Cooperatives exhibit greater cooperation than comparable businesses:
experimental evidence

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Abstract

Cooperatives as can be presumed to rely on the economic cooperation of their members. However, game-theoretic and institutional models suggest that cooperatives may be inherently fragile due to the individual costs of cooperation. Because of this it is widely believed that organizations which rely less on cooperation may be more stable, while organizations that require cooperation may be at higher risk of folding. Therefore, if cooperatively owned or managed businesses do in fact require higher levels of prosocial and cooperative behavior than hierarchically managed firms, they must attract and maintain cooperation among participants in order to function. We hypothesized that successful consumer food cooperatives will exhibit greater generalized cooperation than conventional grocery stores. We employed an experimental dictator game to measure altruistic cooperation among consumers at a food cooperative and a comparable conventional grocery. Cooperative customers exhibit a higher base rate of cooperation than similar conventional food shoppers, and this relationship holds even when taking demographic factors such as income, education, and age into account. We conclude that, when successful, consumer food cooperatives exhibit greater levels of cooperation than comparable traditional businesses.

Keywords

Cooperation, prosociality, food cooperatives, experimental economics, dictator game

Funding: This research is funded in part by the University of Maine, National Science Foundation CAREER award SES-1352361, and USDA National Institute of Food and Agriculture, Hatch project # ME021515.

Introduction

Motivation

It is well appreciated that cooperatives are a distinct class of human organization. Cooperative organizations differ from hierarchical organizations in that they operate on the principles of participatory democracy, solidarity and reciprocity (Renting et al., 2012). This focus on participation and representation is commonly assumed to come at the cost of fast and agile decision-making. And, although cooperatives survive alongside traditional organizations in many industries, they often hold a minority position (David Grace and Associates, 2014). The fundamental reasons that allow cooperatives to persist in competitive environments are poorly understood. We suggest the science of cooperation can help explain the small but durable success of cooperatives generally, using consumer food cooperatives as an exemplar.

Cooperatives are important to study for multiple reasons. Cooperatives tend to generate positive social externalities, particularly in rural and developing areas (Anandaram and Dubhashi, 1999). Therefore, studying cooperatives is important for sustainability and confronting collective action problems broadly (Anderson et al., 2014). Food cooperatives are especially important to study in the United States because they provide consumers with a participatory role in the food system through democratic decisionmaking (Thompson, 1994). By forging new channels of procurement outside of mainstream venues, food co-ops boost freedom of choice among members, generate social and collective capital, and form a common food ethic that brings people together (Little et al., 2010).

Cooperatives also provide a unique organizational context to study the dynamics of human cooperation. The study of human cooperation has not expanded into the organizational science literatures. Most research on human cooperation in the last few decades has focused establishing the theoretical possibility of cooperation and altruism (Nowak, 2006), demonstrating that humans do, in fact, have prosocial and cooperative tendencies (Rand and Nowak, 2013), comparing human prosociality between cultures (Henrich et al., 2010, 2004), or with other species including ants and termites. Very little research has used human cooperation to understand organizational relationships and dynamics (but see Waring et al., 2016, 2014). Following the research on evolution of human cooperation (Henrich, 2015), we suggest that all organizations rely on cooperation of their constituents in some domains to some extent. We further propose that cooperatives are notable in that they are highly reliant on cooperation, and therefore provide an important study domain for researchers of human cooperation.

Free-Ridership

In game theoretic terms, a cooperative act is an act that benefits others. When cooperation has net costs for the actor, it is termed altruism. Cooperation is an important aspect of human social behavior because it is necessary to overcome social

dilemmas: situations in which the interests of the group and the individual are in conflict. Social dilemmas are challenging to solve because individuals may free-ride on the contributions of others without contributing personally. Because social dilemmas are common in all parts of society, the balance of cooperation and free-ridership is a critical factor determining the success of any group or organization.

