

## Paying More When Paying for Others

Minah H. Jung and Leif D. Nelson  
University of California, Berkeley

Ayelet Gneezy and Uri Gneezy  
University of California, San Diego

Social behavior is heavily influenced by the perception of the behaviors of others. We considered how perceptions (and misperceptions) of kindness can increase generosity in economic transactions. We investigated how these perceptions can alter behavior in a novel real-life situation that pitted kindness against selfishness. That situation, *consumer elective pricing*, is defined by an economic transaction allowing people to purchase goods or services for any price (including zero). Field and lab experiments compared how people behave in 2 financially identical circumstances: pay-what-you-want (in which people are ostensibly paying for themselves) and pay-it-forward (in which people are ostensibly paying on behalf of someone else). In 4 field experiments, people paid more under pay-it-forward than pay-what-you-want (Studies 1–4). Four subsequent lab studies assessed whether the salience of others explains the increased payments (Study 5), whether ability to justify lowered payments (Study 6), and whether the manipulation was operating through changing the perceptions of others (Studies 7 and 8). When people rely on ambiguous perceptions, pay-it-forward leads to overestimating the kindness of others and a corresponding increase in personal payment. When those perceptions are replaced with explicit descriptive norms (i.e., others' payment amounts), that effect is eliminated. Finally, subsequent studies confirmed that the effects were not driven by participant confusion (Studies 9A and 9B) and not limited by the specificity of the referent other in the pay-it-forward framing (Study 9C).

**Keywords:** altruism, social preferences, pay what you want, social norms, pluralistic ignorance

**Supplemental materials:** <http://dx.doi.org/10.1037/a0037345.supp>

People are self-interested, but they can also be surprisingly generous toward others. As economists and psychologists note, even in environments that promote material self-interest, people are frequently kinder than purely self-interested, conforming to the norms of fairness and reciprocity (Andreoni & Miller, 2002; Char-ness & Rabin, 2005; Falk & Fischbacher, 2006; Fehr & Schmidt, 1999; Rabin, 1993). While people look to social norms to guide their behavior, social norms can be often ambiguous in unfamiliar or uncertain social contexts. In these situations, individuals' beliefs about the behavior of others could be influential (Cialdini, Kallgren, & Reno, 1991; Cialdini & Trost, 1998; Sherif, 1936). The

present research considers how social forces can increase kindness by influencing the perceptions of others. In particular, we investigated how implicit information about others' generous behavior influences the level of generosity. Our findings operate in a relatively narrow domain (consumer elective pricing), but as we identify throughout the article, this domain offers opportunities to capture changes in kindness despite meaningful financial incentives pushing in the opposite direction.

People look to the behavior of others to decide how to behave themselves. They use others to learn about the relevant social norms (Cialdini et al., 2006; Cialdini, Reno, & Kallgren, 1990; Goldstein, Cialdini, & Griskevicius, 2008). Social norms are defined as the "rules and standards that are understood by members of a group, and that guide and/or constrain social behaviors without the force of laws" (Cialdini & Trost, 1998). Although a single situation may be guided by different norms, people follow those focal in their attention (Reno, Cialdini, & Kallgren, 1993). The simplest of norms are descriptive norms, which contain information about the behavior of others (Cialdini & Trost, 1998). Descriptive norms simplify social decision making by indicating justifiable course of action even under powerful uncertainty (Deutsch & Gerard, 1955; Sherif, 1936; Tesser, Campbell, & Mickler, 1983). Accordingly, when descriptive norms are made explicit, they can be very influential. People litter more in a littered environment presumably because they have learned that other people are littering (Cialdini et al., 1990; Keizer, Lindenberg, & Steg, 2008), and they hang their towels up more often when they find that other guests are hanging up their towels too (Goldstein et al., 2008). Beliefs about others influence how we decide to behave ourselves.

---

Minah H. Jung and Leif D. Nelson, Haas School of Business, University of California, Berkeley; Ayelet Gneezy and Uri Gneezy, Rady School of Management, University of California, San Diego.

The first author is supported by the National Science Foundation (NSF) Graduate Research Fellowship and the Greater Good Dissertation Fellowship. The second author was supported by the Barbara and Gerson Bakar Faculty Fellowship. Both of those authors were supported by a grant from the Garwood Center for Corporate Innovation. The project was supported by NSF Grant SES-1124610. The authors want to thank Silva Kurtisa of the Haas Behavioral Lab, Summerlea Kashar of the Cartoon Art Museum, Ola Robert Hassan of Ola's Corner, Nipun Mehta of Karma Kitchen, and undergraduate research apprentices of the Science of Giving and Appreciating Lab for their persistent and kind support.

Correspondence concerning this article should be addressed to Minah H. Jung, Haas School of Business, University of California, Berkeley, 545 Student Services Building #1900, Berkeley, CA 94720-1900. E-mail: [minah\\_jung@haas.berkeley.edu](mailto:minah_jung@haas.berkeley.edu)

People are also influenced by their interpretations of others' behavior, but that means that they may be vulnerable to their own misinterpretations. Pluralistic ignorance is one way in which people misunderstand social norms. People see a common or consensus behavior in others and infer an underlying social norm, but sometimes that inference is inaccurate. Under pluralistic ignorance, everyone might behave similarly, but an observer believes that the observed are doing so out of adherence to a different norm (Miller & McFarland, 1987). Accordingly, people follow the behaviors of others even when they falsely perceive their own attitudes and judgments to be quite different (Allport, 1924; Prentice & Miller, 1993).

