual fixed effects, they account for time-invariant characteristics such as gender, ethnicity, nonfluctuating income, and psychological traits (taste for conformity, respect for authority, etc.). Yet other factors may also influence fund contributions. To that end, we control for the *number of members present* at the focal meeting, which might encourage or suppress contributions. As group size increases, members may feel a diffusion of responsibility that prompts reduced contributions (Olson 1965; Wiesenthal, Austrom, and Silverman 1983). Alternatively, members might contribute more as group size increases, since larger groups can produce more abundant collective funds from which any member stands to benefit (Esteban and Ray 2001). Additionally, some groups may issue fines aggressively, whereas others do so rarely. Because the rarity of events can shape their meaning (Christianson

et al. 2008; Lampel, Shamsie, and Shapira 2009), participants may respond differently to sanctions depending on the number of fines their groups have issued. Thus, we control for the number of *cumulative absence fines* the group has issued. In an extended analysis, we also control for the cumulative percentage rate at which groups fine members for absence and find consistent results. Additionally, we account for seasonal variation in participants' ability and motivation to save. In Colombia, the Christmas season is a time of high spending (Portafolio 2018) when group members may be reminded of the need to accumulate personal funds and reduce their collective contributions. To account for this, we control for whether observations occur in November or December (*Christmas season* = 1) or any other time of year.¹³ Finally, members may allocate funds differently depending on how groups have responded to their previous absences. For instance, members might feel grateful to groups that have overlooked prior transgressions and, as a result, contribute more to the collective fund. To that end, we account for whether a member's most recent absence went unfined by their group (*unfined absence* = 1). In extended analyses below, we run multiple tests to examine whether members' responses to sanctions are affected by perceptions that groups issue sanctions in surprising or unjust ways. We find consistent results, even when carefully accounting for these factors.

Online Appendixes

We include a number of additional tests in the online appendixes. Online appendix E shows consistent results when decomposing the proportional dependent variable into the collective and savings fund contributions in pesos. Online appendix F demonstrates that the interaction effects are strongest when we measure the effect of absence fines at meeting C, as compared to the meeting when the member pays the fine (meeting B) or later meetings (meeting D or E). Online appendix G shows consistent results when we measure group tenure in two periods rather than continuously. Online appendix H shows how the price of sanctions affects collective contributions. Finally, online appendix I tests six alternative specifications for the outcome, independent, control variables. Results are robust across a range of alternative measures, providing greater confidence in their reliability.

RESULTS

Existing literature offers competing views about how individuals respond to being sanctioned. One school of thought suggests that being sanctioned

¹³ Results are robust to alternative definitions of Christmas season, including November–January and December only.

generates cooperative, prosocial responses from the targeted individual, while another anticipates that the sanctioned individual will respond negatively and behave less cooperatively toward the group. We anticipate that both views may have merit but unfold at different points in time. We hypothesize that individuals' responses to being sanctioned will vary, becoming more prosocial as members increasingly depend on the group to access or experience a range of valued outcomes. In our setting, this theoretical expectation translates into the empirical expectation that savings group members will, over time, allocate more of their contributions to the collective fund in the meetings after they pay a fine for absence, as compared to meetings following no fine. We test these expectations by examining the interaction of *absence fine* and *group duration* on the proportion allocated to the collective fund at the meeting after a member has (or has not) paid a fine for absence.

Absence fine (binary).—We first measure the effects of sanctioning on prosocial responses by estimating collective fund allocations following meetings when members did or did not incur a fine. We present the results of these analyses in table 2. In models 1–3, we include individual fixed effects, which allow us to compare individuals to themselves and thus net out time-invariant characteristics that might affect contributions. In models 4–6, we remove individual fixed effects to demonstrate the consistency of the results.

Model 1 includes only the key independent variables, *absence fine* and *group duration*. There, we find no significant effect of *absence fine* on collective allocations, suggesting that being fined for absence does not predict prosocial contributions.¹⁴ We find a significant effect of *group duration*, such that members allocate more to the collective fund with increasing group duration ($\beta = 0.03$, $P < .001$). This finding is consistent with the notion that group members become increasingly dependent over time, finding more value in the group and offering more of their own funds to support it. Model 2 introduces the interaction of *absence fine* and *group duration*, showing a significant, positive effect ($\beta = 0.10$, $P < .001$). Model 3 shows that the interaction effect remains consistent ($\beta = 0.10$, $P < .001$) when we include the control variables. There, we find that the *number of members present* has a negative effect on collective contributions ($\beta = -0.28$, $P < .01$), suggesting a diffusion of responsibility when more members are present. We also find that members allocate less to the collective fund during the *Christmas season* ($\beta = -1.43$, $P < .01$) when they are likely to

¹⁴ Most sanctions research examines how individual behaviors change in response to sanctions for the targeted behavior (e.g., Fryer 2010; Le Bihan and Monnery 2018). Consistent with that research, we find that members respond to absence fines with *more* participation. Members have 1.85 times greater odds ($P < .001$) of attending the meeting following an absence fine, as compared to meetings following no sanctions (model available upon request). This finding demonstrates that members respond to sanctions by adjusting the specific, sanctioned behavior in the direction desired by the group.

TABLE 2
BINARY ABSENCE FINE PREDICTING COLLECTIVE FUND ALLOCATIONS

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Absence fine	-.38 (2.04)	-2.84 (2.15)	-2.87 (2.16)	.49 (2.39)	-1.81 (1.90)	-.31 (1.93)
Group duration (centered) . . . . .	.03*** (.00)	.02*** (.00)	.02*** (.00)	.03*** (.00)	.03*** (.00)	.02*** (.00)
Absence fine × group duration (centered) . . . . .		.10*** (.03)	.10*** (.03)		.10* (.04)	.09* (.04)
Members present (<i>n</i>)			-.28** (.11)			-1.07*** (.12)
Cumulative group absence fines			-.01 (.05)			-.10 (.06)
Christmas season			-1.43** (.48)			-.79 (.52)
Unfined absence			-.65 (.85)			1.68 (.86)
Individual fixed effects	Yes	Yes	Yes	No	No	No

NOTE.—SEs are in parentheses. In models that do not include fixed effects, SEs are clustered by individual. *N* = 14,884.

* *P* < .05.

** *P* < .01.

*** *P* < .001, two tailed.

prioritize their personal savings. We find nonsignificant effects of *cumulative group absence fines*, suggesting that the number of times a group has issued fines previously does not significantly predict collective allocations. We also find a nonsignificant relationship between *unfined absence* and prosocial contributions. Notably, the key effect of interest—the interaction of *absence fine* and *group duration*—is consistent when we remove individual fixed effects in models 4–6.

In figure 3, we use the results from model 3 in table 2 to generate predicted collective fund allocations, with all control variables constant at their means. These results demonstrate that, following meetings when members are not sanctioned, their collective fund allocations remain relatively flat over time. For example, after 14 days of group duration, a nonsanctioned member is predicted to allocate 13.67% of her total contributions to the collective fund. After 210 days, she is predicted to allocate only slightly more: 18.53%, an increase of 4.86 percentage points. By comparison, individuals’ collective contributions following meetings in which they *are sanctioned* increases steeply over time. After 14 days of group duration, a sanctioned member is predicted to allocate 0.91% to the collective fund, and by 210 days this predicted allocation rises to 25.32% (an increase of 24.41 percentage points).

We anticipate that members’ changing responses to sanctions over time reflect their changing levels of group dependence. Early in the life of the

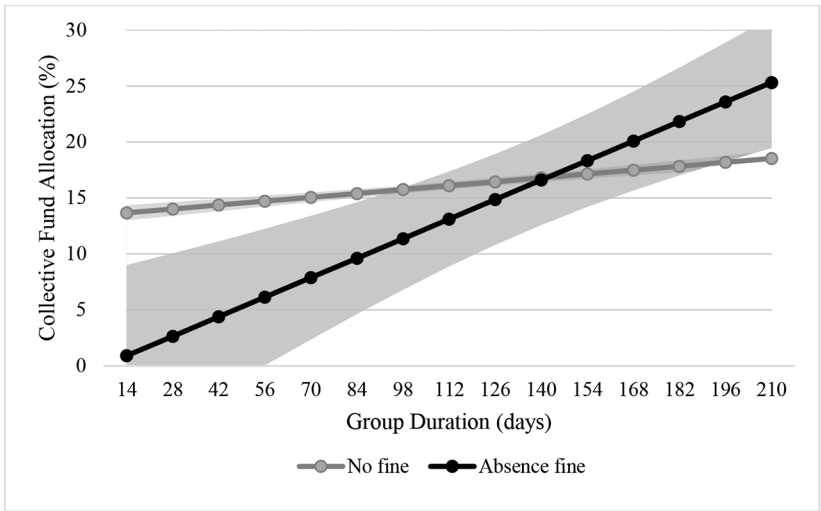


FIG. 3.—Predicted collective fund allocations following meetings in which focal member was or was not sanctioned. The predicted values are generated using results from table 2, model 3, the uncentered value of group duration, and all controls constant at their means. The predicted values are significantly different at days 14–84, marginally significantly different ($P < .10$) at day 98, and significantly different at days 196 and 210.

group, when members are unsure of the group’s value and thus have low dependence, we expect that members experience negative emotional reactions that suppress their prosocial contributions. For instance, one interviewee recounted her group members’ emotional responses to being sanctioned, recalling that they said, “What? Seriously? Are you really going to fine us?!” (interviewee 27). And as a regional coordinator summarized succinctly: “Obviously, some people didn’t like it” (interviewee 67). Yet later in the life of the group, when members understand the group’s value to them and thus are more dependent on it, their predicted contributions become increasingly prosocial. We anticipate that these more collaborative reactions at higher levels of dependence reflect members’ efforts to use collective contributions as a means of reaffirming their commitment to the group, despite the transgression. Being sanctioned at higher levels of group dependence may encourage reactions like this one: “[The fines] remind us of the commitments we’ve made to the group” (interviewee 8). Overall, these findings support our hypothesis that individuals’ responses to sanctions are not static but become increasingly prosocial over time.