Co-ops rely on cooperation in multiple domains, each of which contains a social dilemma subject to free-riding. For example, in some food cooperatives, members are expected to contribute volunteer labor, generating a public service from which free-riders may benefit without contributing labor themselves. In informal food buying clubs, which are often the organizational presursors of food co-op stores (Tremblay and Waring, 2015), cooperation takes the form of helping to organize receive, and split bulk orders, as well as financial the cooperation inherent in sharing bulk items across people with different food preferences. Each of these domains creates another opportunity for free-riding, and a potential weakness for cooperative organizations. Traditional businesses often handle the free-riding problem by compartmentalizing decision-making and responsibility into the nested tiers of a hierarchical structure. By giving workers direct oversight and limited autonomy, the hierarchical structure removes most social dilemmas from its operation, aligning individual and group goals, and obviating many chances for free-ridership.

For cooperatives, however, defined as they are by collective decisionmaking and mutual responsibility, the free-rider problem can be deadly. Cooperatives must manage the free-rider problem in some way to be successful (Cook and Iliopoulos, 2016). First, individual prosocial norms such as altruism, reciprocity, trust, peer pressure, and peer punishment can help groups overcome social dilemmas. If cooperative members already have strong social bonds, this challenge of managing a co-op will be easier. Second, cooperation can be supported by institutional rules including monitoring and institutional punishment, striking a balance between the conflicting roles of individuality and communality (Puusa et al., 2016). The most well studied institutional solutions for stabilizing cooperation come from Ostrom's (1990) design principles for managing common-pool resources. Wilson et al. (2013) argue that Ostrom's institutional principles are useful institutional adaptations generally, and can help any human group overcome free-riding and achieve collective success, and Gupta (2014) suggests that they apply especially well to cooperatives. Moreover, the history of cooperatives demonstrates the importance of institutional and social adaptations that cooperatives have adopted to overcome the free-riding problem (Lange & Waring, forthcoming).

A brief history of cooperatives

While human cooperation in groups began long before recorded history (see Henrich, 2015), organizations with a modern, codified cooperative structure appear to have emerged first in Rochdale, England in 1844 (Fairbairn, 1994). The Rochdale cooperatives came to organize their operation according to a set of principles which eventually included "open membership, democratic control, distribution of surplus in proportion to

trade, payment of limited interest on capital, political and religious neutrality, cash trading and promotion of education” (Thompson, 1994). These principles have been modified over time, as they were adopted and altered by many different cooperatives in the last 150 years. Today they have come to include autonomy and independence, concern for community, and cooperation among cooperatives (International Cooperative Alliance, 2015). In the United States, cooperatives flourished in two waves, first in the 1930s when the U.S. was plagued with economic depression (Taylor, 1937), and again in the 1970s during the back to the land movement when demand for natural and alternative foodstuffs grew. Lange and Waring (forthcoming) have suggested that while cooperatives might be less efficient in competitive markets, they may frequently emerge in new social domains, and be more durable in times of economic stress. Social and cultural factors such as anti-corporate sentiment and existing community infrastructure may also be instrumental in co-op survival (Boone, 2014). However, very little is known about how these internal factors of co-ops relate to their relative success and market niche. We suggest that the science of cooperation can help clarify how cooperatives evolve due to both internal pressures and external constraints.

Cooperation science

The dynamics of human cooperation have special explanatory value for a wide range of social phenomena. For example, Henrich (2015) argues that cooperation can help explain how humans maintain organizations, markets, and religions. Although cooperation is clearly required for many aspects of human society, it is not always present. However, the mechanisms that lead to the evolution of cooperation, and the factors that stabilize it are well understood and increasingly well documented (Rand and Nowak, 2013).

