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JUST BETWEEN YOU AND ME:
PRIVATE FINANCIAL TRANSACTIONS SIGNAL COMMUNAL TRAITS AND
ENHANCE OTHERS' WILLINGNESS TO COOPERATE

by

LENNAY MARIE CHAPMAN

A dissertation submitted to the Graduate Faculty in Business in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

2022

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This manuscript has been read and accepted for the Graduate Faculty in
Business in satisfaction of the dissertation requirement for the degree of Doctor
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ABSTRACT

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Cooperate

by

Lennay Marie Chapman

Advisor: Ana Valenzuela, Ph.D.

Increasingly, consumers' everyday interactions are facilitated by online platforms. One notable feature of many online platforms is that they give consumers the ability to interact privately or publicly. Interacting publicly (e.g., by sending a public payment) can reveal private information pertaining to two or more consumers; this is known as co-owned information. The present work examines disclosure decisions about co-owned information in the context of peer-to-peer financial transactions. We propose that choosing a private mode of transacting represents a socially mindful behavior, as it considers partners' preferences and preserves their future ability to keep private or disclose the transaction details. Partners, recognizing private payment as a considerate behavior, infer private (vs. public) payment initiators to possess stronger communal traits, and expect that they will be more likely to cooperate. On the basis of these inferences, partners themselves become more likely to cooperate. We also provide evidence that consumers use the decision to transact privately to signal their own communal orientation, expecting it may encourage cooperation in others. Eight experimental studies conducted in both Europe and the United States support these propositions.

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What I didn't see was that the time had severe brackets around it. Within those brackets nothing else existed. Outside of them, all you could remember was the blur of a momentary madness.

- Stephanie Danler, *Sweetbitter*

Without a doubt, the five years I have spent pursuing a Ph.D. represent the most trying and rewarding period of my life to date. The bracket marking the beginning of this journey was an email from Steve Gould, which I received in early 2017 while running an errand at Duane Reade. I knew that the email, which notified me of my acceptance to the Ph.D. program, would change my life for the better. And it did. Yet the transition to academia was neither easy nor fast. I am indebted to Kira McDonald, Bethany Taylor, and Kimberly Tom Wang for their encouragement of my academic pursuits during that transitional time. Thanks to them, I was better able to support myself financially and had time to engage in the unexpectedly difficult process of evolving my personal identity from industry professional to academic.

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Contribution Statement

Increasingly, consumers' everyday interactions are facilitated by online platforms. Many online platforms give consumers the ability to interact in a private or public manner. For example, consumers using Venmo for payment can transact privately (so payment is visible only to the sender and recipient) or publicly (so payment is visible to anyone using the platform). In choosing private or public interaction modes, consumers influence the disclosure of information which pertains to the self and others; this is known as co-owned information (Petronio 2002). Disclosure decisions about co-owned information can be made unilaterally (e.g., Wu, Moore, and Fitzsimons 2019). We investigated unilateral disclosure decisions about co-owned information in the context of peer-to-peer financial transactions. We posited that choosing to transact privately reflects social mindfulness (Van Lange and Van Doesum 2015), as it is more considerate of partners' preferences and preserves their future ability to keep private or disclose the transaction details. Thus, we introduce the construct of social mindfulness to the consumer behavior literature and identify a novel, consumer-relevant operationalization of it. We highlight the importance of choosing private transactions by showing that it improves how one is perceived, how cooperatively one is expected to behave, and in turn, how willing others are to cooperate. We also find evidence that consumers use the choice of transacting privately (vs. publicly) to signal owning communal traits, which may encourage others to cooperate. This finding adds to the literature on signaling theory by identifying a novel behavior that consumers can use to communicate information about the self. Finally, this work highlights interpersonal consequences of novel consumer choices enabled by online platforms. Substantively, we provide practitioners and public policy makers with a better understanding of the downstream

consequences of online privacy choices. This may influence how privacy options get structured and the way they are presented to consumers.

Introduction

Increasingly, consumers' everyday interactions – their transmissions of money, messages, and photographs, for example – are facilitated by online platforms. One notable feature of many online platforms is that they provide consumers with choices regarding the privacy of their interactions. For example, on the peer-to-peer payment platform Venmo, consumers can use the default privacy setting, public, which makes the transaction details visible to anyone using the platform, or they can select the private setting, which makes transaction details visible only to the sender and recipient (Cortez 2021). In such cases, the consumer's choice of privacy setting determines whether their interaction with another consumer will be disclosed to others or kept private. In the present research, we focused on consumers' chosen privacy settings for online transactions of money, which are facilitated by peer-to-peer (P2P) payment platforms such as Venmo.

In recent years, P2P payment platforms have proliferated: Venmo, Bizum, and Cash App are just a few of the platforms from which consumers can choose. P2P payment platforms are used by millions of consumers (Rudegeair 2019) and facilitate billions of dollars' worth of transactions every quarter (de Best 2021). Venmo alone boasted more than 26 million monthly users in 2019 (Curry 2020) and facilitated the transmission of \$172 billion in 2018 (Shevlin 2019). Generally, P2P payment platforms facilitate transactions, which are sets of actions that follow legal protocols, are durable (i.e., cannot be undone¹), and are atomic (i.e., cannot be partially completed) (Gray 1981). Specifically, these transactions are financial, meaning they

¹ Venmo transactions cannot be cancelled. The platform does not reverse payments at the sender's request. A recipient who does not wish to receive a payment must initiate a separate transaction to return the money (Venmo, n.d. a).

constitute transfers of money that are either incoming or outgoing (Kappes, Gladstone, and Hershfield 2021). Because financial transactions relate to one's dealings with money, and money is a personal topic that consumers avoid discussing (Sun and Slepian 2020), we expected that consumers would be sensitive to having their financial transactions disclosed to others on a P2P payment platform.

Prior to the advent of P2P payment platforms, consumers paid one another through methods that do not offer different privacy settings (e.g., cash; personal checks). While the privacy of cash and personal check payments could be influenced by the number of people present at the time of a transaction, these methods do not prompt a decision about whether or not to make a record of the transaction that will be visible to other consumers. Thus, the ability to create an enduring, public record of one's transactions is novel. Yet, the practice of making transactions visible to others has gained rapid prevalence among consumers. For example, more than 207 million transactions have been conducted publicly on the P2P payment platform, Venmo (Whittaker 2018).

When consumers transact publicly, they reveal transaction-related details which pertain to both the self and their partner. Because these transaction details are relevant to two or more people, they can be considered a type of co-owned information (Petronio 2002). The term co-owned refers to a sense of psychological proprietorship, which is distinct from legal ownership, and can apply to entities that people either do or do not legally own (Pierce, Kostova, and Dirks 2003). Following Petronio (2002), we used the term co-owned in reference to the psychological ownership two people might feel vis-à-vis mutually self-relevant information.

When people co-own information, they want to be able to control whether or not it is disclosed to others (Petronio 2002). Yet, disclosure decisions about co-owned information can be

made unilaterally. For example, on P2P payment platforms one person (i.e., the initiator) may initiate a private or public transaction with another person (i.e., their partner). In so doing, the initiator makes a unilateral disclosure decision, possibly without knowing their partner's privacy preferences or the potential downstream effects of their decision. To enhance understanding of the meaning and implications of unilateral disclosure decisions, we turned to the literature on social mindfulness.

Social mindfulness refers to considering and acting upon what others may want (Van Lange and Van Doesum 2015). One way of demonstrating social mindfulness is by making choices that enhance rather than limit others' options (Van Lange and Van Doesum 2015). We posited that when consumers choose private transactions, rather than the default setting of public, they are demonstrating social mindfulness. This is because transacting privately affords their partners the future ability either to keep transaction details private or disclose them to others. In contrast, transacting publicly automatically discloses transaction-related information, thereby leaving partners without a choice between keeping the transaction private or disclosing it.

The present research identified several important downstream implications of choosing to transact privately. First, partners infer initiators who choose to transact privately (vs. publicly) to possess stronger communal traits. Based on these trait inferences, partners expect that private (vs. public) initiators will behave more cooperatively, even in a subsequent, unrelated task (e.g., an ultimatum game; a prisoner's dilemma game). Equipped with the confidence that private (vs. public) initiators will behave cooperatively, partners themselves become more likely to cooperate. We also found evidence that consumers choose private modes of transacting to convey their own communal standing, with the understanding that it will encourage cooperation in others. Eight studies, including one study with real payment behavior, provided support for

these propositions. By testing the theoretical model in Europe and the United States, both with student and community samples, we found evidence that these effects are generalizable.

This article aims to make several contributions. First, we introduce the construct of social mindfulness to the consumer behavior literature and identify a novel, consumer-relevant operationalization of it: choosing privacy over disclosure in online interactions. We highlight the importance of the construct by showing that choosing social mindfulness improves how one is perceived, how cooperatively one is expected to behave, and how willing others are to cooperate.

The present work also contributes to the literature on signaling theory. It does so by identifying a novel behavior (i.e., choosing privacy vs. disclosure) that consumers can use to communicate information about the self. Consumers signal information about themselves in myriad ways, for example by communicating one's status through product size (Dubois, Rucker, and Galinsky 2012), one's motivation through smiling (Cheng, Mukhopadhyay, and Williams 2020), and one's competence through non-conformity (Bellezza, Gino, and Keinan 2014). We seek to augment this stream of literature by showing consumers can signal their own communal traits by choosing private modes of transacting.