Absence fine (categorical).—One might reasonably wonder whether the results derive not from absence *sanctions* but from *absence* itself. That is, members may respond more prosocially over time not to being punished but in response to having missed a meeting. Fortunately, our data allow

us to investigate this possibility. In the following models, we compare fund allocations when members were (1) fined for absence, (2) absent but not fined, and (3) not absent and not fined. This categorical analysis allows us to disentangle the effects of absence from those of being fined for absence.

Table 3 presents the effects of absence fine categories on collective contributions over time, with fined absence as the contrast category. The first three models include individual fixed effects, whereas models 4–6 remove them. Model 1 includes the key independent variables, model 2 introduces the interaction of *absence fine* categories and *group duration*, and model 3 introduces the control variables. In model 3, we find negative, significant interaction effects in both absence fine categories ($\beta = -0.10$, $P < .01$ and $\beta = -.10$, $P < .001$, respectively), suggesting that the temporal effects for each category are significantly different from the contrast category (*absence fine*). We find consistent results for the interaction effect when removing individual fixed effects, although the first interaction coefficient in model 6 does not reach statistical significance ($\beta = -0.07$, $P = .11$) but is consistent in direction and magnitude. For ease of interpretation, we present predicted values generated from model 3 in figure 4, with all controls constant at their means.

Consistent with trends depicted above, figure 4 shows that individuals allocate increasing proportions to the collective fund over time following an *absence fine*. In contrast, those who were *not absent and not fined* display a relatively flat tendency in their collective contributions. Particularly noteworthy are the allocation trends following an instance of being *absent, not fined*; these allocation trends closely resemble instances when members are *not absent, not fined*. Stated plainly, those who are absent but not fined behave like those who were present and not fined. These results provide greater confidence that being sanctioned for absence—rather than simply being absent—underlies the unique pattern of increasingly prosocial responses over time.

Robustness Check: Alternative Measure of Dependence

Our theory rests on the notion that members' shifting responses to sanctions vary with their level of dependence. Guided by theory and our qualitative observations, we measure dependence as group duration. Although this measure is appropriate to our setting, it is not the only way to operationalize dependence. Here we probe the consistency of our findings using an alternative measure.

We reason that members' dependence on the group increases when they receive emergency funds. Receiving money in the wake of hardship should heighten members' awareness of the group's value, demonstrating that the savings groups not only help them build relationships but also provide financial support during crises. Note that this measure is complementary to our

TABLE 3
CATEGORICAL ABSENCE FINE PREDICTING COLLECTIVE FUND ALLOCATIONS

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Absent, not fined	-.58 (2.27)	1.96 (2.39)	1.97 (2.43)	2.07 (2.69)	3.92 ⁺ (2.18)	.37 (2.29)
Not absent, not fined . . . . .	.41 (2.04)	2.88 (2.16)	2.87 (2.16)	-.59 (2.39)	1.72 (1.90)	.30 (1.93)
Group duration (centered) . . . . .	.03*** (.00)	.13*** (.03)	.12*** (.03)	.03*** (.00)	.13** (.04)	.12** (.04)
Absent, not fined × group duration (centered)		-.11*** (.03)	-.10** (.03)		-.08 ⁺ (.05)	-.07 (.05)
Not absent, not fined × group duration (centered)		-.10*** (.03)	-.10*** (.03)		-.10* (.04)	-.09* (.04)
Members present (<i>n</i>)			-.28** (.11)			-1.07*** (.12)
Cumulative group absence fines			-.01 (.05)			-.10 (.06)
Christmas season			-1.43** (.48)			-.79 (.52)
Unfined absence			-.44 (.89)			1.63 ⁺ (.90)
Individual fixed effects	Yes	Yes	Yes	No	No	No

NOTE.—SEs are in parentheses. “Absent and fined” is the contrast category for the meeting status categorical variables. In models that do not include fixed effects, SEs are clustered by individual. *N* = 14,884.

- ⁺ *P* < .10.
- * *P* < .05.
- ** *P* < .01.
- *** *P* < .001, two tailed.

main measure, *group duration*, since members are increasingly likely to receive emergency funds the longer the group has been meeting. Approximately 6% of members receive emergency monies—the event’s rarity supports the notion that these funds are for emergencies only—and the average amount received is 14,410.42 pesos (\$4.40 USD). Although this amount may appear small, recall that group members often live at or below the poverty line, so even small sums can make a meaningful difference in the face of extreme hardship.

We expect that members will respond more prosocially to sanctions if they have received emergency monies from their groups. Members who have received emergency monies should be particularly inclined to demonstrate their commitment to the group and its norms after being sanctioned for absence. We test this proposition by interacting *absence fine* with *received emergency monies*, a binary variable equal to 1 for any observation on or after a member receives a disbursement and 0 otherwise. Table 4 presents the results.

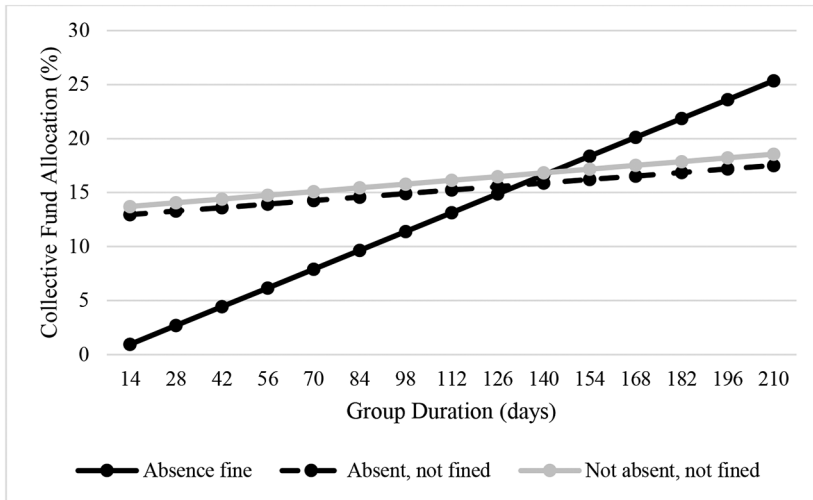


FIG. 4.—Predicted collective fund allocations following meetings across absence/fine categories. The predicted values are generated using results from table 3, model 3, the uncentered value of group duration, and all controls constant at their means. We do not include confidence intervals to facilitate visualization of the interactions. Intervals are similar to those depicted in fig. 3. A figure with confidence intervals is available upon request.

Model 1 includes our primary predictor variables and controls. We find no significant main effect of *absence fine* or *received emergency monies* on collective fund allocations. In model 2, we introduce the interaction of these variables and find a significant effect ($\beta = 31.42, P < .01$). To better understand this trend, we use these results to generate predicted fund allocations with controls constant at their means.¹⁵ Figure 5 reveals that, when members have not received emergency monies, there is no significant difference in their collective allocations when they are (not) sanctioned. Yet when members have received emergency monies, they are predicted to allocate significantly more to the collective fund upon being fined for absence, versus not being fined (45% vs. 14%, $P < .01$).

When a member receives emergency monies from the group, she is likely to develop increased dependence: she now has a heightened awareness of the group's value, seeing that fellow members provided crucial support in a time of need. Consistent with expectations, these models reveal that, when sanctioned, members make significantly more prosocial allocations if they have previously received emergency funds from their groups. These findings are consistent with those from the main models, providing further

¹⁵ In additional models (available upon request), we found consistent results using a continuous rather than binary measure of emergency monies received.

TABLE 4
 PREDICTING COLLECTIVE ALLOCATIONS WITH ALTERNATIVE DEPENDENCE MEASURE:
 RECEIVED EMERGENCY MONIES

	Model 1	Model 2
Absence fine	-.58 (2.05)	-1.86 (2.10)
Received emergency monies	-.30 (1.51)	-.72 (1.51)
Absence fine × received emergency monies		31.42** (10.21)
Group duration (centered) . . . . .	.03*** (.00)	.03*** (.00)
Members present (<i>n</i>)	-.28** (.11)	-.28** (.11)
Cumulative group absence fines . . . . .	.00 (.05)	-.00 (.05)
Christmas season	-1.48** (.48)	-1.47** (.48)
Unfined absence	-.77 (.85)	-.75 (.85)
Individual fixed effects	Yes	Yes

NOTE.—SEs are in parentheses. *N* = 14,884.

* *P* < .05.

** *P* < .01.

*** *P* < .001, two tailed.

evidence that dependence is a key social mechanism underlying members' shifting responses to sanctions.