The study of human cooperation is a broad interdisciplinary effort with contributions from anthropology (Lamba, 2014; Waring, 2012), economics (Cordes et al., 2008; Fehr and Gächter, 2000), psychology (Rand and Nowak, 2013; Zelenski et al., 2015) and evolutionary game theory (e.g. Camerer, 2003; Gintis, 2000; Nowak & Highfield, 2011), among other fields. Since the 1970s evolutionary biologists, economists, and game theorists have discovered a small set of group-level mechanisms that allow cooperation to emerge and persist, and have developed a mathematical theory for each mechanism (Nowak, 2012). This mathematical theory has been adopted by social scientists to study human cooperation in many contexts, often using behavioral experiments to measure cooperation in social dilemmas. For example, Fehr & Gächter’s (2000) behavioral experiments confirmed the mathematical theory that cooperation could be maintained if people punished non-cooperators. Similarly, Eckel and colleagues (2016) demonstrated experimentally that cooperation increases within groups when groups that fail to cooperate expire. In anthropology, similar experiments have been used to compare sharing behavior cross-culturally (Henrich et al., 2010, 2004). These studies have generally found that customary and cooperative behavior correspond well to the local social, economic and environmental conditions faced by human groups (e.g. Waring, 2012). Despite these successes in the basic social sciences, cooperation science

has had little influence in the domain of organizational science and institutional research.

Human cooperation dynamics could, however, have a major role in explaining the evolution of institutions. For example, one well understood but little studied dynamic is the relationship between cooperation and competition in institutional evolution. Competition between companies tends to drive the emergence of cooperation within companies, as a result of the general evolutionary process called group selection (Francois et al., 2010; Okasha, 2004). The opposite case is equally instructive: a lack of competition between groups tends to relax selection pressures and innovation and allows divergent interests within groups to emerge. As a result, the organization in question often becomes less well-adapted, such as when monopolies become inefficient or states become bureaucratic (Barnett, 2008). This cooperation-competition tradeoff has been recently explored in sustainability research, which has shown that cooperative conservation efforts often emerge following group-level pressures such as competition or group crises (Brooks et al., 2018; Hanes and Waring, 2018; Hillis et al., 2018; Waring and Acheson, 2018). Nonetheless, very little empirical research has been conducted on the patterns of cooperation in different types of organizations (e.g. Tremblay and Waring, 2015; Waring et al., 2014).

Hypothesis

In summary, our reading of the literature indicates that cooperatives by their very structure appear to rely on cooperation and prosociality more than conventional food organizations, and may generate more of it as well. Therefore, while some cooperatives fail, those that are successful are marked by a high degree of social embeddedness and patterns of beneficial reciprocity, cooperation and prosociality. This leads us to suspect that successful cooperatives may harbor greater cooperation amongst their participants than equivalent organizations with a non-cooperative structure. Moreover, such differences should be measurable with standard economic experiments. To our knowledge no experimental measures of cooperation have been conducted with cooperatives. Therefore, we hypothesize that experimental measurements of cooperation will be greater in successful cooperatives than in comparable hierarchically-structured businesses. We chose to measure cooperation in two comparable food stores in the same market, a food co-op and a privately owned grocery store, in Blue Hill, Maine.

Study Site

We selected the town of Blue Hill, Maine for this experiment because it contains both a single well-established food cooperative (“co-op”) and a single well-established conventional grocery store (“grocery”). The two sites represent the two major sources of non-prepared food products in the service area, and thus can be expected to engage with virtually all residents with some regularity. They are located one mile apart. Blue Hill has a population just short of 3,000, but is recognized by the state of Maine as a

1 regional service center, providing employment, trade, and housing to residents of
 2 surrounding municipalities in addition to its own. Only 16% of Maine's nearly 500
 3 municipalities are service centers (MDACF, 2013).

4 Founded in 1974, the co-op is a member-owned food cooperative that has grown from
 5 twelve founding households to about 1,500 member-owners. It originated as a loose
 6 association of consumers seeking to improve their purchasing power and gain access to
 7 a greater variety of food products by sharing bulk orders. This informal food buying club
 8 proved popular, growing to such an extent that members decided to create a more
 9 formal organization in order to acquire space for processing orders and to provide group
 10 services more efficiently. They first occupied space in a local Grange Hall and later, in
 11 1991, opened a storefront in a nearby village. The co-op now occupies a physical store
 12 and an adjoining café in downtown Blue Hill, and also still offers members the
 13 opportunity to place bulk orders for goods not maintained in the store's inventory. The
 14 co-op is currently undergoing another expansion, involving new construction and a
 15 fourfold increase of floor space to 11,000 square feet.