Finally, this work highlights the consequences of novel consumer behaviors that are enabled by online platforms. Online platforms play an increasingly prominent role in modern social life, and past work has demonstrated that features unique to online platforms can impact decision making (Roth, Wänke, and Erev 2017), self-presentation strategies (Gil-Lopez et al. 2018) and the way consumers are perceived (Hofstetter, Ruppell, and John 2017). We contribute to this burgeoning area of research by examining the decision to transact either publicly or privately with another consumer, which online platforms enable and thusly can evoke interpersonal consequences. Because the interpersonal relationships we investigated were

consumer dyads, we add to research on dyadic consumption decisions (Dzhogleva and Lamberton 2014; Lowe and Haws 2014; Nikolova and Lamberton 2016).

Substantively, the interpersonal consequences of transacting privately versus publicly are crucial for consumers to understand, since financial transactions often are embedded into social settings. Many social settings also provide opportunities for cooperation (e.g., on crowdfunding platforms; in the metaverse; on social networking sites), and so it is important for consumers to know how their transaction-related decisions might impact others' cooperation propensity.

Identifying the downstream consequences of online disclosure decisions may allow practitioners and public policy to make better-informed decisions. For example, practitioners facilitating online social interactions may wish to prioritize private modes of interacting to benefit participants' cooperative relationships. Public policy makers, upon understanding how private interactions improve interpersonal outcomes and preserve consumers' ability to control how their self-relevant information is disclosed, may require companies to structure communication options differently (e.g., by offering private settings by default).

Conceptual Development

There is a growing stream of research in consumer behavior examining the factors that influence self-disclosure decisions (John, Acquisti, and Loewenstein 2011; Melumad and Meyer 2020; Melzner, Bonezzi, and Meyvis 2021). In this body of research, self-disclosure is defined as the communication of information about the self or the provision of self-relevant details (Cozby 1973; Kim, Barasz, and John 2021). Although disclosure often has been examined in terms of consumers' decisions to reveal information about the self to one other person (e.g., John et al. 2011), online platforms have created new ways of disclosing. For example, information can be communicated with large and heterogenous audiences (Gil-Lopez et al. 2018).

Online platforms also enable consumers to disclose their interactions with others. One key aspect of this type of disclosure is that it involves information relevant to the self and others. This type of information may be considered co-owned (Petronio 2002). The “owned” part of the term *co-owned information* refers to the psychological proprietorship people feel over their self-relevant information, and their desire to control whether or not it is disclosed to others (Petronio 2002). Co-owned information can be revealed by any of its co-owners, even if not all of them would like the information to be disclosed (Petronio 2002).

We limited our investigation to information co-owners in the form of P2P transaction partners. In a P2P transaction, there is a person who initiates a transaction and a partner with whom they transact. In the present research, we use the term *initiator* in reference to the person who chooses a private or public mode of transacting, and the term *partner* in reference to the person with whom the initiator is transacting. Transaction-related information is connected to both initiators and their partners; in other words, the information is co-owned by both.

How consumers handle co-owned information could be understood as a reflection of social mindfulness. Social mindfulness involves being thoughtful toward others and making decisions that are considerate of their needs (Van Lange and Van Doesum 2015). It is tested in contexts that require making choices that either maximize or reduce others' options (Van Lange and Van Doesum 2015). For example, when presented with three green apples and one red, the socially mindful choice is to take a green apple, as doing so affords the next person the ability to choose between green and red (Van Lange and Van Doesum 2015).

We suggest that privacy and disclosure also can be understood through a lens of preserving versus reducing others' choices. When consumers choose to transact privately, the transaction information is visible only to initiators and their partners. Partners then have a choice: they could either continue keeping the transaction information private (e.g., by not telling anyone it occurred) or they could disclose it to others. When initiators choose to transact publicly, the transaction information becomes shared with others, and the partner loses the choice between keeping the information private and making it public².

In sum, the choice to transact privately represents the socially mindful choice, as it affords partners a choice between privacy and disclosure. In Venmo, it requires overriding the default privacy setting, public, thereby suggesting that initiators are actively choosing privacy over disclosure. We posited that the choosing private transactions would have informational value to partners, who would recognize private payment as a type of behavior that demonstrates sensitivity toward others, and attribute the behavior to the presence of communion.

Communion versus agency

² Consumers are able to change privacy settings of a payment after it is sent (Venmo n.d. b). Yet, the act of transmitting payment publicly would create a record on the public feed which others could see, and once others are aware of the transaction, their awareness cannot be reversed (Sharot and Sunstein 2020)).

Communion and agency are considered fundamental and competing drivers of human behavior (Bakan 1966). Communion is associated with considering the self in relation to others (Rucker, Galinsky, and Magee 2018). People displaying strong communal motives tend to show heightened social focus and concern for others (Frimer et al. 2011; Schwartz 2012). When a person acts in service of communion, others may use that behavior as a cue to make trait inferences (Cislak and Wojciszke 2008). Importantly, the perception of traits is strengthened when the person making the judgment is affected by the action at hand (Cislak and Wojciszke 2006). That is, in the context of a transaction, the initiator's choice to transact privately or publicly influences their partner's privacy. As a result, partners may be especially likely to perceive the decision to transact privately or publicly as a reflection of the initiator's traits.

Given that transacting privately (vs. publicly) might be considered a reflection of communal motives, and that behaviors reflecting communal motives inform inferences of communal traits, we hypothesized that:

H₁: Choosing to transact privately (vs. publicly) drives inferences of stronger communal traits.

Cooperation

Consumers depend on others to cooperate in myriad settings, including at home, at work, and in the marketplace (Corfman and Lehmann 1987; Ladley, Wilkinson, and Young 2015; Schurr and Ozanne 1985). In its most basic form, cooperation is defined as one individual incurring a cost to benefit another (Rand and Nowak 2013; Stevens, Cushman, and Hauser

2005). It implies that an individual agrees with the other's ends, and understands how their own behavior can influence the achievement of them (Milgram 1965).

Cooperation involves people working together toward one common goal (Mead 2002). It may take place within interdependent or dependent contexts (Hake and Vukelich 1972). In interdependent contexts, individuals' outcomes depend on both their own and their partners' responses (Hake and Vukelich 1972). In dependent contexts, individuals' outcomes are mostly based on someone else's response (Hake and Vukelich 1972 p. 336). In highly interdependent contexts, outcomes for the dyad are maximized when all participants choose to cooperate (Van Lange 1999). Yet defecting, rather than cooperating, can maximize outcomes for individuals (Axelrod and Hamilton 1981). Thus, before deciding whether to cooperate, individuals try to estimate whether other participants also will cooperate (Axelrod and Hamilton 1981). If individuals have interacted previously with other participants, they may use information from past interactions to inform their estimates (Axelrod and Hamilton 1981 p. 1392).

In the present research, we considered scenarios in which two people who participated in a financial transaction (i.e., initiators and their partners) had a subsequent opportunity to cooperate. We expected that partners would try to estimate initiators' propensity to cooperate, taking into account initiators' choice of a private or public transaction mode. We suspected that partners would make inferences about initiators' likelihood to cooperate based on whether they transacted privately or publicly, since both cooperating and transacting involve making an individual decision that affects joint outcomes. As the choice to transact privately represents a more considerate behavior, partners might expect private initiators to continue to be considerate of others' outcomes. For that reason, partners might more strongly expect cooperation from initiators who choose to transact privately.

H₂: Choosing to transact privately (vs. publicly) drives stronger expectations of cooperative behavior.

Partners expect this behavioral consistency because they infer private initiators to possess stronger communal traits. Traits refer to stable dispositions (Epstein 1979) and may be inferred on the basis of behavior (Jones and Davis 1965) to address the question of why the behavior occurred (Kelley 1973). In other words, people attribute actions to dispositions. Dispositions are thought to reflect how a person is inclined to behave in a variety of situations (Jones and Davis 1965 p. 223). People intuit that others' actions will be consistent (Bem and Allen 1974) and use trait inferences to predict others' future behavior (Snyder and Ickes 1985). For example, people may use trait inferences to estimate whether others will help them or not (Brambilla et al. 2011). We posited that partners would more strongly expect private initiators to demonstrate subsequent considerate behavior in the form of cooperation, because they infer private initiators to possess stronger communal traits, or a dispositional tendency toward behaving considerately toward others.

H₃: Inferences of relatively stronger communal traits mediate stronger expectations of cooperative behaviors from private (vs. public) initiators.

After estimating others' cooperation propensity, people then make their own decisions on whether or not to cooperate (Axelrod and Hamilton 1981). These decisions may be influenced by their impressions of others' traits (De Bruin and Van Lange 1999) and their expectations of

reciprocal behavior (Declerck, Boone, and Emonds 2013; Batson 1991). For example, when people infer others will help, they tend to act in kind (Levine et al. 2018; Rand and Nowak 2013). We posited that partners themselves would be more likely to cooperate with private (vs. public) initiators, because they infer private initiators to have more considerate dispositions, and expect private initiators to be more likely to cooperate:

H_{4a}: Choosing to transact privately (vs. publicly) enhances the likelihood that partners will cooperate.

H_{4b}: Inferences of private (vs. public) initiators' stronger communal traits mediate partners' higher likelihood of cooperating.