EXTENDED ANALYSES

We further interrogate our findings by asking two important questions. First, are certain types of individuals more likely to be fined at different points in time? Second, are members responding to unjust or surprising sanctions? We briefly describe the motivation and findings for each question, and we include additional information in the data appendices.

Are Different Types of People Sanctioned at Different Times?

We argue that members display increasingly prosocial responses to being sanctioned as they become more dependent on fellow group members. We take several analytic steps that support this interpretation, including measuring responses (1) to the same sanction (for absence), (2) at the same cost (amount set at the first meeting), and (3) within the same individual (via individual fixed effects). Additionally, we show that the results are robust to excluding exiting members, demonstrating that attrition does not drive our findings (see app. B).

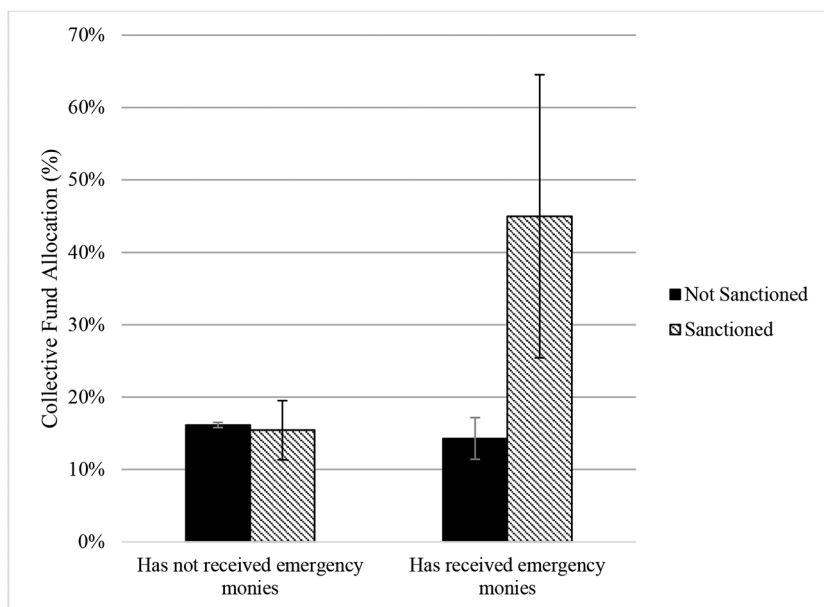


FIG. 5.—Predicted collective fund allocations when members have (not) received emergency monies and have (not) been sanctioned. The predicted values are generated using results from table 4, model 2, with all controls constant at their means.

Nevertheless, one might wonder whether groups tend to sanction different *kinds of* members across the group's life. The concern here is not whether certain individuals have greater overall probabilities of being sanctioned—indeed, a rich literature suggests they do. Rather, if groups systematically change the type of individuals they sanction *over time*, then this trend might explain our results.

A wide body of research suggests that status characteristics are the most plausible explanation for why groups might systematically punish members differently. This research demonstrates that sanctions are highly patterned by social status (e.g., Wiggins, Dill, and Schwartz 1965; Hollander and Willis 1967; Doob and Gross 1968; Harari and McDavid 1969; Wahrman 1970; Chambliss 1973; Bernhard, Fischbacher, and Fehr 2006; Valenzuela and Srivastava 2012). It is possible that status-based sanctioning changes over time. In particular, if higher-status individuals—who tend to be more cooperative (Willer 2009)—are sanctioned more frequently later in the group's life, then late-stage, high-status sanctioning could explain our outcomes.¹⁶

¹⁶ We also considered whether groups might systematically sanction unlikeable members early in the life of the group in an effort to get them to quit. We reasoned that, if groups

To examine this possibility, we use available demographic data to compare status-based sanctioning in the early and late periods. Guided by observations from the continuous measure of group duration and the knowledge that most groups ran for approximately one year, we define the “early stage” as the first six months of the group’s life and the “late stage” as observations thereafter. We approach these analyses cautiously since groups were not required to record status characteristics; thus, our analyses are likely to overrepresent more diligent groups (see app. C for a discussion). We include three status characteristics for which data are available: group leadership position, age, and gender. Groups elect leaders (president, treasurer, etc.) at the inaugural meeting, and members retain these positions throughout the group’s life. We categorize members as “younger” if they fall below the median age of 33 and “older” if they fall above. We measure gender as a binary construct, following the meeting records. We focus on instances in which members with these characteristics were absent and then calculate their likelihood of incurring a sanction. Table 5 presents the descriptive results.

Across time periods and status characteristics, we find no statistically significant differences in the rates at which high- versus low-status members incur sanctions. These results suggest that the trend toward increasing prosocial responses to punishment is not driven by observable status-based differences in which members are fined over time. As a further test, we reran our models, including controls for status characteristics. We approach these models cautiously because 45% of observations lack data on status characteristics, significantly reducing the sample size.¹⁷ Nevertheless, we find consistent, albeit weaker, effects in this reduced sample (see app. table C1). Overall, these findings suggest that our results are unlikely to be driven by members’ status characteristics, offering greater confidence that members’ changing responses to sanctions stem from their shifting dependence on fellow members.

Are Members Responding to Unjust or Surprising Sanctions?

An important alternative explanation for our findings is that groups may not levy sanctions evenly over time. Suppose that members issue sanctions infrequently early in the group’s life and become more consistent later. In that

were eager to get rid of unlikeable members, they would not pass any opportunity to sanction these individuals. However, we found that the first member sanctioned for absence missed an average of 1.96 meetings *prior* to the missed meeting for which they were sanctioned. That members are not sanctioned until approximately their third missed meeting suggests that groups are unlikely to be systematically “targeting jerks” at the outset to encourage them to quit.

¹⁷ In our data, most members are identified by the equivalent of a social security number and an address.

TABLE 5
T-TESTS OF ABSENCE SANCTION RATES BY STATUS CHARACTERISTICS
IN EARLY AND LATE PERIODS

	Early Period, %	Late Period, %	Significance
Leadership role?			
No	4.8 (231)	5.7 (193)	NS
Yes	7.6 (66)	1.6 (63)	NS
Significance	NS	NS	
Gender:			
Male	6.7 (375)	6.7 (238)	NS
Female	7.4 (571)	4.8 (372)	NS
Significance	NS	NS	
Age:			
Younger	6.0 (415)	4.5 (266)	NS
Older	5.4 (372)	6.2 (276)	NS
Significance	NS	NS	

NOTE.—Absence observation counts for each group and time period are listed below the sanction rates in parentheses. The analyses are robust to testing the overall frequency of sanctions (unconditional on absence). None of the values are statistically significant, although some differences approach marginal significance (e.g., $P = .11$ when comparing members who have a leadership role in the early and late periods).

case, members may experience early sanctions as being more unjust or surprising than sanctions issued later. In our main models, we account for prior sanctioning patterns by controlling for the number of sanctions groups have issued. Here we probe the possibility that members are responding to unjust or surprise sanctions in three additional ways. With each analysis, we find that members' increasingly prosocial responses to sanctions cannot be fully accounted for by inconsistent or surprising sanctions, lending greater support to an explanation grounded in the theory of dependence.

Unjust sanctions.—To test whether members are responding less prosocially to sanctions they see as unjust, we controlled for the cumulative rate at which groups sanction members for absence (*absence sanction rate*).¹⁸ This variable accounts for the differential rates at which absences are fined and may influence whether members view sanctions as more or less just. For example, a member might find her sanction particularly unjust if the group has

¹⁸ We calculate *absence sanction rate* at each meeting as equal to the number of cumulative fines issued by the group divided by the number of cumulative absences times 100.

previously fined only a small fraction of absences. Nevertheless, we find the key interaction effect consistent when controlling for the *absence sanction rate* (see app. table D1, models 1 and 2). These results suggest that the rate at which groups fine members—which may be perceived as more or less just—does not drive our findings.

Next we examined how the absence sanction rate changes over time. Descriptive statistics reveal that the per-meeting sanction rate is slightly lower on average in the second and third meetings (5.42%) and then levels off at a higher rate in the following meetings (11.30%).¹⁹ This trend suggests that groups are less likely to issue sanctions in the second and third meetings but become more likely to issue them later. Although we controlled for this rate in the model above, we also reran the analysis, excluding the second and third meetings, where fining rates are lower. We find the effects robust to these specifications (see app. table D1, model 3). This finding suggests that even when the absence sanction rate is relatively stable—as it is after the third meeting—members nevertheless respond to sanctions with increasingly prosocial contributions over time.

Surprise sanctions.—Finally, we considered whether members' less prosocial responses early in the group's life are driven by their being surprised that their groups levy sanctions. To do this, we identified the first meetings in which groups sanctioned members for any infraction. At these meetings, we might expect members to be surprised that their groups issue fines and perhaps respond less prosocially as a result. But after these initial fines, members should not be surprised, as their groups have previously enforced the rules. To rule out the possibility that the effects are driven by "surprise" reactions, we reran the analyses on observations *after* the first fine has been levied, when members should not be taken aback by rule enforcement. We find consistent effects under this specification (see app. table D1, model 4), suggesting that members' more individualistic responses to sanctions early in the group's life are unlikely to be driven by "surprise" sanctions.