16 Co-op members, as owners, are required to invest \$200 in equity, which can be
 17 reclaimed if they choose to terminate their membership. Members have voting rights
 18 and can participate in all major decisions brought before the board. The board of
 19 directors meets monthly to monitor the employees and worker-members and discuss
 20 operational issues. Worker-members must be regular members of the co-op, but
 21 receive a small discount on purchases if they work at least two hours per month. All
 22 members receive an annual dividend depending on the profitability of the co-op.

23 The grocery, founded in 1999, is owned and operated by a local businessperson. It has
 24 undertaken three expansions leading to its current size of 35,000 square feet of retail
 25 space. In addition, the owners have expanded with three new stores in other towns, as
 26 well as a number of car wash and auto service enterprises. The grocery sells a
 27 substantial volume of conventional and natural food products, and includes a bakery,
 28 meat and seafood counter, pharmacy, alcoholic beverages, DVD rental, and home goods
 29 section. It is situated in a plaza that also offers car wash service and gasoline. We note
 30 that the grocery also offers a substantial selection of locally produced goods, and
 31 highlights this fact in its own marketing as well.

32 *Experimental Methods*

33 Experiments are simplified interactions used to test participants' behaviors,
 34 preferences, and decisionmaking abilities. Economic experiments, or 'games,' have been
 35 used to study aspects of prosociality such as trust (Croson and Buchan, 1999),
 36 cooperation (Engel, 2011), public contributions (Fischbacher et al., 2001), and social
 37 norms of equity and sharing (Sanfey et al., 2003). Experiments measuring aspects of
 38 prosociality vary in their complexity, but typically allow participants to influence the
 39 payoffs to others within the experiment. Examples include the dictator game, trust
 40 game, ultimatum game, public goods game, third party punishment game, and common

pool resource game. Evidence from economic experiments supports the general assertion that humans are more cooperative and altruistic than other animals (Proctor et al., 2013; Silk et al., 2005), and human behavior includes group-level social motives beyond pure self interest (Fehr and Fischbacher, 2002).

The simplest economic experiment for testing prosociality is the one-shot dictator game. The dictator game captures a measure of relative unenforced fairness (Kahneman et al., 1986), or altruism, which is an important indicator of prosociality. The game operates by giving one player, the dictator, a resource endowment that they may choose to allocate between themselves and another anonymous player, the recipient. Because identities are anonymous and the game is not repeated, there is no possibility for retribution from the recipient.

Figure 1. The structure of the dictator game used in this research. A dictator is given an endowment and allowed to donate any portion of that endowment to an anonymous recipient. The dictator is not obliged or encouraged to donate, and the recipient has no recourse in the matter.

Because the dictator has the option to allocate the resource endowment as she sees fit, economic theory suggests that a strictly self-interested person (i.e. homo economicus) playing the dictator role would keep the entire endowment to gain maximum utility. However, pure self-interested behavior is rarely observed empirically (Engel, 2011; Henrich et al., 2004). As a result, economic game theorists have concluded that, in addition to preferences for various personal outcomes, humans hold 'social preferences' related to the distribution of resources between individuals (Andreoni and Miller, 2002; Bowles and Gintis, 2009; Fehr and Fischbacher, 2002). The presence of a utility-maximizing scenario in which dictators receive some level of utility from sharing their resource allocation is an indication of the presence of altruism and prosociality (Paciotti et al., 2011). Figure 2 illustrates the payoff possibility frontier dictators face between social and personal payoffs in this experiment, with point B representing a more prosocial allocation relative to point A.