H_{4c}: Stronger expectations of cooperative behaviors from private (vs. public) initiators mediate partners' higher likelihood of cooperating.

Signaling

Finally, we considered that consumers might use their choices about whether to use private or public modes of transacting in order to communicate information about the self. In general, people use behaviors strategically to convey a favorable image to others (Baumeister 1982). Conveying a favorable image can produce positive impressions, which may help with the achievement of goals (Leary and Kowalski 1990; Schlenker and Leary 1982).

Given that people use expressions of social mindfulness both to form inferences about others and to signal information about the self (Van Doesum, Van Lange, and Van Lange 2013),

we expected consumers would use private payments both to form impressions of others, and to communicate positive information about the self. Specifically, consumers would expect others to view private payments favorably, and would choose to transact privately in an effort to convey their own communal orientation. Consumers might do so because they expect others, upon inferring their relatively strong communal traits, to be more likely to cooperate with them. Indeed, emerging research suggests that people sometimes use their consumption choices strategically to encourage cooperation in others (Srna, Barasch, and Small 2020). Thus, we expected that consumers would use the choice to transact privately or publicly strategically in an effort to convey their communal traits to others.

H₅: The choice to transact privately (vs. publicly) can be used to signal one's own communal traits.

Disclosure decisions in the context of financial transactions

We operationalized our constructs in the context of financial transactions (specifically, P2P payments). This context is relevant because consumers transact with one another frequently; for example, Venmo users average five transactions per month (Curry 2022). Yet money is often considered a taboo subject (Goldberg and Lewis 2000; Krueger 1991), or one that is prohibited as a topic of conversation by custom (Walter 1991). That is, while it is acceptable and commonplace to discuss companies' financial performance, people avoid discussing personal finances (Sun and Slepian 2020). A potential explanation is that people may fear being judged by others on the basis of their wealth (O'Neil 1993). Consumers also may wish to avoid disclosing

how they are using money. For example, consumers often wish to conceal purchases related to alcohol, tobacco, and cosmetics to avoid social consequences (e.g., ridicule; receiving unsought opinions) (Goodwin 1992). Even seemingly virtuous spending decisions, such as the choice to purchase an ethical product, are sometimes judged negatively by others (Olson et al. 2016). Thus, given the potential for information related to money to affect interpersonal judgments, we expected it to be a context in which social mindfulness matters, since people may prefer having the option to keep matters of personal finances private (e.g., Goldberg and Lewis 2000; Garbinsky et al. 2020).

Overview of Studies

Eight studies tested the established hypotheses in the context of P2P payment platforms. Study 1 was exploratory; study 6c was an observational quasi-field study; the other six studies were lab experiments. Studies 2, 3, 4, 6a and 6b were preregistered on AsPredicted.org. Figure 1 provides an overview of the studies and their findings.

Study 1 showed that choosing to transact privately increases partners' cooperative intentions (H_{4a}). It does so because partners view private initiators more favorably than public ones. To probe the nature of these more favorable impressions, study 2 tested if transacting privately drives inferences of possessing positive, communal traits, or if transacting publicly drives inferences of possessing negative traits associated with malintent. Results demonstrated that partners infer private initiators to possess relatively stronger communal traits (H_1), which in turn enhances cooperative intentions (H_{4b}). It did not provide evidence that transacting publicly drives inferences of other, unfavorable traits. Study 3 examined the effect of transacting privately (vs. publicly) on cooperation within the context of an ultimatum game. It did so by examining consumers' metaperceptions (i.e., how they expect others to perceive them). Results showed that after sending payments privately (vs. publicly), consumers predict that partners will infer them to possess stronger communal traits (H_5), and, in turn, will view their ultimatum offers as relatively fair (H_3). As a result, private initiators are more confident that partners will cooperate by accepting their ultimatum game offer (H_{4c}).

In the next studies, we measured cooperative behavior using an ultimatum game (study 4) and prisoner's dilemma game (study 5). Because the dependent measures involved making choices, using these games allowed us to measure behavior. It is important to measure behaviors,

as they are not always consistent with people's self-reports (Baumeister, Vohs, and Funder 2007). Study 4 showed that partners are more likely to accept ultimatum game offers from private initiators (H_{4a}) because they expect greater cooperation in the form of relatively fair offers (H_{4c}). Study 5 operationalized cooperation through a Prisoner's Dilemma game, again showing that partners expect private initiators to behave more cooperatively (H_2); as a result, partners themselves become more likely to cooperate (H_{4c}).

Studies 6a-c examined whether the decision to transact privately versus publicly could be used as a signaling behavior. Results showed that consumers are more likely to send a payment privately when they want to convey communal traits, such as being considerate (H_5), whereas the intention to convey other traits, such as being fun, do not show this effect thereby providing a test of specificity. This set of studies demonstrated that consumers in the United States (study 6a) and in Europe (study 6b) use private transactions to signal communal traits, and that they do so both in lab settings (6a-b) and when sending real Venmo payments (6c).

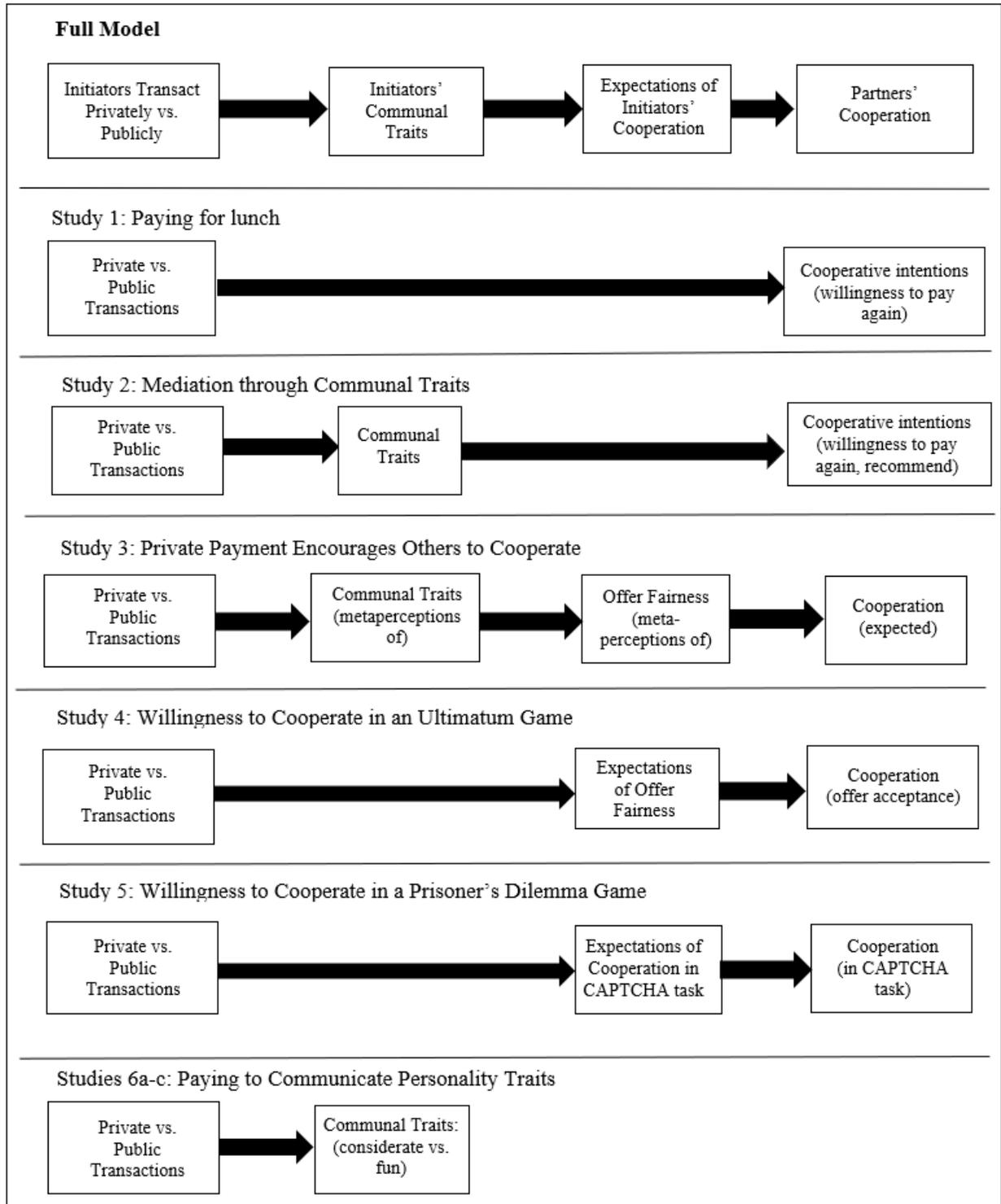


Figure 1: Overview of Studies.

Study 1: Paying for lunch

The purpose of this exploratory study was to provide initial evidence that choosing to transact privately positively impacts partners' perceptions of and behavioral intentions toward initiators. Specifically, we tested whether partners might develop more favorable impressions of those who transacted privately (vs. publicly). Generally, people develop a positive view toward those who promote the satisfaction of their own needs (Deutsch 1949). Thus, if people view choosing privacy over disclosure as an action that is mindful of their own needs and preferences, they might develop more favorable impressions of private initiators. We also tested whether choosing to transact privately would increase partners' cooperative intentions. Finally, we examined whether the more positive impressions created by choosing private (vs. public) modes of transacting mediates partners' stronger cooperative intentions. Since this study was exploratory, several other features of payments were tested in separate, between-subjects conditions. Those factors are not reported, as they do not relate to the current investigation.