With such a potential misperception in mind, we asked, How does social perception influence personal prosocial behavior? Do people correctly estimate the level of others' generosity (or selfishness) in economic exchanges? A small number of studies have investigated people's perceptions of others' prosocial behaviors in contexts where their pure self-interest motive is relevant and salient. Some studies have suggested that people overestimate underlying self-interest, for example, inferring that others donate blood for financial incentives (Miller & Ratner, 1998). Other studies started with a similar bias ("Other people are more selfish than I am") but revealed error in self-perception: the observers were just as selfish as the people they observed (Epley & Dunning, 2000). When it comes to prosocial spending, people think that others are less likely to spend and choose to spend less.

When the prosocial trappings are stripped away, people spontaneously judge others to be much more willing to part ways with their money. When estimating how much others would be willing to pay for goods, people consistently believe that others would pay more (Frederick, 2012). In combination with these observations, we can see that there are substantial misperceptions of others, but the direction of that misperception is substantially guided by context. In this article, we consider behavior in a context that is somewhat prosocial and somewhat commercial. As we demonstrate, that combination allows for a mixture of misperception and social influence that prompts more generous behavior.

### Consumer Elective Pricing: Pay-What-You-Want and Pay-it-Forward

The context for our investigation was consumer elective pricing. Consumer elective pricing, as we defined it here, is any commercial transaction in which the buyer can pay any price for a good or service. Consumer elective pricing offers an opportunity to test the extent to which people deviate from pure self-interest in transactions that are both commercial and social. Maximizing immediate self-interest would move people to pay zero, whereas considering others' welfare (e.g., sellers) would push them to pay more. Furthermore, consumer elective pricing provides a conservative setting for evaluating generous behaviors because such behaviors necessarily come at directly measurable personal costs (i.e., they are incentive compatible).

The most well-documented form of consumer elective pricing is pay-what-you-want (PWYW) pricing. PWYW has received much popular and academic attention. A precipitating event came in the release of (British popular music artist) Radiohead's album *In Rainbows* in 2007. The band released the album as a pay-what-you-want download and was rewarded with one of their most frequently purchased albums. Since Radiohead's PWYW album made headlines, more independent musicians (e.g., Girl Talk,

Amanda Palmer) are adopting PWYW. But the applicability of PWYW goes beyond the marginal or "creative" market territory. For instance, Panera, a large restaurant chain, also opened PWYW cafes for soups and sandwiches. HumbleBundle attracts millions of customers, sells many categories of products (e.g., video games, digital music, and e-books), and is hugely profitable with a PWYW pricing set-up. Even if most customers are self-interested, there is enough social kindness left over to sustain company profitability.

Some studies have investigated this surprisingly generous behavior (e.g., Kim, Natter, & Spann, 2009; Mak, Zwick, & Rao, 2010; Regner & Barria, 2009; Regner & Riener, 2012; Schmidt, Spann, & Zeithammer, 2012). Such generous behavior is particularly surprising given that it involves explicitly financial exchanges that otherwise increase selfishness (Vohs, Mead, & Goode, 2006). PWYW transactions invoke concerns of reciprocity and fairness (e.g., Kim et al., 2009), suggesting that people feel obligated to pay, even when offered an opportunity not to do so. An important motive for buyers is maintaining or burnishing their self-image and self-identity in making decisions about whether to buy and how much to pay (Gneezy, Gneezy, Nelson, & Brown, 2010; Gneezy, Gneezy, Riener, & Nelson, 2012). The latter set of studies showed that self-image concerns can push people to pay more, but it may also make them less likely to buy so as to avoid the scrutiny of the situation altogether.

In these situations, how are people influenced by their beliefs about the behaviors of others? PWYW transactions are direct exchanges between a buyer and a seller, invoking concerns of reciprocity and fairness. Because the "appropriate" price is often inherently ambiguous, a useful point of reference might be to know what others pay. When that information is not available (as it most often is not), people make guesses. Do those guesses change when different norms are highlighted, as in the case we investigated, when payments are implicitly linked with the behavior of other customers, not just with that of the seller? Because descriptive norms can influence prosocial behaviors (e.g., Goldstein et al., 2008), if people judge others to be generous, that descriptive norm may induce more generosity.

We find such a framing manipulation in a close cousin of PWYW: Pay-it-forward. Under pay-it-forward (PIF) pricing, people are still given the opportunity to electively choose any price they want (including zero), but the payment is treated differently. Customers are told that their product has been paid for by a previous customer and that their payment will be on behalf of someone else who comes later. PIF is less common than PWYW, but it does exist. To give one example, diners at Seva Café, a restaurant in Ahmedabad, India, are told that a previous guest paid for their meal as a gift, and they have a chance to make a similar gift for a future guest. Another related example is a movement of "suspended coffee" cafes in various European cities. At these coffee shops, people can choose to pay for two (or more) cups of coffee, one for themselves and the other, "suspended" cup for anyone who wants it (Poggioli, 2013).