Figure 2. The payoff possibility frontier for participants in this dictator game, in US dollars. Only whole dollar values were allowed. For illustration, point B represents a relatively more prosocial allocation than point A.

The dictator game is typically applied either to explore the ideal conditions for unenforced fairness assuming a degree of universality in human behavior, or in specific social contexts in order to explore systematic differences in unenforced fairness between separable populations (Engel, 2011). In an organizational context, there are many groups to measure cooperation between. For example, Waring and colleagues (2014) measured within and across organizational boundaries. In the context of cooperatives, useful measurements could be conducted between members, staff, consumers and even the local public. In this study we measure individual cooperation in situ among food shoppers during normal food shopping activity. We are comparing two broadly similar populations: shoppers at a food cooperative and shoppers at a conventional grocery store. In order for the experiment to identify differences in behavior by venue, which may indicate a prosocial effect related to shopping at the cooperative, consumers ought to be substantially similar in all other ways. Demographic information for the community overall is summarized and compared to information generated from the experiment in Table 1.

To minimize the possible behavioral effects of factors not directly associated with the shopping venues, the experiment was conducted at the both venues, and only with customers leaving the store. Participants at both test sites faced an identical scenario,

and were invited to participate in the same manner. Upon leaving the store customers were asked if they would like to participate in an anonymous research survey that could pay up to twenty dollars. Those customers who elected to participate were handed a tablet computer and informed that they could navigate the experiment independently in order to keep their choices confidential. Participants were also permitted to request the researcher's assistance if necessary. The same researcher conducted all sampling over the course of two weeks, alternating venues by day. The data and analysis script are available on the Evolution of Local Food Organizations Dataverse at doi:10.7910/DVN/9WPVEY (Waring, 2016).

Variable	Co-op (n=56)	Grocery (n=70)	Community*
Age (median)	55	61	53
Gender (% female)	62%	56%	56%
Bachelor's degree or higher (%)	79%	45%	48%
Household size (median)	2	2	2
Household income (median)	\$60,000	\$40,000	\$34,000
Co-op members (%)	73%	21%	—

Table 1. Demographic comparison of participants by shopping venue. *Data from U. S. Census Bureau (2014).

The game was explained in detail to participants before they began. First, players would act as dictators, beginning the game with a ten-dollar endowment. As dictators, they were allowed to give away any portion, in one-dollar increments ranging from zero to ten, to an anonymous future player at the same site. After choosing what portion, if any, to contribute, participants received a random amount between zero and ten dollars, simulating a contribution from a previous player. Total compensation, paid in cash, was equal to the portion of the original endowment retained by the player plus the random amount. Total compensation could thus vary from zero to twenty dollars for each participant. Importantly, participants did not see or handle cash until the entire experiment and survey had been completed, as this is known to increase the amount dictators give (Engel, 2011).

In the traditional one-shot dictator game used here, participants play the game only once. Dictators play first and are paid before recipients play, allowing an anonymous transfer of funds. To collect a dictator decision from every participant, all participants played first as a dictator and second as a recipient, rendering a simple sequential fund transfer more complex because the first player has no partner for their recipient round. This interleaved play also compromised choice anonymity for participants, since participants were paid in cash immediately after the experiment for the payoffs from both dictator and recipient roles. As a result, the experimenter would have known the amount the participant kept when playing as dictator. To avoid this, and guarantee that participants had privacy from the experimenter in their decisions, the recipient payoffs were sampled randomly from the set of possible payoffs. This way the experimenter could not know participant choices until the experiment was complete. The payoff

distribution created by sampling the set of possible payoffs is thus a group-level approximation of the distribution of actual individual-level donations. This statistical decoupling influenced payment outcomes, since the distribution of contributions received by recipients was normal, while the distribution of their donations followed the tri-modal distribution common to dictator results. However, the randomized return contributions did not affect the average payout, nor could they have influenced participant behavior during the experiment.