Method

Sixty-seven student participants (57.8% female, $M_{\text{age}} = 22.29$, $SD = 4.52$) recruited through a subject pool at a large, public college participated in exchange for partial course credit. Participants read a description of the P2P payment platform Venmo, which explained what Venmo does and how it can be used. We asked participants if they had ever used Venmo; the majority (55.2%) reported they had.

Next, participants read a scenario about going to lunch with a classmate whom they did not know very well. In the scenario, they were asked to imagine that they had paid the entire bill and that the classmate had reimbursed them for half using Venmo. Participants were randomly

assigned to either a private or public reimbursement condition, and thus read that the classmate had sent payment privately or publicly. We displayed images of the ostensible transaction, which featured either a padlock in the private condition or an icon of a globe in the public condition.

We measured favorability to understand whether participants viewed the classmate positively or negatively (Schnittka, Sattler, and Farsky 2013) using three items, “Given this Venmo transaction, what impression do you have of your classmate?” (positive: 1 = Very negative; 5 = Very positive; favorable: 1 = Very unfavorable; 5 = Very favorable; and good: 1 = Very bad; 5 = Very good) (Osgood, Suci, and Tannenbaum 1957). Participants also indicated how likely they are to pay for their classmate again (1 = Extremely unlikely; 7 = Extremely likely). In this context, paying for a classmate again implies lending the classmate money on the premise that they will pay it back. Thus, lending money represents incurring a (temporary) cost in order to benefit another, which is consistent with the definition of cooperation (Rand and Nowak 2013; Stevens et al. 2005). Finally, participants provided their cubicle number and the time at which their session began, and continued to another, separate study in which demographic information was collected.

Results

First, we tested whether consumers would have a more positive impression of private initiators. All three favorability items loaded on a single factor and were averaged to form a single composite measure ($\alpha = .97$). Participants had a more favorable impression of private (vs. public) initiators ($M_{\text{private}} = 4.42, SD = .77$ vs. $M_{\text{public}} = 3.63, SD = 1.13; F(1, 65) = 11.35, p = .001, \eta_p^2 = .15$).

Then, we tested willingness to pay again as a function of whether their classmate had been said to send a payment to them privately or publicly. Results showed that participants were

more likely to pay for private initiators again ($M_{\text{private}} = 6.21, SD = 1.19$ vs. $M_{\text{public}} = 4.82, SD = 1.82; F(1, 65) = 13.59, p < .001, \eta_p^2 = .17$). This finding provided preliminary evidence that consumers are more likely to cooperate with partners who choose to transact privately versus publicly (H_{4a}).

Last, we tested whether enhanced perceptions of favorability mediated the positive effect of transacting privately versus publicly on cooperation willingness. Results confirmed the mediational role of favorability (indirect effect = .93, 95% CI [.40, 1.49] using 10,000 bootstrapped samples, PROCESS Model 4 (Hayes 2017)).

Discussion

Study 1 revealed that private initiators are viewed more favorably than public ones. It also provided initial evidence that choosing private (vs. public) payment increases partners' cooperative intentions. This effect is mediated by more favorable impressions of private initiators. We acknowledge that favorability is a general construct that captures only the valence of impressions (Nasukawa and Yi 2003). Hence the next study probed the nature of these positive impressions by measuring specific perceptions of initiators' traits.

Study 2: Mediation through communal traits

This preregistered study had several objectives. One, we aimed to provide initial evidence that the decision to transact privately versus publicly informs inferences of initiators' communal traits. Two, we sought to replicate the main effect of transacting privately versus publicly on cooperative intentions, this time by asking participants' how likely they would be to endorse or recommend the initiator, and how likely they would be to pay for them again. Both endorsing initiators and paying for them again represent small costs to the self that would benefit the initiator, which is consistent with the definition of cooperation (Rand and Nowak 2013). Three, we sought to test whether inferences of stronger communal traits mediate the effect of transacting privately on stronger cooperative intentions. Four, we sought to investigate an alternative explanation: that transacting publicly suggests the presence of malintent toward others, thus informing inferences of stronger negative traits (not merely weaker communal traits). To investigate this possibility, we included measures of socially aversive traits, specifically narcissism, self-centeredness, insecurity, and vanity (DeWall et al. 2011; Jones and Paulhus 2014). We also measured perceptions of materialism, which is a combination of non-generosity, envy, and possessiveness (Belk 1985), and neuroticism, which is a predisposition to experiencing negative affect, especially in response to stress (Barlow et al. 2014; McCrae 1990).

Method

We collected 157 responses. Following our preregistration (<https://aspredicted.org/blind.php?x=2us4w9>), we removed 32 participants who failed two or more of the three attention check questions. Two people did not finish the survey. This left a usable sample of 123 participants (56.0% male, $M_{\text{age}} = 36.22$, $SD = 10.35$). According to

G*Power analyses (Faul et al. 2007), a sample of at least 80 participants would be able to detect relatively large effect sizes consistent with what we found in study 1 ($f_s > .37$), with 80% power ($\alpha = .05$). In this and all subsequent studies, we aimed to recruit a minimum of 80 participants.

Participants were randomly assigned either to the private or public payment condition. All read a scenario similar to the one used in study 1, in which they imagined that they went to lunch with a new friend, paid the entire bill, and then received a payment from their friend for half of the bill. Depending on the condition to which they were assigned, participants read that the payment had been sent privately or publicly. They also were shown a corresponding image of the payment. In the private condition, the image of the payment contained a padlock (see figure 2). In the public condition, the image of the payment contained a world symbol (see figure 3).



Figure 2: Image of the private payment (study 2)

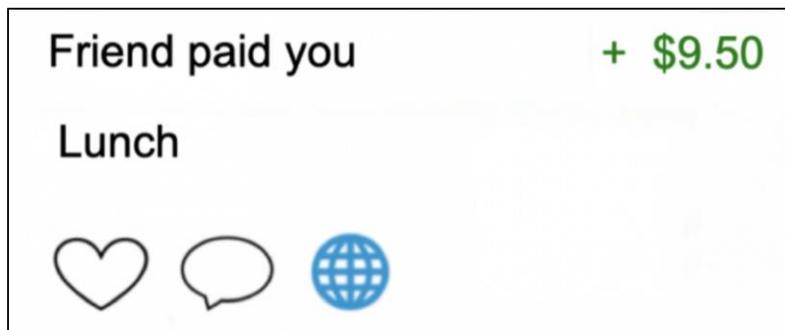


Figure 3: Image of the public payment (study 2)

Participants answered two questions indicating their cooperative intentions: “Based on this scenario, how likely are you to pay for your friend again?” (1 = Extremely unlikely; 7 = Extremely likely) and “Based on this scenario, how likely would you be to endorse (or recommend) your friend to others?” (1 = Extremely unlikely; 7 = Extremely likely). Participants also rated how strongly they agreed that the friend possessed traits associated with communion (i.e., sincere, considerate, conscientious, generous, agreeable, and trustworthy) and various negative traits (i.e., self-centered, vain, materialistic, narcissistic, insecure, and neurotic) (1 = Strongly disagree; 7 = Strongly agree). As a manipulation check, we asked participants, “In the scenario you read, how did you friend send the payment?” and participants selected either privately or publicly.

Manipulation check

The manipulation check indicated that participants understood how the payment was sent. That is, 83.9% of participants in the private condition selected “Private,” and in the public condition, 13.1% of participants selected “Private;” $\chi^2 = 61.61$; $p < .001$, Cramer’s $V = .71$).

Results

We conducted two preregistered analyses to test if private payment enhanced cooperative intentions. As predicted, and replicating results from study 1, participants were more likely to pay again for a private initiator ($M_{\text{private}} = 6.27$, $SD = 1.04$ vs. $M_{\text{public}} = 5.79$, $SD = 1.39$; $F(1, 121) = 4.84$, $p = .03$, $\eta_p^2 = .04$). Participants also were more likely to endorse private initiators ($M_{\text{private}} = 6.19$, $SD = 1.23$ vs. $M_{\text{public}} = 5.44$, $SD = 1.40$; $F(1, 121) = 10.05$, $p < .01$, $\eta_p^2 = .08$).

Because both of these items reflected partners’ cooperative intentions, we created an index by averaging them ($\alpha = .71$). Results showed that on average, people express stronger

cooperative intentions toward private versus public initiators ($M_{\text{private}} = 6.23$, $SD = 1.06$ vs. $M_{\text{public}} = 5.62$; $SD = 1.16$, $F(1, 121) = 9.54$, $p < .01$, $\eta_p^2 = .07$).

The six traits associated with communion (sincere, considerate, conscientious, generous, agreeable, and trustworthy) were averaged to form an overall index ($\alpha = .87$). Consistent with our theorizing, private initiators were inferred to possess stronger communal traits ($M_{\text{private}} = 5.88$, $SD = .86$ vs. $M_{\text{public}} = 5.32$, $SD = 1.07$; $F(1, 121) = 10.47$, $p < .01$, $\eta_p^2 = .08$).