From the perspective of the seller, PIF pricing is financially identical to PWYW pricing: all customers receive a good and choose the price they want to pay, and all of that payment goes to the seller. However, a PIF framing transforms the direct reciprocal relationship between the buyer and seller under PWYW pricing to a symbolically social relationship with other customers: the re-

ceiver and giver of a gift. In this way, the direct exchange with the seller also takes on a symbolic social exchange.

In this research, we compared behaviors under the two forms of consumer elective pricing: PWYW and PIF. We expected that the forces influencing PWYW behavior would also influence PIF behavior. People would seek to be fair to sellers and reciprocate their efforts and to maximize their self-image and social image. Under PIF, despite facing an identical financial bottom line, those same forces might change qualitatively or quantitatively.

### How Do Others' Behavior Influence Payments in Consumer Elective Pricing?

Although, as we describe later, our research was guided by an effort to consider (and discard) alternative explanations, our core prediction relied on the findings described earlier. PIF, by dint of its definition and implementation, encourages people to think about the payments of others. Furthermore, because part of consumer elective pricing is *commercial*, people think that others are paying a lot (Frederick, 2012). However, because part of consumer elective pricing is *social*, people are especially guided by the norms of others. In combination, these forces could potentially combine to lead people to increase payments under PIF relative to PWYW. Our first four studies demonstrate that relationship in field experiments.

We then present and test four possible explanations for why people might pay more under PIF than PWYW: *salience of others*, *differential weights for reciprocity and generosity*, *payment as justification*, and *generosity matching*. Each of these accounts is further detailed in the section after our report of the four field studies (Studies 1–4), but here we briefly describe these mechanisms.

Our first account, *salience of others*, predicts that people are more generous under PIF than PWYW because the PIF framing makes others more salient and present than the PWYW framing. This explicit reference to other customers may increase the pressure to reciprocate or look generous. The account involving *differential weights for reciprocity and generosity* predicts that people pay more under PIF than PWYW because they might be basing their payment on the opportunity to be generous rather than on social pressures of having to reciprocate the action of the seller. Our third account, *payment as justification*, is that people pay because they feel that they need to justify their payments more under PIF. Last, *generosity matching* predicts that people perceive a higher level of generosity in others under PIF than PWYW and pay more to match their perception of others. We tested whether one or more of these accounts explain why people pay more under PIF than PWYW in Studies 5–8.

Consumer elective pricing provides a rich setting for evaluating generous behaviors because they can be tested both in the lab and the field. While lab experimentation is useful for testing the psychological variables in a controlled setting, it provides an abstract environment, for which behavior may systematically differ from behaviors in the field (Cialdini, 2009). Accordingly, we used field experiments to identify the phenomenon we were investigating and followed up with lab experiments to better understand the psychology of the phenomenon.

### The Overall Plan of the Studies

The article is roughly divided into two portions. The first goes to lengths to establish the reliability and generalizability of our primary prediction that people will pay more under PIF than under PWYW. We conducted an initial field experiment with a museum, randomly assigning visitors to receive either a PWYW or a PIF message (Study 1). We then conducted nearly exact replications at the same field setting, confirming customers' understanding of the pricing (Study 2) and the financial interpretation of the results (Study 3). We then moved to a different field setting (a gourmet coffee vendor) to test whether the effect could generalize to a very different setting (Study 4).

The second part of the article reports our efforts to understand why people pay more under PIF. We developed a laboratory paradigm in which actual goods were exchanged for actual payments and that also allowed us to manipulate psychologically meaningful moderators and observe their influence. We tested how participants' payments were influenced by the identifiability of the giver and receiver (Study 5), the ability to communicate with the next participant (Study 6), and knowledge about the behavior of the previous participant (Studies 7 and 8). A final study includes three additional experiments in which people predicted their own behavior or the behavior of others under different articulations of the central manipulations (Experiments 9a–9c). These experiments helped us to rule out some plausible confounds and provide some additional insight into the generality of the basic relationship.

### Study 1: A Field Experiment in Museum Admission Payment

#### Method

We conducted a field experiment at the Cartoon Art Museum (CAM) in San Francisco. The CAM showcases 6,000 pieces of original cartoon and animation art, is located in a central part of the city, and charges approximately \$7 on regular admission days. It has been hosting a Pay-What-You-Wish Tuesday on the first Tuesday of every month for more than 10 years. Groups of participants ( $N = 151$  groups) in this study were the individuals who visited the museum on the first Tuesdays of September and October in 2011 from 11 a.m. to 4:30 p.m. We predetermined the 2-month window and did not analyze any data until the completion of the experiment. For this study, and all that follow, we report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study (Simmons, Nelson, & Simonsohn, 2011).

During the experiment, our team of experimenters functionally took over the staffing of the museum. As we detail later, they handled the random assignment, presented the manipulated payment request, administered all transactions, and recorded responses.