DISCUSSION AND CONCLUSION

When an individual is sanctioned by her fellow group members, how does she respond? Prior research offers conflicting expectations. Some scholars anticipate that individuals become "angry and hostile" (Oliver 1980, p. 1370), which reduces subsequent cooperation; others anticipate an increase in prosocial behavior in the face of punishment. In this article, we address this issue

¹⁹ Although members could be absent in the first meeting, they could only be fined for absence in the second meeting when they were in attendance. Thus, *absence sanction rate* data begin in the second meeting. A figure charting the average absence sanction rates across meetings is available upon request.

head-on by arguing that individuals' responses to sanctions can vary over time as they become increasingly dependent on fellow group members. We focus on sanctioning in voluntary associations—where members collaborate to achieve shared goals and can exit on their own volition—and we mobilize unique qualitative and quantitative data from a microsavings program in Colombia to develop and test our proposition.

Our key insight is that individuals respond differently to being sanctioned as a function of how much they value the group and their relations with other members. Building on the social psychological concept of dependence (Molm 1997; Horne 2009), we propose that sanctioned members will respond less prosocially (i.e., less cooperatively) when they are uncertain about the group's value and are less dependent on fellow members to achieve valued outcomes. However, we suggest that sanctioned members will respond in an increasingly prosocial manner as they come to recognize what they value about the group and become dependent on fellow members to achieve those outcomes—a process that requires spending time together.

Dependence is a multifaceted construct, and our goal was not to isolate or adjudicate among the precise mechanisms underlying changes in individuals' dependence. Nevertheless, our qualitative data help us establish that, over time, participants in Colombian microsavings groups came to value three benefits of membership: personal relationships, financial accountability, and community events. Although members often expressed uncertainty about the groups at the outset, many came to recognize that they could only achieve those valued outcomes through membership. As members learned the groups' value, they also learned the value of sanctions, coming to see fines as important components of group practice that allowed them to create and enjoy prized outcomes.

We then use quantitative data from group meeting records to test our proposition and find that individuals respond to being sanctioned differently over their group tenure. In the early days, individuals allocate significantly less of their money to the collective emergency fund after being sanctioned. Yet this tendency reverses over time: as members become increasingly dependent on their group, their response to being sanctioned becomes more prosocial, with members eventually predicted to contribute *more* to the collective fund after being sanctioned than not. Extended analyses reveal that these trends are consistent under an alternative measure of dependence, are unlikely to be driven by different types of people being sanctioned at different times, and cannot be fully explained by members seeing sanctions as unjust or surprising. Overall, these findings offer unique evidence supporting our claim that individual responses to being sanctioned are not static but change as a function of their dependence on the group.

The unique nature of our data allows us to generate new insights that expand upon prior approaches to studying sanctioning. Researchers recognize

that personal relationships are difficult to study in the lab and are better captured in field settings (Krackhardt 1992) but also note the challenges of studying sanctioning outside laboratories (Horne 2009). While our field-based data are imperfect, they allow us to capture naturally developing relationships over time. As compared to lab-based studies, this setting allows us to capture emergent relational dynamics, such as dependence. Additionally, because our data record norm violations and punishments, they allow us to disentangle the effect of sanctions from that of the norm violation (in this case, absence). The data are particularly unique in that they come from a low-income population in Colombia. Because social psychologists tend to draw conclusions from “WEIRD” research subjects—Western, educated individuals from industrialized, developed countries (Henrich et al. 2010)—this study demonstrates how new insights can be generated by looking beyond traditional research settings.

In what follows, we build on our findings to consider why previous researchers may have arrived at divergent expectations about how individuals respond to sanctions, reinterpreting prior results in light of our current results. Then we discuss boundary conditions, outlining the types of groups in which we expect our effects would hold. We conclude by discussing directions for future research in this area.

Integrating Prior Sanctions Research

Since Hobbes (1969 [1651]), many scholars have assumed that sanctioning is an effective means to solve the problem of cooperation by encouraging prosocial behavior. As Irwin et al. (2014, p. 253) argue, “When present, negative sanctions motivate individuals to sacrifice for the greater good at a personal cost.” Yet casual observation and a growing body of laboratory-based research highlight a darker side to sanctioning. This body of work suggests that individuals have negative emotional reactions when punished by their peers, thereby suppressing cooperation. How did scholars arrive at such different conclusions about sanctions?

Our key finding—that individuals respond differently to sanctions as a function of their level of dependence—illuminates important assumptions and analytic decisions that underlie previous approaches. Scholars who anticipate that sanctions generate prosocial responses have tended to assume that groups are well established and that members are highly dependent (Homans 1961; Durkheim 1983; Elster 1998). For example, Durkheim (1983) views sanctions as promoting solidarity in organic societies, where individuals explicitly recognize their dependence on one another. And scholars who have empirically documented prosocial reactions to sanctions have analyzed groups in which members have long-standing relationships or interactions characterized by “social familiarity” (Gächter and Fehr 1999, p. 341). In

contrast, scholars who theorize or find negative emotional reactions to sanctions often assume that groups are nascent and their members less connected. Indeed, much of this research comes from laboratory experiments where subjects are generally strangers engaged in time-limited collaborations (e.g., Fehr and Rockenbach 2003; Mulder et al. 2006; Irwin et al. 2014). It is reasonable that scholars who study groups where members are more dependent would anticipate prosocial responses to sanctions, whereas those who study groups where members are less dependent would anticipate less cooperative reactions—even if they did not recognize this difference explicitly.

In light of our findings, it is now clear that scholars have held distinct—although often unspoken—assumptions about familiarity among group members. We anticipate that, among others, these assumptions contributed to their conflicting expectations about members' responses to sanctions. Based on these observations, we suggest scholars should account for members' levels of dependence when studying sanctions in the future.

Applications to Other Voluntary Associations

The unique nature of the savings groups allows us to generate novel findings, but it also prompts the question, In what kinds of small groups do our findings apply? We expect our theory to be applicable to a broad range of voluntary associations, from groups aimed at facilitating economic cooperation—such as microsavings groups—to groups dedicated to professional development, philanthropy, religion, emotional support, or recreation. We anticipate that our results apply most directly to groups in which members (1) have no or weak social ties prior to joining and (2) are initially uncertain about the group's value and thus have the opportunity to develop dependence over time.

Groups with these characteristics tend to be facilitated by third-party organizations or platforms since individuals with no or weak ties are unlikely to form groups spontaneously. In our case, the Colombian government facilitated group formation. In other contexts, organizations often facilitate the formation of groups of relative strangers who meet regularly for a common goal, can exit at any point, and are initially uncertain of the group's value.

Online platforms have expanded opportunities for individuals to participate in such groups. For example, Meetup.com allows strangers to organize a range of offline groups, including book clubs, hiking groups, and atheist associations (Guenther, Mulligan, and Papp 2013). Nextdoor.com and similar sites provide a virtual launch point from which loosely connected neighbors can form in-person and online associations around issues like crime and gentrification (Doering 2020). Even large platforms like Facebook can facilitate offline associations following online discussions (Harlow 2012).

In voluntary associations like these, we anticipate that members will respond differently to being sanctioned over time. For instance, imagine that

a group of relative strangers forms a book club via Meetup.com. At the first meeting, members agree that they will read a book in its entirety prior to each meeting and that each member will bring a snack. If, early in the group's life, a member is sanctioned for not completing the book, she may withdraw her prosocial contributions at the subsequent meeting by participating less in conversation or neglecting to bring a snack. Yet if the same member were sanctioned later in the group's life—when she knows that she finds the group valuable and wants to remain in other members' good standing—she might respond by participating more actively in conversation or bringing a more elaborate snack. In groups like these, we anticipate that members' responses to being sanctioned will shift in predictable ways as they become more dependent. We hope that this observation encourages future researchers to explore how punishment can suppress or heighten cooperation in a range of group settings.

Conclusion: Opportunities for Future Research

While our data allow us to generate unique insights, they also have limitations that open up exciting avenues for future research. For example, our data do not lend themselves to an investigation of the exact pathway(s) through which increasing levels of dependence lead violators to respond more positively to sanctions. We suspect that social integration and social learning shape members' dependence in our setting, but our field data do not allow us to adjudicate among possible submechanisms. Although we believe experimental studies could help tease out these submechanisms, the dynamic nature of dependence, which emerges through interaction, might be challenging to replicate in laboratories. Instead, the strategy we view as particularly promising is a field study based on a full-cycle methodology (e.g., Lin 1998), which would allow researchers to replicate our findings in different empirical contexts and clarify the precise mechanisms undergirding changes in dependence. We view our study as a first but necessary step toward better understanding how dependence shapes individual responses to sanctions over time.

We also see exciting possibilities for researchers to measure dependence in different ways. Our study captures dependence via group duration, an analytic decision that appropriately aligns with our setting. Our alternative measure of dependence—receiving emergency monies—also shows consistent results. Nevertheless, researchers might measure dependence by surveying members repeatedly over time about what aspects of a group they find valuable. Such data would allow for greater differentiation across group members' levels of dependence and could produce interesting analyses. For instance, researchers might ask, What factors lead to the greatest increases in dependence? And do groups with mixed or fluctuating levels of dependence

have advantages over groups with more homogenous levels? We hope that, by using this study as a springboard, researchers will continue to probe how time-varying shifts in dependence shape collaboration in small groups.