Next, we tested whether the perception of communal traits played a mediational role in the relationship between transaction privacy and cooperative intentions. We found that the perception of stronger communal traits mediated the relationship between private payment and enhanced willingness to pay for the person again (indirect effect = .35, 95% CI [.14, .61]), enhanced willingness to endorse or recommend (indirect effect = .43, 95% CI [.15, .78]), and the relatively stronger composite measure of cooperative intentions, (indirect effect = .39, 95% CI [.15, .67]), all using 10,000 bootstrapped samples, PROCESS Model 4 (Hayes 2017).

We then tested the alternative possibility that choosing to transact publicly (vs. privately) strengthens perceptions of negative intent, thus informing perceptions of unfavorable traits. The six negative traits (narcissistic, insecure, vain, materialistic, self-centered, and neurotic) had strong reliability ($\alpha = .94$) and were averaged to form a composite measure. For this, we found no difference between private and public initiators ($M_{\text{private}} = 2.39$, $SD = 1.52$ vs. $M_{\text{public}} = 2.75$, $SD = 1.56$; $F(1, 121) = 1.64$, $p = .20$, $\eta_p^2 = .01$).

Discussion

This preregistered study provided support for H_{4a}, showing that the choice to pay privately increases partners' intentions to cooperate with the initiator by endorsing them to others or covering their expenses at a future time. It also provided initial support for the hypotheses that

partners infer private initiators to have stronger communal traits (H₁), and that the perception of stronger communal traits mediates the relationship between transacting privately (vs. publicly) and stronger intentions to cooperate (H_{4b}). We investigated the alternative possibility that the decision to pay publicly might suggest nefarious or negative intent, as indicated by perceptions of negative traits. The results did not support that alternative hypothesis.

Study 3: Private Payment Encourages Others to Cooperate

In this preregistered study, we sought to replicate the effect of choosing to transact privately on perceptions of communal traits. This time, participants imagined that they had sent payment either privately or publicly. Then they provided metaperceptions, meaning their perceptions of how their partners would view their traits and behaviors, based on having sent a transaction either privately or publicly. We also investigated participants' perceptions of how cooperatively their partners would respond in an interdependent cooperative context. To create such a context, we used an ultimatum game, which is an economic game commonly used to test cooperative behaviors (Kahneman et al. 1986; Larrick and Blount 1997; Straub and Mirninghan 1995; Wallace et al. 2007).

In an ultimatum game, there are two players: a proposer and a responder. The proposer has a sum of money to divide (the total sum of which the responder is unaware), and makes an offer of money to the responder. In this study, we specified that the proposer had between \$1.00 and \$4.00 to divide, and made an offer of \$0.75. We chose this offer amount because it was ambiguous, and could represent a generous offer (if the proposer had less than \$1.50 to divide), a fair offer (if the proposer had exactly \$1.50 to divide) or an unfair offer (if the proposer had more than \$1.50 to divide). The responder could either accept or reject the offer, and the key is that both parties' outcomes are determined by this choice. If the responder accepts the offer, they receive the amount of money offered and the proposer keeps the balance. If they reject the offer, neither party receives any money.

In the study, participants read a scenario in which they imagined that they would be playing an ultimatum game with a new friend. Prior to playing the game, they imagined sending

either a private or public payment to this new friend. We expected that participants who imagined sending a payment privately (vs. publicly) would expect their new friend to infer that they had stronger communal traits, and to infer that their ultimatum game offer was relatively fair. Making a fair offer represents cooperative behavior, as it reflects incurring a cost (in the form of keeping less money) in order to encourage offer acceptance, which benefits the dyad. Expecting that their offers would be seen as relatively fair, private initiators might then be more confident that partners would accept the offer. Accepting the offer also is a cooperative behavior, as it represents acting toward a common goal that maximizes outcomes for the dyad.

Method

The design and analyses for this study are preregistered at https://aspredicted.org/blind.php?x=7FF_9F9. We recruited 222 workers on Amazon Mechanical Turk (60.4% male, $M_{\text{age}} = 37.74$, $SD = 9.22$) to participate in exchange for monetary compensation.

Participants read a description of the ultimatum game, which was presented as “The Proposer-Responder Game.” The conditions of the game were outlined and it was stated that negotiating was not allowed. Participants learned that they would be playing the role of proposer. A new friend of theirs would play the role of responder.

Next, they imagined that as they were getting ready to play the game, they remembered that they owed their friend – the same one with whom they would be playing the ultimatum game – a bit of money. Specifically, they owed the friend \$3.00 because the friend recently had paid for their coffee. Participants read, “You decide to send a Venmo payment of \$3.00 now, before you play the proposer-responder game.” As a manipulation of transaction privacy,

participants read that they had sent the payment either privately or publicly and were shown an image of the payment. The image showed either a private transaction or a public one.

Then participants read that they would now play the game, and that they, as the proposer, would offer their friend \$0.75. As a measure of expected cooperation, we asked, “How likely is your friend to accept your offer?” (1 = Extremely unlikely; 7 = Extremely likely). To measure offer fairness, we asked, “What does your friend think of your offer?” (1 = Extremely unfair; 9 = Extremely fair).

To measure perceptions of their communal traits, we asked, “Given that you sent the payment in private [public] mode, to what extent would your friend agree that you are: sincere, considerate, conscientious, agreeable, generous, and trustworthy (1 = Strongly disagree; 7 = Strongly agree). As in study 2, these items were averaged and reported as an index ($\alpha = .920$). Participants then answered the manipulation check question, “Did you send the payment to your friend publicly or privately?” (response options: publicly vs. privately), and provided demographic information.

Manipulation check

The manipulation check indicated that participants understood they had paid their friend either privately or publicly. In the private condition, 85.0% of participants chose “Privately.” In the public condition, 5.5% chose “Privately” ($\chi^2 = 141.02$; $p < .001$, Cramer’s $V = .80$).

Results

As predicted, participants in the private (vs. public) condition thought their friend would agree more strongly that they possessed communal traits ($M_{\text{private}} = 5.39$, $SD = 1.13$ vs. $M_{\text{public}} = 4.82$, $SD = 1.26$; $F(1, 219) = 12.429$, $p < .001$, $\eta_p^2 = .05$). They also thought their friend would perceive their offer as being fairer ($M_{\text{private}} = 6.16$, $SD = 2.12$ vs. $M_{\text{public}} = 5.46$, $SD = 2.24$; $F(1,$

220) = 5.74, $p = .02$, $\eta_p^2 = .03$). Private initiators did not think the friend would be more likely to accept their ultimatum game offer ($M_{\text{private}} = 5.27$, $SD = 1.48$ vs. $M_{\text{public}} = 4.95$, $SD = 1.60$; $F(1, 220) = 2.55$, $p = .11$, $\eta_p^2 = .01$).

A mediation analysis showed that metaperceptions of stronger communal traits mediated the relationship between transacting privately and stronger metaperceptions of offer fairness (indirect effect = .52, 95% CI [.22, .87]). A second mediation analysis showed that stronger metaperceptions of communal traits mediated the relationship between transacting privately and stronger expectations that the friend would accept the ultimatum game offer (indirect effect = .34, 95% CI [.15, .56]). To test our full theoretical model, we conducted a mediation analysis with private versus public payment as the independent variable (Private = 1; Public = 0), the metaperceptions of communal traits as the first mediator, offer fairness as the second mediator, and expectations that the friend would accept the ultimatum game offer as the dependent variable. The analysis revealed a significant, positive indirect effect, with a 95% confidence interval that excluded zero (indirect effect = .16, 95% CI [.06, .30], with 10,000 bootstrapped samples, PROCESS Model 6; Hayes 2017).

Discussion

Study 3 demonstrated that when consumers transact privately (vs. publicly) they expect others to view their own traits and behaviors more favorably. In particular, they intuit that choosing to transact privately strengthens partners' perceptions of their communal traits (H₁). In turn, they think partners will expect them to behave cooperatively, in this case by extending a fair offer (H₃). As a result, private initiators expect that partners will be more likely to cooperate by accepting their ultimatum game offer (H_{4c}).

One limitation of this study is that it measured participants' expectations of others' behavior rather than measuring actual behavior. To address this, our next studies operationalized cooperation through an ultimatum game (study 4) and a prisoner's dilemma (study 5). These economic games provided cooperative contexts with a high degree of interdependence, and an opportunity to measure participants' actual cooperative behaviors, which were expressed as choices within the games.

Study 4: Willingness to Cooperate in an Ultimatum Game

This preregistered experiment sought to provide evidence that partners more strongly expect private initiators to behave cooperatively, and that in turn, partners themselves become more likely to cooperate. We used a between-subjects design in which participants imagined receiving either a private or public payment from an initiator. Then, participants imagined playing an ultimatum game with this same person. In the game, participants played the role of responder and the initiator played the role of proposer. As responders, participants evaluated the fairness of the offer and made choices about whether to cooperate by accepting it.

Method

We preregistered this study (<https://aspredicted.org/blind.php?x=5mt5ka>) and recruited 200 participants on Prolific (57.1% male; $M_{age} = 32.36$; $SD = 9.59$). While all 200 participants answered the first question (“How familiar are you with Venmo?” (1 = Not at all familiar; 7 = Extremely familiar)), two did not finish the study, leaving a usable sample of 198.