All visitors were assigned to one of two conditions. Participants in the PWYW condition were told

Today is a Pay-What-You-Wish Day. You can pay what you want for your admission. How much would you like to pay?

We used "Pay-What-You-Wish Day" instead of "Pay-What-You-Want Day" because that is the term the museum has typically been



using in its promotional materials. Participants in the PIF conditions were told

Today is a Pay-What-You-Wish Day. A visitor who came earlier paid for your admission. Since you are paid for, you now have a chance to pay forward the admission for another person who will come later today. How much would you like to pay forward for another person's admission?

The research assistant at the reception desk greeted visitors as they entered the museum and delivered the manipulation. When people arrived in groups (58% of the time), everyone in the group was assigned to the same condition. Conditional assignment was determined as follows. The first group of the day was randomly assigned to one of the two conditions. We then alternated after every 10 groups of visitors. This was occasionally extended to 11 or 12 consecutive groups if the groups were immediately adjacent in line because we did not want to risk contamination across conditions. Visitors trickled in throughout the day, so this was a rare occurrence. We had three large groups that consisted of more than 10 people per group. They were 36 children from a local school, 11 people from a nonprofit organization for the mentally disabled, and 17 people from a halfway house. We did not communicate with each individual in these groups but gave our pricing manipulation to the group leaders who did not share this information with their group members. The analysis we report here included these people, but excluding these groups changes neither the direction nor the statistical significance of the effect.<sup>1</sup>

**Data analysis strategy.** We recorded each participant's payment amount, the time he or she entered the museum, the number of people in a group, and immediately obvious demographic information (i.e., the gender composition of the group, and their approximate ages and ethnic backgrounds).<sup>2</sup> We predicted that people would pay more under PIF pricing than under PWYW pricing.

The correct specification of the analysis was not immediately obvious. People frequently come in groups, so group-level analysis seemed appropriate. Of course, not all groups are of the same size, and group size could (and does) have a substantial influence on payment amounts. Basically, bigger groups paid more than smaller groups since more people were gaining admission. Group size also could (and does) have a perverse effect akin to social loafing (Freeman, Walker, Borden, & Latané, 1975; Lynn & Grassman, 1990; Seiter & Weger, 2010); as groups get larger there is a bit more anonymity and a little more selfishness. These concerns suggest that the size of the group should be accounted for in the analysis. However, some groups were composed of individuals who each chose to pay separately (and whose payments were independent of each other), and some groups submitted one payment, but only after each person made an individual contribution to the person directly paying the receptionist. These suggest that an individual-level analysis might be reasonable.

We decided to focus on the following specification: payment-per-person, with the group as the unit of analysis. Accordingly, that is the analysis we report in text for this study and the subsequent field studies. Nevertheless, because that decision is at least somewhat arbitrary, Table S1.2 in the online supplemental materials reports the results of the alternative specifications. As that table reveals, the specification influences both the size and the statistical significance of the effects. Nevertheless, regardless of the specification, the findings remain supportive of the central hypothesis.

## Results and Discussion

Groups paid more under PIF than they did under PWYW ( $M = \$2.67$  per person vs.  $\$1.82$  per person),  $F(1, 149) = 4.74, p = .031$ . For alternative specifications of the analysis, see Table S1.2 in the online supplemental materials.

Despite extremely similar wording and identical financial implications, people paid more under PIF than under PWYW. Although consistent with our prediction, we wanted to see if the pattern of results would replicate. Furthermore, when discussing this finding with colleagues some months later, someone raised the possibility that our participants might have simply misunderstood the payment description.<sup>3</sup> Specifically, it may have been the case that people paid more under PIF simply because they inferred that previous visitors had paid a full regular admission price of \$7. We therefore rephrased our manipulation to eliminate this ambiguity and replicated the experiment in Study 2.

### Study 2: A Second Field Experiment in Museum Admission Payment

We sought to make Study 2 to be a nearly perfect replication of Study 1 with a small adjustment in the wording of the pricing manipulation.

#### Method

We conducted an experiment on one PWYW day on June 5, 2012, at CAM. The museum receives considerably higher traffic in the summer months. Accordingly, we estimated that a single day would be enough for data collection. The procedure was the same as in Study 1 except for the following: To make sure participants understood that *all* visitors ( $N = 152$  groups consisting of 372 individual visitors)<sup>4</sup> paid what they wanted for admission, we specifically explained that to everyone. We told participants in the PWYW condition

Today is a Pay-What-You-Wish Day so all visitors will be admitted regardless of how much they pay. Today, all visitors, including you, can pay any price they want for their own admission. How much do you want to pay?

Participants in the PIF condition were told

Today is a Pay-What-You-Wish Day so all visitors will be admitted regardless of how much they pay. Today all visitors, including you, can pay any price they want for the admission of someone who comes later today. But your admission has already been paid for by someone who came earlier, and you have a chance to pay for someone else who

<sup>1</sup> The results after excluding these cases:  $M_{PIF} = \$2.73$  vs.  $M_{PWYW} = \$1.84$ ;  $F(1, 146) = 5.73, p = .025$ .