APPENDIX A

Qualitative and Quantitative Data Collection and Analysis

Qualitative Data

We use qualitative data to describe and contextualize the microsavings groups, as well as capture aspects of membership that interviewees reported as valuable. These data come from interviews with 105 savings group participants and staff and ethnographic observations of 28 group meetings conducted between June 2016 and July 2018. Our qualitative data come from the same three geographic regions as our quantitative data. We view these data as providing important contextual information that allows readers to interpret our quantitative results more readily.

Our interviews and ethnographic observations offer complementary insights (Small 2011). Interviews were conducted in Spanish and ranged from 15 to 90 minutes, with a median length of 42 minutes. All interviews were recorded and transcribed, with the exception of two interviewees who preferred not to be recorded. Complementing the interviews and contextualizing individual accounts, ethnographic observations offered important insights into group practices and procedures. These observations helped us understand how the groups functioned and how members interacted.

The qualitative data analysis both informed and was informed by our quantitative analyses. The first author became aware of members' capacity to fine one another and their increasing attachment to the groups over time via ethnographic observations and interviews. Through these data—along with conversations between both authors and their reading of the existing literature—the authors hypothesized the shifting effects of sanctioning on prosocial behavior over time.

Once they had the quantitative findings in hand, the authors returned to the qualitative data to better understand members' group dependence by examining the aspects of group membership they found most valuable. The authors identified relevant themes in the qualitative data and defined a coding scheme (Deterding and Waters 2018). With the help of a research assistant, they applied codes to all transcripts and field notes using Dedoose, a qualitative analysis software. They then identified and grouped emergent themes and wrote memos to develop nascent ideas (Corbin and Strauss 2008). Through this process, they delineated the three aspects of group life that members reported finding most valuable, as well as the shifting meaning of

sanctions, paying particular attention to members' assertions about how such aspects of group life evolved over time.

Quantitative Field Data

Like any form of quantitative data collection, gathering data from field settings creates unique opportunities and challenges. In our case, the quantitative data come from microsaving groups' meeting ledgers. At each meeting, members (generally the secretary or treasurer) hand recorded members' financial contributions. Such data are particularly susceptible to human error, both at the time of recording and upon digitization. Here we discuss these risks and how we managed them.

Because members recorded contributions by hand, they might make mathematical errors or simply record a contribution incorrectly. Yet formal group practices anticipated that such errors could occur and included steps to identify and correct them. For example, after members made contributions to the savings fund, the individual recording the contributions would calculate the expected total. Then another member would count the money just collected. If the anticipated and actual amounts converged, the group would move on to the next round of contributions. If they did not, members would revisit the ledgers and recount the funds to identify the source of the error.

Of course, finding and correcting these mistakes was quite tedious. Members would often chat, play on their phones, or get up for a snack while other members reviewed the finances. Why, then, did they put up with such a boring component of the meeting? Because they had strong incentives to ensure that the ledgers were accurate. If the information was recorded inaccurately, members might not recoup their contributions at the group's conclusion, or there might not be as much money as expected in the collective fund when needed for an emergency. Given these incentives, members worked hard to ensure that the data in the ledgers were accurate.

This incentive works strongly in favor of data reliability for this study since members were motivated to ensure that monetary contributions were properly recorded (e.g., savings fund, collective fund, fines paid). However, members were less vigilant about recording nonfinancial information, as we discuss in appendix C. This lack of detailed recording of characteristics like age and gender limits our capacity to probe the association between these factors, sanctions, and members' prosocial contributions (but see table 5 and app. C for results from the available data).

The next step involved digitizing the data—a process that also opened up more possibilities for human error. A research assistant (RA) in Colombia scanned the groups' meeting ledgers, and, once they were uploaded, a Spanish-speaking research assistant in North America began converting

the information to a format that permitted statistical analyses. The challenge in this step was twofold: first, handwritten data were occasionally hard to decipher; second, digitizing repetitive data is boring and therefore ripe for error. To address the first challenge, the RA and the first author worked together to clarify any hard-to-decipher script in the notebooks. If they could not decipher the text—and could not deduce it mathematically—they recorded the data as missing.

Second, the first author and the RA developed systems to detect human error, adopting the motto, “We *will* make mistakes; our job is to find them.” For instance, the RA double-checked digitized information at preset intervals and would take scheduled breaks to minimize fatigue. When the RA located a mistake, he and the first author treated these discoveries as victories rather than fault-finding moments. The first author encouraged the RA to view mistake discovery as an important component of the research process, one that ultimately leads to more accurate and reliable data.

Despite these efforts to anticipate and minimize human error, we acknowledge that a data set constructed by input from 1,425 individuals, along with our research team, could not be without mistakes. Nevertheless, we feel confident that these errors are not *systematic* across the data but instead occur randomly, making it unlikely that the remaining errors would pattern the trends we observe.

APPENDIX B

Attrition among Microsavings Group Members

Calculating the Attrition Rate

Members are free to exit the savings groups at any point, but group ledgers suggest that attrition is relatively low. When members quit formally, they recoup their savings immediately and can no longer participate in group meetings. Yet they may also quit informally by ceasing to participate in meetings but recouping their savings when the group concludes.

To identify both kinds of exits, we adopt a conservative approach and assume that members have quit if they do not participate in the final three or more or four or more meetings. We recognize that this approach means we may overestimate certain exits by classifying members who were ill or unavailable in the final meetings as having quit. It also means that we will misclassify members who decided to quit in the final one or two meetings as nonexiting. Despite these potential limitations, we believe this approach conservatively and appropriately captures exit rates.

If we define quitting as failing to participate in the final three or more meetings, the attrition rate is 7.8% (111 members). If we define quitting as missing the final four or more meetings, the attrition rate is 6.5% (93 members).

These rates parallel those of other microfinance groups in developing countries, which often have low attrition. For example, microfinance self-help groups in India have annual attrition rates of 5%–10% (Chavan and Birajdar 2009) and 4.5%–8.2% (Baland et al. 2008). Similarly, researchers document annual exit rates of 12.1% among members of Chilean microentrepreneurship groups (Martínez, Puentes, and Ruiz-Tagle 2018). Although the attrition rate in the focal microsavings groups parallels that of similar microfinance groups, it is important to consider why our groups have low attrition, as these factors may influence the types of voluntary organizations to which our findings generalize.

Why Is the Attrition Rate Low?

We offer three possible explanations for why exits were relatively infrequent. First, members self-selected into the program. Only those already interested in saving money alongside their neighbors would have opted to join, ensuring that attrition would be lower than that of programs where members are obliged to join. Second, qualitative observations suggest quite simply that members enjoyed the groups. Even members who took issue with certain aspects of the program nevertheless expressed general support for the savings groups. As we outline in the qualitative data section, members reported that there was much to like about the groups, and as time went on, they discovered unexpected advantages. Members' overall satisfaction with the groups helps explain the low attrition. Third, the location of meetings in members' apartment buildings made them easy to attend. The transaction costs associated with participating would be lower than other voluntary associations where participation requires travel (e.g., church groups or political associations). Additionally, the location of meetings in members' apartment buildings likely created some social pressure for members to participate, which may have further contributed to the low exit rates.

Robustness Check: Excluding Exiting Members

Despite the low rates of exit, one might worry that the results are driven by exiting members. To examine this possibility, we reran the models without exiting members and found consistent results (see table B1). Model 1 reproduces the main model (table 2, model 3) as a point of comparison, model 2 excludes members who missed the last three or more meetings, and model 3 excludes members who missed the last four or more meetings. In all models, we find that the interaction of *absence fine* and *group duration* is consistent in direction and significance ($\beta = 0.10$, $P < .001$), conferring confidence that our findings are not driven by exiting members.

TABLE B1
 PREDICTING COLLECTIVE ALLOCATIONS, EXCLUDING MEMBERS WHO EXIT

	Model 1, Main Model	Model 2, Excluding Members Who Missed Final 3+ Meetings	Model 3, Excluding Members Who Missed Final 4+ Meetings
Absence fine	-2.87 (2.16)	-2.96 (2.15)	-2.89 (2.15)
Group duration (centered) . . . . .	.02*** (.00)	.03*** (.00)	.03*** (.00)
Absence fine × group duration (centered) . . . . .	.10*** (.03)	.10*** (.03)	.10*** (.03)
Members present (<i>n</i>)	-.28** (.11)	-.31** (.11)	-.29** (.11)
Cumulative group absence fines	-.01 (.05)	-.02 (.05)	-.02 (.05)
Christmas season	-1.43** (.48)	-1.29** (.48)	-1.24* (.48)
Unfined absence	-.65 (.85)	-1.31 (.87)	-.94 (.87)
Individual fixed effects	Yes	Yes	Yes
<i>N</i>	14,884	14,319	14,433

NOTE.—SEs are in parentheses.
 * $P < .05$.
 ** $P < .01$.
 *** $P < .001$, two tailed.

APPENDIX C

Testing for Status-Based Sanctioning

Here we consider whether the results might be driven by different types of people being sanctioned at different points in group tenure. As discussed in the main text, a rich literature suggests that status characteristics are the most plausible factor to pattern sanctioning. Given this, we wondered whether higher-status individuals (who tend to be more generous and cooperative; Willer 2009) were undersanctioned early in the group’s life and oversanctioned later. Such a trend could account for our findings.