Participants read the scenario that was used in study 2, in which they learned that a new friend sent a Venmo payment for half of their lunch bill either privately or publicly. Then participants answered the cooperative intentions questions from study 2: “Based on this scenario, how likely are you to pay for your friend again in the future?” (1 = Extremely unlikely; 7 = Extremely likely); and “Based on this scenario, how likely would you be to endorse (or recommend) your friend to others?” (1 = Extremely unlikely; 7 = Extremely likely).

Next participants read that they would be playing an ultimatum game with this same friend who had paid them. The game was presented as “The Proposer-Responder Game.” The conditions of the game were outlined and it was stated that negotiating was not allowed.

Then, all participants read that they had been assigned to the role of responder and their friend had been assigned to the role of proposer, receiving between \$1.00 and \$4.00 to split between the two of them. Participants rated how fair they expected the offer to be (1=Extremely unfair; 7=Extremely fair).

Next, participants read that their friend had offered them \$0.75. At this point, participants rated their likelihood of accepting the offer (1=Extremely unlikely; 7=Extremely likely), and chose one of two options: accept or reject the offer. Finally, participants answered a manipulation check question and demographic questions.

Manipulation check

A manipulation check confirmed that participants understood and remembered whether their friend had transmitted the reimbursement for lunch privately or publicly. In the private condition, 96.0% of participants selected “Privately.” In the public condition, 4.3% of participants selected “Privately” ($\chi^2 = 146.46$; $p < .001$, Cramer’s $V = .86$).

Results

We tested whether sending payment privately increases partners’ expectations that the initiator would behave cooperatively, and in turn enhances partners’ cooperation willingness in the form of offer acceptance. As predicted, participants in the private condition expected initiators’ offers to be fairer ($M_{\text{private}} = 5.94$, $SD = 1.25$ vs. $M_{\text{public}} = 5.58$, $SD = 1.24$; $F(1, 196) = 4.11$, $p = .04$, $\eta_p^2 = .02$), and indicated that they would be more likely to accept the offer ($M_{\text{private}} = 4.63$, $SD = 2.23$ vs. $M_{\text{public}} = 4.02$, $SD = 2.11$; $F(1, 196) = 3.91$, $p = .05$, $\eta_p^2 = .02$). In terms of the decision to accept or reject the offer, 68.0% of participants in the private condition chose to accept, versus 60.2% in the public condition ($\chi^2 = 1.31$; $p = .25$, Cramer’s $V = .08$).

A mediation analysis provided support for the hypothesis that stronger perceptions of cooperative behavior in the form of offer fairness mediate the relationship between paying privately and partners' greater reported likelihood of accepting the offer. The 10,000 bootstrap, 95% confidence interval excluded zero (indirect effect = .11, 95% CI [.0003, .30], PROCESS Model 4, Hayes 2017).

Finally, consistent with study 2, results showed that participants were more likely to pay for a private initiator again ($M_{\text{private}} = 6.50$, $SD = .84$ vs. $M_{\text{public}} = 5.37$, $SD = 1.69$; $F(1, 196) = 35.99$, $p < .001$, $\eta_p^2 = .16$). They also were more likely to endorse or recommend a private initiator ($M_{\text{private}} = 6.15$, $SD = .99$ vs. $M_{\text{public}} = 5.40$, $SD = 1.41$; $F(1, 196) = 18.90$, $p < .001$, $\eta_p^2 = .09$).

Discussion

This preregistered study demonstrated that the choice to transact privately versus publicly influences cooperation even in a subsequent, unrelated context: that of an ultimatum game. More specifically, this study provided support for the hypothesis that partners are more likely to cooperate with private (vs. public) initiators (H_{4a}). This is because partners expect private initiators to behave more cooperatively (i.e., by extending a fair offer; H_2), which in turn induces them to cooperate (H_{4c}). We acknowledge that on the actual choice to accept or reject the ultimatum game offer, private initiators were not significantly more likely to accept. Yet when asked how likely they would be to accept an ultimatum game offer from a new friend who had just paid them, results showed that those who received a private payment reported being more likely to accept, a finding consistent with our preregistered hypothesis.

Study 5: Willingness to Cooperate in a Prisoner's Dilemma Game

In this study, we sought to replicate the effects found in study 4 in a different context: that of a prisoner's dilemma game. The prisoner's dilemma game features an incentive-compatible design and is well established as a measure of cooperative behavior (Axelrod 1980; Axelrod and Hamilton 1981; Nowak and Sigmund 1993). In the game, participants read a scenario and choose to cooperate or defect. Choosing to defect can produce the greatest possible gains for the self, but mutual cooperation produces the best outcome for the dyad (Axelrod and Hamilton 1981). Thus, the game tests if participants are willing to incur a cost to the self (in terms of foregoing the highest possible individual gain) in order to benefit the dyad, which is consistent with the definition of cooperation (Rand and Nowak 2013). We used a version of the Prisoner's Dilemma game that involved completing a tedious task (Srna et al. 2020).

Method

We collected 192 responses from undergraduate students and eliminated those who failed a comprehension check question, leaving a usable sample of 150 participants (60.0% female; $M_{\text{age}} = 20.91$, $SD = 3.27$). They received partial course credit in exchange for participation.

Participants first read a brief description of Venmo, which stated that one part of the study would involve a scenario related to Venmo. They answered the question, "How familiar are you with Venmo?" (1 = Not at all familiar; 7 = Extremely familiar).

Next, participants were asked to imagine that they went to class one day and learned they would be working on a CAPTCHA task with a classmate. Participants viewed an example CAPTCHA, which was a seven-letter word that was visually obscured (see figure 4, adapted from Allen (2013)). They were asked to type in the letters. On the next screen, participants read

that the classmate with whom they would play was sitting in a separate room. They also read that the number of CAPTCHAs they would solve would be based on how many CAPTCHAs they were willing to solve and how many CAPTCHAs their classmate was willing to solve.

According to the scenario, there were several possible outcomes: if both people chose to complete 30 CAPTCHAs, then both would complete 30; if both people chose to complete zero CAPTCHAs, then both would complete 60; or, if one person chose to complete 30 CAPTCHAs and the other person chose to complete zero CAPTCHAs, the person who volunteered to complete 30 CAPTCHAs would complete 90, and the other person would complete zero.



Figure 4: Image of a CAPTCHA (Allen 2013)

After reading these instructions, participants completed a comprehension check question that began, “Therefore, the number of CAPTCHAs you complete is based on...” The possible responses were, “The number of CAPTCHAs you decide to complete,” “The number of CAPTCHAs your classmate decides to complete,” or “The number of CAPTCHAs both you and your classmate decide to complete.” The correct answer was “The number of CAPTCHAs both you and your classmate decide to complete.” If any participant answered incorrectly, their responses to all survey questions were removed from the dataset.

After this comprehension check question, participants learned that the classmate with whom they were paired was an acquaintance with whom they got coffees last week. They imagined that they had paid for both coffees and the classmate had reimbursed them using

Venmo. Upon reaching this question, participants were randomly assigned to either the private or public payment condition. In regard to the classmate's payment, participants in the private condition read, "They sent the payment privately, which means it was visible to only you and your classmate," and an image of a payment with a lock symbol was displayed on the screen. Participants in the public payment condition read, "They sent the payment publicly, which means it was visible to anyone on Venmo," and an image of a payment with a world symbol was displayed on the screen. To encourage participants to read the information carefully, we asked an open-ended question, "How did your classmate pay you back?"

Then, participants read, "It's time to make a choice. How many CAPTCHAs are you willing to complete?" (response options: "0 CAPTCHAs" or "30 CAPTCHAs"). Next, participants evaluated how they expected the classmate to respond by answering the question, "If you had to guess, how many CAPTCHAs will your classmate decide to complete?" (response options: "0 CAPTCHAs" or "30 CAPTCHAs"). Participants also answered a manipulation check and several demographic questions.

Manipulation check

A manipulation check verified that participants understood and recalled that their classmate had reimbursed them either privately or publicly. In the private condition, 100.0% of participants selected "Privately." In the public condition, 8.3% of participants selected "Privately" ($\chi^2 = 56.00$; $p < .001$, Cramer's $V = .91$).

Results

We tested whether transacting privately induced cooperation in the form of choosing to complete 30 CAPTCHAs. A chi-square test showed that in the private condition 71.4% of participants chose to complete 30 CAPTCHAs, compared to 57.5% in the public condition ($\chi^2 =$

3.17; $p = .08$, Cramer's $V = .15$). While this result was not significant, it was directionally aligned with our hypothesis.

Then we tested whether transacting privately increased expectations that the classmate would behave cooperatively. As predicted, a greater proportion of participants in the private condition (72.7%) than in the public condition (54.8%) expected their partners would complete 30 CAPTCHAs ($\chi^2 = 5.23$; $p = .02$, Cramer's $V = .19$).

To test whether stronger expectations of cooperative behavior among private initiators mediates the relationship between initiators' choice of private (vs. public) payment and partners' greater cooperation willingness, we conducted a mediation analysis using the lavaan package in R (Rosseel 2012). In support of H_{4c} , results showed a significant, positive indirect effect, with a confidence interval excluding zero (indirect effect = .35, 95% CI [.06, .63]).

Discussion

This study provided evidence that partners are more confident that private (vs. public) initiators will behave cooperatively in a cooperative context (H_2). In turn, partners are more likely to cooperate themselves (H_{4c}), in this case by agreeing to solve 30 CAPTCHAs.