<sup>2</sup> Although we collected this demographic information, we never seriously considered it. In general, women paid slightly more than men (in Studies 1, 2, 4, and 6) and older people paid more than younger people (in Studies 1, 2, and 3). Because those factors were not systematically linked to conditional assignment, none influenced the operation of the manipulation. Those variables are visible in the available data sets.

<sup>3</sup> Thanks, Clayton Critcher.

<sup>4</sup> One student group ( $n = 18$ ) came with their teacher as part of a class trip. Another group ( $n = 5$ ) had a prepaid "Go Card" which guaranteed free admission to all museums. Neither group received either version of the manipulation, and hence neither could be included in the analysis.

will come later. How much do you want to pay?

We recorded the same information as in Study 1.

## Results and Discussion

Consistent with the results of Study 1, participants paid significantly more under PIF. That is, even when people were specifically told that all visitors paid what they wanted for admission, they still paid more under PIF than PWYW ( $M = \$3.07$  per person vs.  $\$2.19$  per person),  $F(1, 150) = 5.33$ ,  $p = .022$ .<sup>5</sup> Table S1.2 in the online supplemental materials reports alternative specifications of the analysis.

### Study 3: A Third Field Experiment in Museum Admission Payment (and a Test of Cannibalization From Other Purchasing)

We had two goals for Study 3. First, we sought an additional replication of the results from Studies 1 and 2. Second, we wanted to examine, and possibly rule out, a potential downstream consequence of our effects. In simplified form, the museum has two sources of revenue: admission payments and purchases from the museum store. If people pay more for admission, will they pay less when they visit the gift shop later?

## Method

We conducted Study 3 on four different PWYW days at CAM from November 2012 to February 2013. We gathered this larger sample so that we might have at least tolerable power for looking at variation in store purchases. The procedure is the same as in Study 1 except that this time all visitors ( $N = 304$ ) were given a colored sticker and asked to put it on their shirt before they entered the museum. Visitors in the PWYW condition received a green sticker and those in the PIF condition received a blue sticker. As in the previous studies, we recorded their payments for admission (as well as group size) at the front desk. Additionally, in the museum store, a research assistant who was blind to the conditional assignment recorded the purchased items, the total receipt, and the sticker color of all customers.

## Results

Replicating the previous two experiments, people paid more under PIF than PWYW ( $M = \$3.59$  per person vs.  $\$2.64$  per person),  $F(1, 302) = 10.33$ ,  $p = .001$ . There was no evidence that our manipulation cannibalized from overall revenue, however. The PIF visitors made similarly sized purchases as those in the PWYW condition ( $M_{PIF} = \$20.64$  vs.  $M_{PWYW} = \$14.83$ ),  $t(50) = 1.14$ ,  $p = .253$ . The number of people purchasing in the PWYW relative to the PIF condition did not differ,  $\chi^2 = 1.45$ ,  $p = .23$ . The combination of these factors (a slight increase in purchase likelihood from one group and a slight increase in purchase amount from the other) meant that total revenue was very similar in the two conditions.

The three field experiments at CAM provide robust evidence that people pay more under PIF than PWYW. Of course, replicable does not mean generalizable. We cannot speak to every possible application of PIF pricing, but in our next study, we wanted to at

least investigate that it could work in a fairly different setting. One particular concern related to generalizability is that museum admissions might be peculiar. Museums are nonprofits, so payments might already feel more like donations—a feeling that might be intensified under PIF. Furthermore, museums fairly clearly have almost zero variable costs; if a museum admits four people or 400 people, the costs are almost unchanged. Accordingly, a single individual could reasonably infer that he or she personally is costless to serve, thereby plausibly becoming unusually sensitive to the manipulation. We conducted a fourth field experiment to test whether our findings would replicate with a for-profit company.

### Study 4: A Field Experiment With a Gourmet Coffee Vendor

We sought a business collaborator with all of the following features. It sold a product that had clear unit costs. It was clearly a for-profit company. It served a different population than that served by the first three studies (who were primarily residents of and visitors to the city of San Francisco). We also wanted to find a company for which elective pricing might be plausibly profitable because of small costs and relatively frequent purchases (e.g., we did not approach any Maserati dealerships).

## Method

“Ola’s Corner,” a gourmet coffee vendor in the Bay Area, specializes in rare African coffees and, among a few other locations, operates coffee stands at local farmers’ markets. We sold cups of Ola’s coffee at a farmers’ market in Jack London Square in Oakland, California. As with Studies 1 and 2, we used the existing infrastructure (i.e., the tent, signs, and carafes) that Dr. Ola regularly used but completely replaced the staff with research assistants. Participating groups ( $N = 132$  groups) in this study were the people who bought coffee on two subsequent Sundays in April 2012 approximately from 8:30 a.m. to 2:30 p.m. We predetermined the two Sundays and did not analyze any data until the completion of the experiment. We asked customers who approached the counter for a cup of coffee to either pay what they wanted for a cup of coffee or pay-it-forward to another customer. Participants in the PWYW condition were told, “Today, you can pay what you want for a cup of coffee. How much would you like to pay?” In the PIF condition, they were told

Today, you can pay what you want for a cup of coffee. A person who came earlier has paid for your coffee. Now that your coffee’s been paid for, you have a chance to pay it forward to a person who will come later. How much would you like to pay forward?