To examine this possibility, we draw on available demographic information. Like all data from the field, ours have limitations. Savings group members diligently recorded monetary values (contributions, sanctions, etc.) but were less diligent in recording demographic characteristics. We use available data from a subset of groups that recorded status characteristics, recognizing that these groups may be uniquely orderly and diligent. Due to missing data, we treat these analyses as important but, ultimately, suggestive.

To construct table 5, we begin with all observations from groups that recorded status characteristics: group leadership position,²⁰ age, and gender. We then identify members with those characteristics who were absent (see observation counts in table 5) and calculate the rate at which they were sanctioned, conditional on absence. We find no significant difference in the rate at which higher- and lower-status members are sanctioned in the early and late periods. We also examined the frequency at which these members incur sanctions, unconditional on absence, and found no significant differences (results available upon request).

We further probe the effect of status characteristics by rerunning our main models with status characteristics as controls. In our main models, these time-invariant factors are absorbed by individual fixed effects. As such, we do not include individual fixed effects in models with status controls. Although this analysis results in a significant loss of data—because groups were not required to record this information—we find consistent, albeit weaker, results in table C1. Model 1 reproduces the main model without individual fixed effects (see table 2, model 6). Models 2–4 introduce the status-based controls in a stepwise fashion. Model 2 introduces *group leader*, where any member with a recorded leadership position takes a value of 1 and all other members take a value of 0. Results show a significant, positive interaction of *absence fine* and *group duration* ($\beta = 0.09, P < .05$). Models 3 and 4 introduce *gender* and *age*, respectively, and result in a steep loss of nonmissing observations. In those models, the interaction effect remains consistent in direction, but the P values fall just short of marginal significance, likely due to the major reduction in data (model 3: $\beta = 0.07, P = .16$; model 4: $\beta = 0.07, P = .12$). Nevertheless, we emphasize that our main models account for these time-invariant factors via individual fixed effects; we see those models as more reliable.

The key concern we sought to address was whether groups systematically sanction higher-status individuals later in the group's life, potentially explaining the increased prosocial responses observed. Drawing on admittedly imperfect data, we find no evidence that this is the case. Instead, we find non-significant differences in the frequency at which higher-status members are sanctioned in early and late stages (table 5) and that results are consistent when we control for these factors (table C1). While these findings offer increased confidence in our dependence-based interpretation, we hope nevertheless that future researchers examine groups that issue sanctions automatically (or, perhaps, at random) and thus would not be subject to any potential biases in sanction applications.

²⁰ Groups established who would fill leadership positions (president, treasurer, etc.) at the first meeting, and members retained those roles throughout the duration of the group.

TABLE C1
PREDICTING COLLECTIVE CONTRIBUTIONS WITH STATUS CHARACTERISTIC CONTROLS

	Model 1	Model 2	Model 3	Model 4
Absence fine	-.31 (1.93)	-.32 (1.93)	1.52 (2.93)	-1.48 (2.83)
Group duration (centered) . . . . .	.02*** (.00)	.02*** (.00)	.03*** (.01)	.03*** (.01)
Absence fine × group duration (centered) . . . . .	.09* (.04)	.09* (.04)	.07 (.05)	.09 (.06)
Members present (<i>n</i>)	-1.07*** (.12)	-1.08*** (.11)	-1.07*** (.16)	-.98*** (.17)
Cumulative group absence fines	-.10 (.06)	-.10 (.06)	-.11 (.07)	-.10 (.07)
Christmas season	-.79 (.52)	-.80 (.52)	-.86 (.70)	-.18 (.80)
Unfined absence	1.68 (.86)	1.67 (.86)	1.00 (1.05)	.25 (1.11)
Group leader		-.18 (1.42)	-.81 (1.45)	-1.27 (1.58)
Gender (female = 1) . . . . .			.17 (.91)	.38 (1.02)
Age				-.05 (.03)
Individual fixed effects	No	No	No	No
<i>N</i>	14,884	14,884	9,521	8,149

NOTE.—SEs are in parentheses.
 * $P < .05$.
 ** $P < .01$.
 *** $P < .001$, two tailed.

APPENDIX D

Accounting for Unjust and Surprising Sanctions

TABLE D1
CONTROLLING FOR ABSENCE SANCTION RATES (Models 1 and 2), EXCLUDING SECOND AND THIRD MEETINGS (model 3), AND INCLUDING ONLY OBSERVATIONS AFTER FIRST “SURPRISE” SANCTIONS (Model 4)

	MODEL 1	MODEL 2	Model 3, Excluding Meetings 2 and 3	Model 4, after First “Surprise” Sanctions
Absence fine	-2.05 (2.15)	-2.14 (2.15)	-3.16 (2.31)	-2.55 (2.33)
Group duration (centered) . . . . .	.03*** (.00)	.02*** (.00)	.03*** (.00)	.05*** (.01)
Absence fine × group duration (centered) . . . . .	.09** (.03)	.09** (.03)	.10** (.03)	.10** (.03)
Members present (<i>n</i>)	-.19 (.12)	-.20 (.12)	-.41*** (.12)	-.47** (.15)

TABLE D1 (Continued)

	MODEL 1	MODEL 2	Model 3, Excluding Meetings 2 and 3	Model 4, after First "Surprise" Sanctions
	Absence Rate	Sanction Rate		
Absence sanction rate . . . . .	.04* (.02)	.04 (.02)		
Cumulative group absence fines . . . . .		.09 (.06)	-.13* (.06)	-.15 (.08)
Christmas season	-1.14* (.55)	-1.17* (.55)	-1.42** (.52)	-1.21* (.60)
Unfined absence . . . . .	.63 (.98)	.68 (.99)	-1.39 (.97)	1.25 (1.23)
Individual fixed effects	Yes	Yes	Yes	Yes
N	10,332	10,332	12,364	8,440

NOTE.—SEs are in parentheses. Models 1 and 2 have fewer observations than the main models because the absence sanction rate can only be calculated after at least one member has missed a meeting. Model 1 includes *absence sanction rate* as a control, and model 2 adds *cumulative group absence fines*. Model 3 has reduced observations because meetings 2 and 3 are dropped. Model 4 has reduced observations because it includes only observations after groups issue their first fine.

* $P < .05$.

** $P < .01$.

*** $P < .001$, two tailed.

REFERENCES

Allison, Paul. 2009. *Fixed Effects Regression Models*. Los Angeles: SAGE.

Ardener, Shirley. 1964. "The Comparative Study of Rotating Credit Associations." *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 94 (2): 201–29.

Ashraf, Nava, Dean Karlan, and Wesley Yin. 2006. "Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines." *Quarterly Journal of Economics* 121 (2): 635–72.

Axelrod, S. 2013. *Effects of Punishment on Human Behaviour*. New York: Academic Press.

Baland, Jean-Marie, Rohini Somanathan, and Lore Vandewalle. 2008. "Microfinance Lifespans: A Study of Attrition and Exclusion in Self-Help Groups in India." *India Policy Forum* 4:159–210.

Baldassarri, Delia. 2015. "Cooperative Networks: Altruism, Group Solidarity, Reciprocity, and Sanctioning in Ugandan Producer Organizations." *American Journal of Sociology* 121 (2): 355–95.

Balliet, Daniel, Laetitia Mulder, and Paul Lange. 2011. "Reward, Punishment, and Cooperation: A Meta-Analysis." *Psychological Bulletin* 137:594–615.

Bartley, Tim, and Curtis Child. 2014. "Shaming the Corporation: The Social Production of Targets and the Anti-Sweatshop Movement." *American Sociological Review* 79 (4): 653–79.

Bendor, Jonathan, and Piotr Swistak. 2001. "The Evolution of Norms." *American Journal of Sociology* 106:1493–545.

Berkowitz, Leonard, and Jacqueline R. Macaulay. 1961. "Some Effects of Differences in Status Level and Status Stability." *Human Relations* 14 (2): 135–48.

Bernhard, Helen, Urs Fischbacher, and Ernst Fehr. 2006. "Parochial Altruism in Humans." *Nature* 442 (7105): 912–15.