After finishing the game, participants completed a survey, which collected a variety of demographic and shopping experience data to control for possible effects on participant behavior in the experimental game. Table 2 lists the variables collected and their expected effect on contributions based on the literature. Very little experimental research has been conducted on food consumers when the impact of their shopping experience can be reasonably expected to play a role in their decisions. As such, the expectations indicated in Table 1 for the shopping attitudes are purely assumptions.

Variable	Description	Expected Effect	Source
AGE	Age (years)	(+)	(Engel, 2011)
FEMALE	Female/Male	(+)	(Engel, 2011; Pan and Houser, 2011)
COLLEGE	Bachelors degree or more	(+)	(Bekkers and Wiepking, 2011)
HHS	Household size	(+)*	(Wiepking and Bekkers, 2012)
HHI	Household income	(-)	(Piff et al., 2010)
RESZIP	Length of residence in current home	n/a	—
WEEKLY	Shops at the site at least weekly	(+)	—
PRIMARYSTORE	Purchases half or more of household groceries at site	(+)	—
SATISDAY	Satisfied with shopping experience	(+)	—
MEMBER	Member of Blue Hill Co-operative	(+)	—

Table 2. Summary of variables and expected effects. *Weipking & Bekkers (2012) find the evidence for household size is somewhat mixed.

Results

A total of 126 individuals — 70 at the grocery and 56 at the co-op — participated in the experiment. We found direct support for our hypothesis, as participants who had just shopped at the co-op would contribute more of their endowment than participants who had just shopped at the grocery. Experimental results indicated that the mean contribution at the co-op was \$6.80, while the mean contribution at the grocery was \$4.40. A Wilcoxon rank-sum test, a non-parametric comparison of means, revealed this difference to be significant ($W = 2773$, $p < 0.0001$). Figure 3 illustrates the difference in the frequency of high and low dictator contributions between co-op and the grocery. Co-op shoppers contributed all \$10 nearly 18% more often than did grocery consumers, while grocery consumers contributed nothing to their recipients almost 15% more often than those at the co-op. Results were consistent with the common tri-modal pattern in voluntary donation experiments in the experimental economics literature (Engel, 2011).

Figure 3. Relative frequency of contribution levels by site. This illustration corrects for the difference in sample sizes between the two sites. Examining the graph, we see the topmost bar shows that nearly 18% more of the co-op shoppers donated \$10 than did grocery shoppers. The bottommost bar reveals that nearly 15% more of the grocery shoppers donated nothing than did co-op shoppers.

That contributions are so much higher at the co-op suggests that the participants there are more prosocial than their counterparts at the grocery. However, alternative explanations need to be taken into account before we can conclude that the different prosocial response is due to organizational factors. The primary alternative explanation is that differences between co-op and grocery shoppers cause the different contribution levels. Experimental participants at the grocery are more similar to the community at

large, while participants at the co-op are more wealthy, educated and female than either the grocery or the community at large. Table 1 summarizes the characteristics of the experimental participants at both venues and those of the municipality of Blue Hill.

We account for these additional explanations by including demographic and shopping experience variables using a left-censored Tobit model predicting dictator game contributions. This model selection follows Engel's meta-analytic review of 616 dictator game treatments, which concludes that a left-censored (non-negative) regression model best accommodates the choice set faced by participants (Engel, 2011). Table 2 lists the direction of expected effects we derived from the literature for age, gender, education, income, and household size. Table 3 summarizes the results of the Tobit model and compares them with expected effects. Of the six demographic predictor variables included in the model, only education level emerged as a direct predictor of participants' contributions at the 95 percent confidence level. Age was not associated with a significant effect, although the literature suggests that prosociality generally increases as people age. Gender, household size, income, and the length of participants' residence in their current municipality did not produce significant effects on contributions. While each of these variables has been found in previous literature to systematically influence participant behavior, it is likely that our limited sample size contributes to their insignificance in this study.