Similar to the previous studies, we recorded each customer’s payment, the time of the transaction, the group size, the number of cups purchased (which differ in the event that a group approaches the counter, but only some people buy coffee), and immediately

<sup>5</sup> People paid more, in both conditions, in Study 2 than in Study 1. Though it is possible that our clarified wording had this effect, it seems just as likely that it is a seasonality effect. Perhaps people simply pay more in the springtime?

Table 1  
Studies 1, 2, 3, and 4: Payment Per Person in Group (Sample Size; Standard Deviation)

Study	Pay-what-you-want	Pay-it-forward	<i>t</i> tests, <i>p</i> value
1	\$1.89 ( <i>n</i> = 74; 2.03)	\$2.67 ( <i>n</i> = 77; 2.69)	<i>t</i> (149) = 2.18, <i>p</i> = .031
2	\$2.19 ( <i>n</i> = 77; 2.05)	\$3.07 ( <i>n</i> = 75; 2.63)	<i>t</i> (150) = 2.31, <i>p</i> = .022
3	\$2.64 ( <i>n</i> = 163; 2.20)	\$3.58 ( <i>n</i> = 141; 2.91)	<i>t</i> (304) = 3.21, <i>p</i> = .001
4	\$1.93 ( <i>n</i> = 67; 0.93)	\$2.33 ( <i>n</i> = 65; 0.90)	<i>t</i> (130) = 2.55, <i>p</i> = .012

obvious demographic information (i.e., the gender composition of the group, and their approximate ages and ethnic backgrounds).<sup>6</sup>

## Results and Discussion

Consistent with the results of Studies 1–3, people paid more for coffee under PIF than PWYW ( $M = \$2.33$  vs.  $\$1.93$  per cup),  $F(1, 130) = 6.50$ ,  $p = .012$ . Table S1.2 in the online supplemental materials reports alternative specifications of the analysis.

Thus far, four studies conducted in two different field settings (one nonprofit and one for-profit; see Table 1) showed that people pay more under PIF than under PWYW. These studies established that the manipulation was consequential, but they did little to explain why this difference emerges. We tried to answer this question in Studies 5–8.

### Why Do People Pay More Under PIF? Four Possible Accounts

Previous research has documented strong social norms for reciprocation (Cialdini, 1993; Fehr, Gächter, & Kirchsteiger, 1997; Goranson & Berkowitz, 1966; Gouldner, 1960; Trivers, 1971). Reciprocation implies a relationship in which one party responds in kind for a deed (good or bad) by the other party (Fehr & Gächter, 2000). Under PWYW, customers might be reciprocating the behavior of the seller for the product or services they received. People also reciprocate *indirectly*, returning one party's kind or unkind behavior to *another* party (Alexander, 1987; Gray, Ward, & Norton, 2014; Nowak & Sigmund, 1998). Accordingly, people might be indirectly reciprocating a customer's kind behavior to another customer under PIF. People contribute as much if reciprocity is indirect as if it is direct (Dufwenberg, Gneezy, Güth, & van Damme, 2001). Reciprocation in either direct or indirect form might explain why people pay more than \$0 overall, but there is no evidence suggesting that people are more pressured to reciprocate indirectly than directly. Furthermore, it is clear that the goods and services are available regardless of the previous parties' payments. There is little formal indebtedness. Then why do people pay more when paying forward than paying what they want?

We speculate four possible explanations that may explain the phenomenon. The first possibility, which we termed *salience of others*, is that people pay more under PIF than PWYW because other customers in the exchanges are made more salient in the PIF framing than in the PWYW framing. Perhaps, people are thinking of PIF as a gift exchange rather than as a financial exchange. Predictably, social exchanges engage a very different psychology than financial exchanges, and it may be the case that PIF invokes

the norms and pressures of social exchanges. Although people would want to reciprocate in both PWYW and PIF exchanges, the pressure to reciprocate might be stronger when the presence of others becomes salient as in the PIF framing. PIF is merely a symbolic gift exchange in which there is no definitive "other," but people may nevertheless feel indebted and pressured to reciprocate.<sup>7</sup>

If PIF payments are primarily driven by the salience of others, then a variable that intensifies the salience should *increase* the difference. One way to increase the salience of others in a PIF exchange is to shift the giver/recipient from ambiguous and anonymous to specific and identified. People are more engaged when processing information about a specific target (Chaiken, 1980; Petty & Cacioppo, 1986) and are more willing to help an identified victim more than a statistical victim (Schelling, 1968; Small & Loewenstein, 2003). Accordingly, if salience of others lies at the explanation for PIF effectiveness, then people would pay more under PIF when the anonymity and ambiguous identity of others in their exchange relationships are removed. We considered this possibility in Study 5.