- Blau, Peter. 1964. *Exchange and Power in Social Life*. New York: John Wiley & Sons.
- Bone, Jonathan, Brian Wallace, Redouan Bshary, and Nichola Raihani. 2015. "The Effect of Power Asymmetries on Cooperation and Punishment in a Prisoner's Dilemma Game." *PLoS One* 10:e0117183.
- Bonikowski, Bart, and Miller McPherson. 2007. "The Sociology of Voluntary Associations." Pp. 197–207 in *21st Century Sociology: A Reference Handbook*. Los Angeles: SAGE.
- Braithwaite, John. 1989. *Crime, Shame and Reintegration*. Cambridge: Cambridge University Press.
- Chambliss, William J. 1973. "The Saints and the Roughnecks." *Society* 11 (1): 24–31.
- Chavan, Pallavi, and Bhaskar Birajdar. 2009. "Micro Finance and Financial Inclusion of Women: An Evaluation." *Reserve Bank of India Occasional Papers* 20 (2): 109–29.
- Christianson, Marlys K., Maria T. Farkas, Kathleen M. Sutcliffe, and Karl E. Weick. 2008. "Learning through Rare Events: Significant Interruptions at the Baltimore & Ohio Railroad Museum." *Organization Science* 20 (5): 846–60.
- Coleman, James S. 1990. *Foundations of Social Theory*. Cambridge, Mass.: Belknap Press of Harvard University Press.
- Collins, Randall. 2004. *Interaction Ritual Chains*. Princeton, N.J.: Princeton University Press.
- Cook, Karen, Coye Cheshire, Eric Rice, and Sandra Nakagawa. 2013. "Social Exchange Theory." Pp. 61–88 in *Handbook of Social Psychology*, edited by J. DeLamater and A. Ward. New York: Springer.
- Coomber, Ross, Joseph F. Donnermeyer, Karen McElrath, and John Geoffrey Scott. 2015. "Deterrence and Prevention." In *Key Concepts in Crime and Society*. SAGE Key Concepts Series. Los Angeles: SAGE.
- Corbin, Juliet M., and Anselm L. Strauss. 2008. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. 3rd ed. Los Angeles: SAGE.
- DANE. 2015. *Pobreza Monetaria: Año Móvil Julio de 2014–Junio de 2015. Boletín técnico*. DIE-020-PD-01-r7_v2. Bogotá, Colombia: Departamento Administrativo Nacional de Estadística.
- Demirgüç-Kunt, Asli, Leora Klapper, Dorothe Singer, Saniya Ansar, and Jake Hess. 2018. *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution*. Washington, D.C.: World Bank Group.
- Desai, Raj M. 2013. *Collective Action and Community Development: Evidence from Self-Help Groups in India*. Washington, D.C.: World Bank.
- Deterding, Nicole M., and Mary C. Waters. 2018. "Flexible Coding of In-Depth Interviews: A Twenty-First-Century Approach." *Sociological Methods and Research* 50 (2): 708–39.
- Di Stefano, Giada, Andrew A. King, and Gianmario Verona. 2015. "Sanctioning in the Wild: Rational Calculus and Retributive Instincts in Gourmet Cuisine." *Academy of Management Journal* 58 (3): 906–31.
- Doering, Jan. 2020. *Us versus Them: Race, Crime, and Gentrification in Chicago Neighborhoods*. New York: Oxford University Press.
- Doob, Anthony N., and Alan E. Gross. 1968. "Status of Frustrator as an Inhibitor of Horn-Honking Responses." *Journal of Social Psychology* 76 (2): 213–18.
- Dupas, Pascaline, and Jonathan Robinson. 2013. "Why Don't the Poor Save More? Evidence from Health Savings Experiments." *American Economic Review* 103 (4): 1138–71.
- Durkheim, Émile. 1983. *The Evolution of Punishment*. Oxford: Oxford Press.
- . 1984. *The Division of Labor in Society*. New York: Free Press.
- . 1995. *The Elementary Forms of Religious Life*. New York: Free Press.
- Eliasoph, Nina. 2011. *Making Volunteers: Civic Life after Welfare's End*. Princeton, N.J.: Princeton University Press.
- Elster, Jon. 1998. "Emotions and Economic Theory." *Journal of Economic Literature* 36 (1): 47–74.

American Journal of Sociology

- Emerson, Richard M. 1962. "Power-Dependence Relations." *American Sociological Review* 27 (1): 31–41.
- . 1972. "Exchange Theory, Part II: Exchange Relations and Networks." Pp. 58–87 in *Sociological Theories in Progress*, vol. 2. Boston: Houghton Mifflin.
- Esteban, Joan, and Debraj Ray. 2001. "Collective Action and the Group Size Paradox." *American Political Science Association* 95 (3): 663–72.
- Estes, William K. 1944. "An Experimental Study of Punishment." *Psychological Monographs* 57 (3): i–40.
- Fehr, Ernst, and Simon Gächter. 2000. "Cooperation and Punishment in Public Goods Experiments." *American Economic Review* 90 (4): 980–94.
- . 2002. "Altruistic Punishment in Humans." *Nature* 415:137–40.
- Fehr, Ernst, and Bettina Rockenbach. 2003. "Detrimental Effects of Sanctions on Human Altruism." *Nature* 422:137–40.
- Fehr, Ernst, and Ivo Schurtenberger. 2018. "Normative Foundations of Human Cooperation." *Nature Human Behaviour* 2 (7): 458–68.
- Fridman, Daniel. 2017. *Freedom from Work: Embracing Financial Self-Help in the United States and Argentina*. Stanford, Calif.: Stanford University Press.
- Fryer, Roland. 2010. "Financial Incentives and Student Achievement: Evidence from Randomized Trials." NBER Working Paper 15898. Cambridge, Mass., National Bureau of Economic Research.
- Gächter, Simon, and Ernst Fehr. 1999. "Collective Action as a Social Exchange." *Journal of Economic Behavior and Organization* 39 (4): 341–69.
- Garland, David. 1991. "Sociological Perspectives on Punishment." *Crime and Justice* 14:115–65.
- Geddes, Deanna, and Lisa Stickney. 2011. "The Trouble with Sanctions: Organizational Responses to Deviant Anger Displays at Work." *Human Relations* 64:201–30.
- Gibbs, Jack P. 1966. "Sanctions." *Social Problems* 14 (2): 147–59.
- Guenther, Katja M., Kerry Mulligan, and Cameron Papp. 2013. "From the Outside In: Crossing Boundaries to Build Collective Identity in the New Atheist Movement." *Social Problems* 60 (4): 457–75.
- Harari, Herbert, and John W. McDavid. 1969. "Situational Influence on Moral Justice: A Study of 'Finking.'" *Journal of Personality and Social Psychology* 11 (3): 240–44.
- Harlow, Summer. 2012. "Social Media and Social Movements: Facebook and an Online Guatemalan Justice Movement That Moved Offline." *New Media and Society* 14 (2): 225–43.
- Hechter, Michael. 1988. *Principles of Group Solidarity*. Berkeley: University of California Press.
- Hechter, Michael, and Karl-Dieter Opp. 2001. *Social Norms*. New York: Russel Sage Foundation.
- Heckathorn, Douglas D. 1988. "Collective Sanctions and the Creation of Prisoner's Dilemma Norms." *American Journal of Sociology* 94 (3): 535–62.
- . 1989. "Collective Action and the Second-Order Free-Rider Problem." *Rationality and Society* 1 (1): 78–100.
- . 1990. "Collective Sanctions and Compliance Norms: A Formal Theory of Group-Mediated Social Control." *American Sociological Review* 55 (3): 366–84.
- Henrich, J., S. J. Heine, and A. Norenzayan. 2010. "Most People Are Not WEIRD." *Nature* 466 (7302): 29–29.
- Herrnstein, R. J. 1970. "On the Law of Effect." *Journal of the Experimental Analysis of Behavior* 13 (2): 243–66.
- Hobbes, Thomas. (1651) 1969. *Leviathan*. Menston: Scholar Press.
- Hollander, Edwin P., and Richard Hartley Willis. 1967. "Some Current Issues in the Psychology of Conformity and Nonconformity." *Psychological Bulletin* 68 (1): 62–76.
- Homans, George Caspar. 1961. *Social Behavior: Its Elementary Forms*. Oxford: Harcourt, Brace.