Together, 2-5 provided evidence that choosing a private mode of payment suggests possessing stronger communal traits and being more likely to cooperate. This, in turn, makes partners more willing to cooperate themselves. Given that communal traits can encourage cooperation in others, we next turned to the question of whether people might use private versus public transactions strategically, to communicate their communal traits to others.

Study 6a: Paying to Communicate Personality Traits in the United States

The goal of study 6a was to examine whether consumers might use the choice to transact privately versus publicly to enhance others' perceptions of their communal traits. We challenged people to signal either a communal trait (i.e., that of being considerate) or another trait (i.e., that of being fun) through their transactions in a simulated P2P payment interface.

Method

We pre-registered this study (https://aspredicted.org/blind.php?x=91V_15M) and recruited 194 undergraduate students (57.7% female; $M_{\text{age}} = 21.39$; $SD = 3.953$). They received partial course credit in exchange for participation.

Participants first read a brief description of Venmo and answered the question, "How familiar are you with Venmo?" (1 = Not at all familiar; 7 = Extremely familiar). Then they read that in the next part of the study they would simulate sending a \$0.25 Venmo payment to a fellow participant. An image of the payment interface was displayed, showing the fields they would fill out. The fields were: "Amount of payment" (open-ended), "Memo" (open-ended), "Select a privacy setting" (response options: "Public (visible to anyone on Venmo)" or "Private (visible only to you and the recipient)"), and "Is this a payment, or a request for payment?" (response options: "Payment" or "Request for payment").

Then participants were randomly assigned to an objective: either to convey that they were considerate or to convey that they were fun. Participants read, "Imagine that the participant who receives your payment will rate you based on how considerate [fun] you seem. It is very important to use your payment to show them that you are considerate [fun]." Participants also read,

“To communicate how considerate [fun] you are, we strongly recommend that you use some of the features offered by Venmo:

- Choose a public or private payment setting
- Leave a note
- Use an emoji
- Or do anything else that shows you are considerate [fun].”

On the next screen, participants simulated sending the payment by completing the four fields (amount; memo; private or public; payment or request for payment). The key dependent measure was the selection of a privacy setting (private or public). They also answered the question, “How likely are you to send this payment privately, so that it is only visible to you and the recipient?” (1 = Extremely unlikely; 7 = Extremely likely).

Last, participants answered the manipulation check question, “When you sent the payment, what kind of impression were you trying to make?” (response options: considerate vs. fun). Then they continued to another, separate study in which demographic information was collected.

Manipulation check

A manipulation check confirmed that participants understood which trait they were trying to convey. In response to the question, “When you sent the payment, what kind of impression were you trying to make?”, 76.3% of those in the considerate condition selected “Considerate.” In the fun condition, 28.9% selected “Considerate” ($\chi^2 = 43.75$; $p < .001$, Cramer’s $V = .48$).

Results

As predicted, a chi-square test confirmed that the desire to convey considerateness induced private payment. Of participants in the considerate condition, 74.2% chose to pay

privately, versus 54.6% of those in the fun condition ($\chi^2 = 8.12; p < .01$, Cramer's $V = .21$). However, participants in the considerate (vs. fun) condition did not report that they would be more likely to send payment privately ($M_{\text{considerate}} = 5.81, SD = 1.77$ vs. $M_{\text{fun}} = 5.33, SD = 2.06$; $F(1, 192) = 3.10, p = .08, \eta_p^2 = .02$).

Discussion

Study 6a provided evidence that people use their choice to transact either privately or publicly to signal their own communal traits to others (H_5). When consumers are trying to communicate their own positive communal traits, such as that of being considerate, a greater portion choose to pay privately, compared when they are trying to communicate a different positive character trait such as that of being fun. While participants in the considerate (vs. fun) condition did not report that they would be more likely to send payment privately, a greater proportion did actually choose to pay privately, a result that supported our hypothesis.

One limitation of this study is that it was conducted within a population that was already familiar with the Venmo platform. In response to the question, "How familiar are you with Venmo?" (1 = Not at all familiar; 7 = Extremely familiar), the mean response was well above the midpoint, at 5.046 ($SD = 2.097$). This opened the question of whether the effect had emerged due to specific associations participants had developed while previously using the platform. For example, if participants associated public payments with friends they considered to be fun, that might have influenced them to transact publicly when trying to convey that they were fun. To help rule out this possibility, we next tested whether this effect would replicate within a population that was less familiar with the Venmo platform.

Study 6b: Paying to Communicate Personality Traits in Europe

The goal of study 6b was to again test the hypothesis that people choose privacy over disclosure when they wish to signal their communal traits to partners. We tested the hypothesis among a population that was relatively less familiar with the Venmo platform, reasoning that if the effect only emerges due to social norms or associations developed through using the Venmo platform, then it would be unlikely to emerge in this population. Yet if the effect functions independently of consumers' previous experience with the platform – which we posited that it does – then it would replicate among this population. To test this possibility, we conducted study 6b in Europe.

Method

We pre-registered this study (https://aspredicted.org/blind.php?x=BBD_PG5) and recruited 190 undergraduate students to participate in exchange for partial course credit. A total of 188 students (55.1% female; $M_{\text{age}} = 20.40$; $SD = 8.36$) completed more than one question.

Participants first read a description of Venmo, which explained the features of the app and stated that it was similar to Bizum, a payment platform commonly used in some European countries. Then they answered the question, “How familiar are you with Venmo?” (1 = Not at all familiar; 7 = Extremely familiar).

From that point, the same procedure was used as in study 6a. Participants read that they would be sending a simulated payment. They were randomly assigned to convey that they were either considerate or fun. Participants then simulated sending the payment by completing four fields (amount; memo; private or public; payment or request for payment). The choice of private or public payment served as the main dependent measure. As in study 6a, participants also

indicated how likely they would be to send payment privately (1 = Extremely unlikely; 7 = Extremely likely). Finally, participants answered the manipulation check question, “When you sent the payment, what kind of impression were you trying to make? (response options: considerate vs. fun), and provided demographic information.

Manipulation check

A manipulation check confirmed that participants understood which trait they were trying to convey. In response to the question, “When you sent the payment, what kind of impression were you trying to make?”, 76.8% of those in the considerate condition selected “Considerate.” In the fun condition, 33.3% selected “Considerate” ($\chi^2 = 35.992, p < .001$).

Results

We conducted two preregistered analyses. First, to analyze the binary dependent variable in which participants chose to send the simulated payment either privately or publicly, we used a chi-square test. Results confirmed our hypothesis, as 71.6% of participants in the considerate condition selected the private mode of payment, while 53.8% of participants in the fun condition selected the private mode of payment ($\chi^2 = 6.38; p = .01$, Cramer’s $V = .18$). Second, we conducted a one-way analysis of variance to determine whether participants in the considerate condition (vs. the fun condition) are more likely to send payment privately. Results showed that participants in the considerate condition reported being more likely to send payment privately ($M_{\text{considerate}} = 5.73, SD = 1.68$ vs. $M_{\text{fun}} = 5.08, SD = 1.98; F(1, 186) = 5.93, p = .02, \eta_p^2 = .03$). These effects emerged even though participants were relatively unfamiliar with Venmo. Compared with participants in study 6a, participants in study 6b were significantly less familiar with the platform ($M_{\text{study 6a}} = 5.05, M_{\text{study 6b}} = 2.79; F(1, 380) = 112.49, p < .001, \eta_p^2 = .23$).

Discussion

In this preregistered study, we provided evidence that people intuit the positive implications of keeping co-owned information private, even when they are using a platform with which they are not familiar. Consistent with study 6a, this study demonstrated that consumers are more likely to select a private mode of transacting when wish to convey their own communal traits versus other positive, non-communal traits (H_5). Yet, one limitation of studies 6a and 6b is that participants transmitted a simulated payment in a lab environment. To augment ecological validity, we conducted study 6c, which was an observational, quasi-field study in which participants transmitted actual payments on Venmo.

Study 6c: Communicating Personality Traits through Real Payments

Study 6c again tested whether consumers are more likely to transmit a real payment privately when they are trying to convey a communal trait versus another personality trait. In this observational quasi-field study, participants sent a real monetary payment. Then they reported which trait they were most trying to convey (i.e., that of being considerate, or that of being fun) and how they chose to pay (i.e., privately or publicly).

Method

Following the G*Power analyses of the results from study 1, which indicated that 80 participants would be needed to detect even a large effect, we aimed to recruit a minimum of 80 participants. Yet, due to limited participant availability we were only able to recruit 60 undergraduate students (60.0% female; $M_{\text{age}} = 22.39$; $SD = 5.15$). Those students participated in exchange for monetary compensation of \$5.00.

The survey was conducted in three parts. In part one, participants provided their Venmo handle. In part two, participants were sent a \$0.25 Venmo payment. To maintain participant confidentiality, these payments were sent to participants privately, so that each payment was visible only to the principal investigator and the participant. In the payment's "What's it for" memo line, they received a message saying "Here is \$0.25 and part 2 of the Venmo Study. Please click the link now" (a hyperlink was included).

When participants clicked the link, they were directed to a Qualtrics survey. In it, they read that they would be sending a Venmo payment of \$0.25 to a fellow participant. In the next screen, participants viewed the Venmo handle of the fellow participant (a confederate), were instructed to send payment to this person, and confirmed once they had sent the \$0.25.