The second account, *differential weights for reciprocity and generosity*, predicts that people pay more under PIF because of an opportunity to be generous to others. People would want to reciprocate under both PWYW and PIF, but people may be kinder when an exchange involves not only pure reciprocation of the kindness from one person, but it also offers an opportunity to be generous to another person as in PIF. People may also want to be generous toward the seller under PWYW. When thinking about how much they want to pay, people may think more about a fair price, rather than a price that they would pay to feel generous. Or they might feel pressured to reciprocate and pay the minimum amount that is considered appropriate to avoid social pressure (DellaVigna, List, & Malmendier, 2012). But when paying forward, they might feel less tied to the need to reciprocate but more driven by an opportunity to be generous toward the recipient of a gift and pay more than the amount that pure reciprocation would induce them to pay.

As with the salience of others account, the differential weights for reciprocity and generosity account predicts that increasing the presence of others would increase payments under PWYW and PIF. But differential weights for reciprocity and generosity account

<sup>6</sup> As with Study 1–3, we did not have any specific predictions for these measures, and so we did not report those results here. Nevertheless, those variables and those data are available with the complete data sets.

<sup>7</sup> Customers' concern for other buyers is necessarily not literal; the next customer gets the same offer regardless. But they may still feel direct guilt for paying zero or very little.



further separates the influences of the salience of the giver and that of the recipient of a gift and predicts that increasing the identifiability of the recipient produces a higher levels of generosity. We tested this possibility in Study 5.

The third account is that perhaps people are thinking of *payment as justification*. People may feel more pressured to justify their level of kindness under PIF, and in the absence of any other means of communication, an increased payment is easier to justify. People avoid morally discrediting behavior, but if they can justify it, subsequent behavior may be more unethical (Miller & Effron, 2010; Monin & Miller, 2001). Accordingly, people make more morally questionable choices if they can effectively hide their true motive and justify their behaviors (Snyder, Kleck, Strenta, & Mentzer, 1979). Paying zero or very little under PIF could cost customers' social image since their generosity would be judged purely based on their payment amount. If, on the other hand, people are offered a costless opportunity to save their social image through justification, they may *pay less*. We considered this possibility in Study 6.

Our fourth account, *generosity matching*, develops out of our initial argument about the influence of descriptive norms. Perhaps people believe that PIF pricing increases generosity in others. Such a systematic perception informs intuitions about existing norms that subsequently guide behavior. Although descriptive norms of others' behavior are not operating on the trade-offs of the exchange itself, they are invoked indirectly by the situation. PIF does not permit true generosity or reciprocity between customers, but it most likely makes people *think* about those constructs when they are determining their payments. Perhaps, under PIF, people believe that others paid more and align their own behavior accordingly. We considered that possibility in Studies 7 and 8.

To test why people consistently pay more under PIF than under PWYW, we created a laboratory setting that allowed for manipulations impractical in the field, while still allowing for actual payments.

### Study 5: A Laboratory Experiment on Identifiability, Reciprocity, and Generosity

If people pay more under PIF than under PWYW because of the salience of others in the PIF pricing frame, an increase in the identifiability of the giver or recipient should increase the salience of others and therefore increase payments. Prior research has shown that social preferences are heavily influenced by knowledge of and experience with the givers and recipients of prosocial acts (Small & Loewenstein, 2003; Small & Simonsohn, 2008). For example, in a field experiment, people gave 26% more to a charity when the recipient was already determined (a single family from a set of four) than when it would be determined later (Small & Loewenstein, 2003). Recipients were only slightly more identifiable (i.e., people do not get to know the recipients), but the financial consequences were meaningful and reliable. If a similar process underlies PIF, then as identifiability increases so should payments.

Our experimental design manipulated whether participants had direct interaction with the participant who immediately preceded, or immediately followed, in sequence. Additionally, in Study 5, we tested whether the account of differential weights for reciprocity and generosity could explain the conditional difference between

PWYW and PIF. If this account were responsible for the phenomenon, people would pay more under PIF (as opposed to PWYW) because they want to be generous to the next participant rather than feel a need to reciprocate for the previous participant. Accordingly, if we increased the identifiability of the next participant, then that should make people pay more. If reciprocity is more important than generosity, then we could make the reverse prediction: under PIF people would pay more when the previous participant is identifiable. Our design should be able to identify if either of these mechanisms influences the effect and then differentiate between them.

It should be noted that we conducted the experiment without any clear prediction between the proposed accounts, as each can be quite reasonably justified by previously published findings. Instead, we conducted the study to see which account seemed to offer the best explanation for the effect.

### Method

Undergraduates ( $N = 294$ ) at University of California, Berkeley, participated in a 2 (pricing: PWYW or PIF)  $\times$  3 (social exchange: previous participant, next participant, or control/no interaction) between-participants design study. We aimed for at least 40 participants per cell and collected data until the end of the semester. We did not analyze any data until the study was concluded. In this study, before the session started, some participants briefly interacted with a confederate who appeared to be the previous participant or the next participant or who had no social interaction. In Studies 5, 6, 7, and 8, we used similar methodologies, so it is important to note that the participant samples were entirely nonoverlapping.

Participants in the "previous participant" condition were escorted from the waiting room area to the experiment room, where a confederate was seated in front of a laptop. The experimenter said, "Oh, this is Sarah. She's just finishing up. Can you wait for a minute? Let me grab something. I'll be right back." After the experimenter left the room, Sarah, the confederate, introduced herself to the participant and chatted for a minute. The conversation was scripted to be similar across all participants; the confederate restated her name and conversed about general topics related to being in school (e.g., year in school, academic majors, and so forth). The goal was to make certain that the participant was aware of "Sarah" but not to make the interaction intensely personal, which would have created a very different set of interpersonal pressures.