	Variable	Coefficient	S.E.	Expected sign	Estimated sign
Intercept	INT	6.48***	2.17	+	+
Test Site	Test Site (CO-OP)	2.87***	1.01	+	+
Demographic	Age (AGE)	-0.03	0.03	+	-
	Female (FEMALE)	0.63	0.70	-	+
	Bachelors or higher (COLLEGE)	2.05**	0.89	+	+
	Household Size (HHS)	-0.19	0.31	+	-
	Household Income (HHI)	-0.18	0.13	-	-
	Residence in Town (RESZIP)	0.32	0.22	+	+
Shopping	Shops at site weekly or more (WEEKLY)	-1.19	0.93	+	-

	Site is primary grocery store (PRIMARYSTORE)	0.76	0.91	+	+
	Satisfied with store that day (SATISDAY)	-2.45	1.27	+	-
Coop Membership	Coop Membership (MEMBER)	-0.13	0.94	+	-

Table 1. Multiple regression results. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Of the four shopping-related variables, none showed significant relationships with the level of dictator contribution.

Even when accounting for the effects of income, age, gender, household size, and other demographic and shopping experience variables, the effect of test site remained the largest effect at the highest confidence level. This confirms the simple hypothesis that while many factors influence dictator donations, the organizational environment is the dominant predictor.

Discussion

Experimental results support the hypothesis that customers who had recently shopped at the food co-op exhibit more prosocial behavior than those who had shopped at the conventional grocery store. The strength of this conclusion as a contribution to the literature is rooted in the empirical nature of the experiment. The results observed in this experiment provide a clear indication that behavioral impacts may be occurring in the context of food purchasing decisions. While it is clear that other factors — such as demographics — also play a role in dictator behavior, the effect with the greatest magnitude and most confidence observed in this experiment was the test site. These results reveal a relationship between participating in a food co-op and exhibiting prosocial behavior. However, the nature of the data does not allow for causal conclusions. Do more prosocial individuals choose to shop at the co-op, or does shopping at the co-op promote prosocial tendencies? Our data do not tell. We consider it likely that food co-ops both attract prosocial participants and amplify prosociality through their operation. The question is how much each process contributes to this outcome.

Understanding the processes that underlie this relationship will be key to exploring the role and impact of food co-ops, and to expanding this manner of research to other cooperative organizations. The broad similarities between various types of cooperatives suggest that these results may also be observed in cooperatives in other industries or even other types of prosocial organizations, such as philanthropic organizations. However, until such a supposition is tested, it remains an open question if the same effect holds for cooperative organizations generally. Moreover, our results raise the

1 question of how much cooperation occurs among members of cooperatives and
2 between cooperatives.

3 In addition to identifying causal relationships, future research should consider whether
4 the prosocial behavior is associated with the type of organization, a particular role in a
5 community, or particular types of interactions with consumers. For instance, the
6 prosocial behavior of co-op shoppers could be a result of the cooperative nature of the
7 organization, and therefore might not be found as much in other types of organizations
8 that do not explicitly emphasize voluntary cooperation. Alternatively, the prosocial
9 behavior could also be a result of the co-op's history in the town, where it has been a
10 fixture for decades and therefore could be an important element of citizens' identity in a
11 more meaningful way than a conventional grocery store. In towns with different
12 histories, the reverse could be true.

13 Finally, it is possible that our findings are the product of some community-level
14 anomaly. Although we can find no reason or evidence to suggest such a notion,
15 community-level differences are certain to exist, and replication in other settings is
16 required to gain a broader understanding of how prosociality is influenced by
17 organizational factors. Nonetheless, these findings provide a compelling reason to
18 pursue further studies of cooperation and prosociality in alternative and traditional food
19 organizations. Further research in this area will benefit both our understanding of the
20 cooperative movement and our efforts to explain more broadly the evolution and
21 importance of prosociality.

22 *Acknowledgements*

23 We would like to thank the Blue Hill Co-op and the Tradewinds Marketplace located and
24 in Blue Hill, Maine, for allowing us to collect data at their storefronts, and Taylor Lange,
25 for contributing feedback on previous drafts.

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