In part three, participants were sent a Venmo payment of \$0.25. This payment represented a portion of their total compensation and, importantly, enabled us to distribute the link to the third and final survey. Participants clicked the link within the payment, and began the survey. In it, we reminded them of the Venmo payment they had sent in part two. We asked, “When you sent the payment, what kind of impression were you trying to make?” and provided the response options of considerate versus fun. Then, participants indicated whether they had sent the payment privately or publicly. Finally, participants answered demographic questions.

Results

A chi-square test showed that participants who wanted to convey considerateness were more likely to send a private payment. Of the participants who selected “Considerate,” 82.6% sent payment privately, and of the participants who selected “Fun,” 52.8% sent the payment privately ($\chi^2 = 5.45$; $p = .02$, Cramer’s $V = .30$).

Discussion

Study 6c obtained evidence, using real payment behavior, that consumers when wish to convey their own communal traits, such as that of being considerate, they are more likely to conduct transactions privately (H_5). When they are trying to communicate a different character trait such as that of being fun, they are less likely to select a private mode of transacting.

General Discussion and Conclusion

General Discussion

Online platforms present consumers with a novel possibility: that of interacting either privately or publicly with others. When consumers choose between transacting privately or publicly, their decision influences partners' privacy and ability to decide between privacy and disclosure in the future. We proposed that choosing privacy over disclosure represents a socially mindful behavior that signals information about the self, informs partners' inferences of one's traits, and influences partners' willingness to cooperate, even in a subsequent, unrelated context. This is important knowledge for consumers to have as they face decisions about making their interactions with others private or public.

We used an ecologically valid testing context, P2P payment platforms, to demonstrate that there are interpersonal benefits associated with choosing to transact privately. Money, when it comes to personal finances, is a sensitive topic that consumers avoid discussing (Sun and Slepian 2020). We have theorized that choosing to keep transactions private reflects interpersonal sensitivity, which is suggestive of communal motives. As a result, choosing to transact privately drives inferences of possessing stronger communal traits (studies 2 and 3). It enhances partners' cooperative intentions (studies 1 and 2) and actual cooperative behavior in an ultimatum game (study 4) or prisoner's dilemma game (study 5). Greater cooperation willingness is mediated by the perception that private initiators possess relatively stronger communal traits (studies 2 and 3), and are more likely to act cooperatively by making a fair offer (studies 3 and 4) or volunteering to complete a tedious task (study 5).

Choosing to transact privately (vs. publicly) also has signaling capabilities. Studies 6a-c showed that consumers are more likely to choose privacy over disclosure when they want to communicate their own communal traits (e.g., considerateness) versus when they want to communicate other traits (e.g., that of being fun). What is more, consumers may choose privacy over disclosure strategically, to encourage cooperation in others. Study 3 supported this notion, demonstrating that consumers who had transacted privately expected greater cooperation in an ultimatum game from their partners. We found support for these hypotheses in the United States and Europe, and in adult and student populations alike, suggesting that these effects are generalizable. The effects emerge within existing relationships (e.g., a classmate) and with new acquaintances.

Theoretical contributions

Choosing privacy as a socially mindful behavior. We conceptualized the choice between transacting privately and publicly as a socially mindful behavior, and in so doing introduce the construct of social mindfulness to the literature on consumer behavior. Social mindfulness is about being thoughtful of others and making decisions that are considerate of their needs and wishes (Van Lange and Van Doesum 2015). We posited that choosing to transact privately represents a socially mindful behavior, as it preserves partners' future ability to decide whether or not to disclose transaction details in the future. In addition, we provided evidence that demonstrating social mindfulness has important interpersonal benefits. It suggests having stronger communal traits, drives expectations of behaving cooperatively, and induces cooperation in others.

Signaling. We extend the literature on signaling theory by identifying a behavior consumers can use to communicate owning strong communal traits. Past research has identified how consumers signal status (Dubois et al. 2012), competence (Bellezza et al. 2014), and motivation (Cheng et al. 2020). We contribute to this growing body of literature by showing that choosing to transact privately rather than publicly informs others' inferences and can be used intentionally to communicate information about the self. Because the impression one makes can influence others' subsequent social behaviors, including cooperation (De Bruin and Van Lange 1999), there is value in knowing how consumers can successfully convey their positive traits to others.

Behavior on online platforms. Online platforms provide consumers with new possibilities, such as the option to create an enduring record of their transactions. With these new possibilities come novel choices, such as that of making one's transactions private or public. It is important for consumers to understand the downstream implications of these choices. Past research has demonstrated that consumer behavior enabled by online platforms can have negative consequences which consumers do not always anticipate. For example, the ability to share photos temporarily induces disinhibited photo-taking, which signals having poor judgment (Hofstetter et al. 2017), and the ability to send exact payments suggests having a transactional view toward the relationship (Alberhasky and Kumar 2021; Kim, Zhang and Norton 2018).

In contrast, the present research identifies an effective way for consumers to signal positive information about the self. By choosing private modes of transaction, consumers can communicate that they possess stronger communal traits. While we investigated the alternative possibility that transacting publicly might signal possessing negative traits, results did not support that proposition. In sum, these findings support the view that transacting privately

confers interpersonal benefits, rather than the view that transacting publicly causes interpersonal harm or detriment.

Limitations and Future Research

In this work, we have examined how partners respond when initiators send payments of money either privately or publicly. It remains unclear whether the downstream effects of choosing private versus public transactions are driven only when payments are sent, or if they also would emerge when payments are requested. It also remains to be investigated whether choosing to receive (vs. choosing to send) payments privately versus publicly would have a different influence on partners' interpersonal perceptions and behaviors.

At present, we have limited our focus to financial transactions, which we consider private, given consumers' tendency to avoid discussing matters related to personal finances (Sun and Slepian 2020). Yet even a single transaction contains several pieces of information which might be considered private. For example, the time and date of the transaction, the purpose of the transaction, the amount of the transaction, and the identity of the partners all could play a role in influencing whether consumers wish to transact privately or publicly. One limitation of the present study is that the manipulations implied that the two transaction partners had spent time together. While we have posited that people are sensitive to having their transactions displayed publicly because transactions involve *money*, we cannot rule out the possibility that the desire to keep transactions private instead stems from an implied expenditure of time. Future research could isolate expenditures of money versus time, to better understand if one more powerfully drives consumers' positive views toward private versus public interaction modes.

There are additional aspects of P2P payment systems that also could be examined in future research. For example, researchers could investigate how other behaviors, such as choosing to use a profile picture or not, influence partners' perceptions of and behaviors toward initiators. Alternatively, future research could examine questions related to consumers' feelings of connectedness to a P2P payment system. Emerging research suggests that consumers' connection to financial vehicles can influence purchase experiences (Valenzuela et al. 2021). Perhaps feelings of connectedness also could influence how consumers interpret others' behaviors on P2P payment platforms, or affect their own propensity to enact certain behaviors, such as transacting privately or publicly.

In the present studies, cooperation was studied in the context of economic games, leaving open the question of how transacting privately or publicly impacts real cooperative behavior in the home, workplace, or marketplace. It is also unknown how the act of transacting privately or publicly on multiple occasions might influence the inferences made about initiators, or their partners' willingness to cooperate. Emerging research has documented that repeated (vs. one-time) behaviors can distinctly impact others' impressions (Valesia and Diehl 2021), suggesting this may be an aspect of private versus public transactions that merits examination.

Finally, the current research investigated research between consumers, but in some cases, businesses also utilize P2P payment platforms and can transmit payments to consumers (e.g., cash back rewards). While past research has examined the inferences consumers make when business adopt P2P payment platforms (Huang et al. 2020), future research could examine the inferences consumers form when businesses choose to transact privately or publicly.

Practical contributions

P2P payment platforms are used by millions of consumers (Rudegear 2019) and every quarter enable transactions totaling in the billions of dollars (de Best 2021). These numbers point to the growing prevalence of P2P payment apps. Although they are commonly used, consumers have had little information on how their behaviors on P2P payment platforms might impact their interpersonal relationships. We sought to provide clarity on this topic by demonstrating the downstream interpersonal implications of their transaction-related decisions. Consumers, once equipped with a better understanding of how others view and respond to their behaviors on P2P payment platforms, might be able to make better-informed decisions.

Our work also has managerial implications. As of now, Venmo sets the default payment privacy setting to public (Elliot 2018). Consequently, if users begin to use the platform without changing the default setting, their payments will be sent publicly and may be visible to anyone on Venmo. The present work suggests that using the default method of transacting can negatively impact the very social relationships that Venmo serves. Thus, the finding that choosing to transact privately enhances partners' willingness to cooperate is one that P2P payment platforms, and the people who manage them, may be interested to know. In addition, providing consumer services that encourage consumers to interact privately may represent an opportunity for business managers to gain a competitive advantage over companies that encourage more public modes of interacting.

Conclusion

Online, consumers commonly face decisions about whether to keep private or disclose their interactions with other consumers. We suggest that it may be beneficial to choose privacy over disclosure, especially when money is involved. Choosing to transact privately represents a

socially mindful behavior that signals possessing stronger communal traits. Partners expect private initiators to behave more cooperatively and, in turn, become more willing to cooperate themselves. On P2P payment platforms, transacting publicly may appear to be the norm – but to signal positive interpersonal traits and encourage cooperation in others, private transactions work best.

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