- Horne, Christine. 2001. "The Enforcement of Norms: Group Cohesion and Meta-Norms." *Social Psychology Quarterly* 64 (3): 253–66.
- . 2009. *The Rewards of Punishment: A Relational Theory of Norm Enforcement*. Stanford, Calif.: Stanford University Press.
- Horne, Christine, and Stefanie Mollborn. 2020. "Norms: An Integrated Framework." *Annual Review of Sociology* 46 (1): 467–87.
- Irwin, Kyle, Laetitia Mulder, and Brent Simpson. 2014. "The Detrimental Effects of Sanctions on Intragroup Trust: Comparing Punishments and Rewards." *Social Psychology Quarterly* 77 (3): 253–72.
- Kanter, Rosabeth M. 1968. "Commitment and Social Organization: A Study of Commitment Mechanisms in Utopian Communities." *American Sociological Review* 33 (4): 499–517.
- Knoke, David. 1986. "Associations and Interest Groups." *Annual Review of Sociology* 12 (1): 1–21.
- Krackhardt, David. 1992. "The Strength of Strong Ties: The Importance of Philos in Organizations." Pp. 216–39 in *Networks and Organizations: Structure, Form, and Action*, vol. 216. Boston, Mass.: Harvard Business School Press.
- Kuper, Hilda, and Selma Kaplan. 1944. "Voluntary Associations in an Urban Township." *African Studies* 3 (4): 178–86.
- Kuwabara, Ko. 2011. "Cohesion, Cooperation, and the Value of Doing Things Together: How Economic Exchange Creates Relational Bonds." *American Sociological Review* 76 (4): 560–80.
- Kuwabara, Ko, and Oliver Sheldon. 2012. "Temporal Dynamics of Social Exchange and the Development of Solidarity: 'Testing the Waters' versus 'Taking a Leap of Faith.'" *Social Forces* 91 (1): 253–73.
- Lampel, Joseph, Jamal Shamsie, and Zur Shapira. 2009. "Experiencing the Improbable: Rare Events and Organizational Learning." *Organization Science* 20 (5): 835–45.
- Lawler, Edward J., Shane R. Thye, and Jeongkoo Yoon. 2008. "Social Exchange and Micro Social Order." *American Sociological Review* 73 (4): 519–42.
- Lawler, Edward J., and Jeongkoo Yoon. 1993. "Power and the Emergence of Commitment Behavior in Negotiated Exchange." *American Sociological Review* 58 (4): 465–81.
- . 1996. "Commitment in Exchange Relations: Test of a Theory of Relational Cohesion." *American Sociological Review* 61 (1): 89–108.
- . 1998. "Network Structure and Emotion in Exchange Relations." *American Sociological Review* 63 (6): 871–94.
- Li, Xuelong, Marko Jusup, Zhen Wang, Hui-Jia Li, Lei Shi, Boris Podobnik, H. Stanley, Shlomo Havlin, and Stefano Boccaletti. 2018. "Punishment Diminishes the Benefits of Network Reciprocity in Social Dilemma Experiments." *Proceedings of the National Academy of Sciences* 115:20–35.
- Lin, Ann Chih. 1998. "Bridging Positivist and Interpretivist Approaches to Qualitative Methods." *Policy Studies Journal* 26 (1): 162–80.
- Macy, Michael W. 1991. "Chains of Cooperation: Threshold Effects in Collective Action." *American Sociological Review* 56 (6): 730–47.
- . 1993. "Backward-Looking Social Control." *American Sociological Review* 58 (6): 819–36.
- Markovsky, B., and Lawler, E. J. 1994. "A New Theory of Group Solidarity." Pp. 113–37 in *Advances in Group Processes*, vol. 11. Edited by B. Markovsky, K. Heimer, J. O'Brien. Greenwich, Conn.: JAI Press.
- Martínez A., Claudia, Esteban Puentes, and Jaime Ruiz-Tagle. 2018. "The Effects of Micro-Entrepreneurship Programs on Labor Market Performance: Experimental Evidence from Chile." *American Economic Journal: Applied Economics* 10 (2): 101–24.
- Marwell, Nicole P. 2007. *Bargaining for Brooklyn: Community Organizations in the Entrepreneurial City*. Chicago: University of Chicago Press.

- Minvivienda. n.d. "Actas de Sorteos de Viviendas 100% Subsidiadas—Fase I." Retrieved April 18, 2017. <http://www.minvivienda.gov.co/viviendas-100-por-ciento-subsidiadas/actas-sorteos>.
- Molm, Linda D. 1991. "Affect and Social Exchange: Satisfaction in Power-Dependence Relations." *American Sociological Review* 56 (4): 475–93.
- . 1994. "Is Punishment Effective? Coercive Strategies in Social Exchange." *Social Psychology Quarterly* 57 (2): 75–94.
- . 1997. *Coercive Power in Social Exchange*. Cambridge: Cambridge University Press.
- . 2007. "Power-Dependence Theory." Pp. 3598–602 in *The Blackwell Encyclopedia of Sociology*. Malden, Mass.: Blackwell Publishing.
- Monnery, Benjamin, and Maxime Le Bihan. 2018. "Can Public and Private Sanctions Discipline Politicians? Evidence from the French Parliament." *EconomiX Working Papers 2018–21*. University of Paris Nanterre, EconomiX. <https://ideas.repec.org/p/drm/wpaper/2018-21.html>.
- Mulder, Laetitia, Eric van Dijk, and David De Cremer. 2006. "Fighting Noncooperative Behavior in Organizations: The Dark Side of Sanctions." Pp. 59–81 in *Ethics in Groups*, vol. 8. Edited by A. E. Tenbrunsel. Bingley, UK: Emerald Group.
- Nadler, Janice, and Mary Rose. 2003. "Victim Impact Testimony and the Psychology of Punishment." *Cornell Law Review* 88 (2): 419–56.
- Oliver, Pamela. 1980. "Rewards and Punishments as Selective Incentives for Collective Action: Theoretical Investigations." *American Journal of Sociology* 85 (6): 1356–75.
- Olson, Mancur. 1965. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge, Mass.: Harvard University Press.
- Opp, Karl-Dieter. 2002. "When Do Norms Emerge by Human Design and When by the Unintended Consequences of Human Action? The Example of the No-Smoking Norm." *Rationality and Society* 14 (2): 131–58.
- Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
- Papke, Leslie E., and Jeffrey M. Wooldridge. 1996. "Econometric Methods for Fractional Response Variables with an Application to 401(k) Plan Participation Rates." *Journal of Applied Econometrics* 11 (6): 619–32.
- Patterson, Gerald R. 1982. *Coercive Family Process*, vol. 3. Eugene, Ore.: Castalia Publishing.
- Pérez Porto, Julián, and María Merino. 2012. "Definición de socio." *Definición.de*. Retrieved September 13, 2019. <https://definicion.de/socio/>.
- Pfeffer, J., and G. R. Salancik. 1978. *The External Control of Organizations: A Resource Dependence Perspective*. New York: Harper & Row.
- Portafolio. 2018. "Colombianos gastan en promedio \$867.000 en la celebración de Navidad." Portafolio.co. <https://www.portafolio.co/economia/colombianos-gastan-en-promedio-867-000-en-la-celebracion-de-navidad-524654>. Accessed July 28, 2020.
- Portes, Alejandro, and Julia Sensenbrenner. 1993. "Embeddedness and Immigration: Notes on the Social Determinants of Economic Action." *American Journal of Sociology* 98 (6): 1320–50.
- Posner, Eric. 2000. "Law and Social Norms: The Case of Tax Compliance." *Virginia Law Review* 86 (8): 1781–819.
- Reilly, Patrick. 2018. "No Laughter among Thieves: Authenticity and the Enforcement of Community Norms in Stand-Up Comedy." *American Sociological Review* 83 (5): 933–58.
- Rymes, Betsy. 1996. "Naming as Social Practice: The Case of Little Creeper from Diamond Street." *Language in Society* 25 (2): 237–60.
- Sigmund, Karl. 2007. "Punish or Perish? Retaliation and Collaboration among Humans." *Trends in Ecology and Evolution* 22 (11): 593–600.

- Simpson, Brent, and Robb Willer. 2015. "Beyond Altruism: Sociological Foundations of Cooperation and Prosocial Behavior." *Annual Review of Sociology* 41 (1): 43–63.
- Skinner, B. F. 1938. *The Behavior of Organisms*. New York: Appleton-Century-Crofts.
- Small, Mario Luis. 2011. "How to Conduct a Mixed Methods Study: Recent Trends in a Rapidly Growing Literature." *Annual Review of Sociology* 37:57–86.
- Thibaut, John W., and Harold H. Kelley. 1959. *The Social Psychology of Groups*. Oxford: John Wiley & Sons.
- Thorndike, Edward L. 1932. *The Fundamentals of Learning*. New York: Teachers College Bureau of Publications.
- Tocqueville, Alexis de. 1900. *Democracy in America*, rev. ed. New York: Colonial Press.
- Tyler, T. R., and R. J. Boeckmann. 1997. "Three Strikes and You Are Out, but Why? The Psychology of Public Support for Punishing Rule Breakers." *Law and Society Review* 31 (2): 237–65.
- Valenzuela, Ana, and Joydeep Srivastava. 2012. "Role of Information Asymmetry and Situational Salience in Reducing Intergroup Bias: The Case of Ultimatum Games." *Personality and Social Psychology Bulletin* 38 (12): 1671–83.
- Van Houten, Ron. 1983. "Punishment: From the Animal Laboratory to the Applied Setting." Pp. 13–44 in *Effects of Punishment on Human Behaviour*. Cambridge, Mass.: Academic Press.
- Wahrman, Ralph. 1970. "High Status, Deviance and Sanctions." *Sociometry* 33 (4): 485–504.
- Weingärtner, Lena, and Florence Pichon. 2017. *How Self-Help Groups Strengthen Resilience: A Study of Tearfund's Approach to Tackling Food Insecurity in Protracted Crises in Ethiopia*. London: Overseas Development Institute.
- Wiesenthal, David L., Douglas Austrom, and Irwin Silverman. 1983. "Diffusion of Responsibility in Charitable Donations." *Basic and Applied Social Psychology* 4 (1): 17–27.
- Wiggins, James A., Forrest Dill, and Richard D. Schwartz. 1965. "On 'Status-Liability.'" *Sociometry* 28 (2): 197–209.
- Willer, Robb. 2009. "Groups Reward Individual Sacrifice: The Status Solution to the Collective Action Problem." *American Sociological Review* 74 (1): 23–43.
- Xiao, Erte, and Fangfang Tan. 2014. "Justification and Legitimate Punishment." *Journal of Institutional and Theoretical Economics (JITE)* 170 (1): 168–88.
- Yamagishi, Toshio. 1986. "The Provision of a Sanctioning System as a Public Good." *Journal of Personality and Social Psychology* 51 (1): 110–16.
- . 1988. "The Provision of a Sanctioning System in the United States and Japan." *Social Psychology Quarterly* 51 (3): 265–71.
- . 1992. "Group Size and the Provision of a Sanctioning System in a Social Dilemma." Pp. 267–87 in *Social Dilemmas: Theoretical Issues and Research Findings*. International Series in Experimental Social Psychology. Elmsford, N.Y.: Pergamon Press.