The experimenter then returned (after about 60 s) with the payment and receipt of the show-up fee and told the confederate, "Sarah, you can leave now. Thank you for your participation." The experimenter then began the session.

Participants in the "next participant" condition met the confederate in the waiting room. The experimenter greeted the participants and said, "Hi, are you [participant's name]? Great." The experimenter then asked the confederate her name. The confederate told her that her name was Sarah. The experimenter checked her clipboard and told Sarah, "You're here early. You're scheduled for the next session, which is after [participant's name]'s session. Could you wait for 25–30 min? Okay, can you give me a moment? Let me grab something. I'll be right back." The experimenter left the waiting room, and the confederate introduced herself to the

participant and chatted for a minute following the same script as in the other condition. As in the previous participant condition, the experimenter was gone for approximately 60 s. The experimenter returned after about a minute and took the participant to an experiment room and began the session. In the control condition, participants did not interact with a confederate and were ushered to and from the experiment room without interacting with any confederates.

After the social interaction manipulation, each participant was seated in front of a laptop, paid a \$10 show-up fee in \$1 bills, and asked to begin the survey that was unrelated to the main purpose of this study.<sup>8</sup> At the end of this survey, participants were asked how much they enjoyed their experience at school, how much they liked participating in academic research, to what extent they felt that they were a generous person, and to what extent they had more or less money than an average student in the same school.

After participants completed the survey, they received the manipulation of payment type. An experimenter gave each a coffee mug with the university logo ("Cal," written in yellow writing on a blue mug) and asked the participant to either pay what he or she wanted for the mug or pay it forward for the next participant. The participants in the PWYW condition were told

Today you will receive a Cal mug. The mug is yours, but you also have an option to pay what you want for it. You can put your payment in this envelope, and drop it in the box on the desk.

The participants in the PIF condition were told

Today you will receive a Cal mug. The mug is yours. It was paid for by the participant before you. You have a chance to pay it forward to the next participant. You can put your payment in this envelope and drop it in the box on the desk.

The experimenter left the room for a few minutes, returned, and asked participants to proceed to a short end survey on the computer screen. The payments participants left in the envelopes constituted a critical dependent variable.

Although participants' payment amount for a mug was our main dependent variable, we assessed a number of variables that might have influenced the payment amount. After making their payment decision, participants were asked to indicate to what extent various factors influenced their payment amount for a mug. The factors, assessed with 7-point Likert-type scales, were the \$10 show-up fee, support of an academic research project, the color of the mug, novelty value of this experiment, the value of the school logo, school affiliation, an average price of a mug, and expectation by the experimenter. Furthermore, participants estimated the payment made by the previous and next participants for a mug. All participants were asked to what extent their payment was fair. They were asked to estimate the actual price of a mug at a campus bookstore. We also asked how satisfied they were with the mug and the study. Last, all participants were asked to provide demographic information such as age, gender, and ethnicity. All of the variables, with exact wording, are available in supplemental materials and are included in the available data set.<sup>9</sup> The participants were debriefed, thanked, and excused.

## Results and Discussion

Before analyzing the data, we excluded six participants whom research assistants had identified as unreasonable to include: Three participants knew the confederate (and therefore could not be told that her name was "Sarah"), one participant knew about the study (and the deception) from a friend, and two participants were intoxicated with alcohol (the session was scheduled immediately after the conclusion of a college football game across the street that both participants had attended. Their inebriety was independently identified by the experimenter, the confederate, and the participants themselves). These exclusion decisions were made prior to conducting any analysis, but a post hoc analysis including those participants changed neither the direction nor the statistical significance of any effects. See Table S4 in the online supplemental materials for a full reporting of these results.

The exclusion of six participants left a final sample size of 288. A 2 (pricing: PWYW vs. PIF)  $\times$  3 (social exchange: previous participant, next participant, or control/no interaction) analysis of variance (ANOVA) on the payment for a mug yielded only a main effect of pricing, such that PIF participants paid more for the mug than did PWYW participants ( $M = \$1.79$  vs.  $\$1.27$ ),  $F(1, 282) = 6.39$ ,  $p = .012$ .

There was no evidence that knowing either the giver or receiver had any influence on payment amounts. There was no main effect of social exchange,  $F(2, 282) = 0.96$ ,  $p = .385$ , nor was there a Pricing  $\times$  Social Exchange interaction,  $F(2, 282) = 0.22$ ,  $p = .803$ . As revealed in Figure 1, across all social exchange conditions, people paid more under PIF than under PWYW, but the size of that difference was not influenced by the social exchange manipulation.

### Predictions About the Payments of the Next Participant and the Previous Participant

Generosity matching, one of our three alternative accounts for higher payments under PIF, predicts that the PIF pricing frame indirectly invokes norms of generosity and reciprocity. We reasoned that such implicit social forces operate at least partially on people's perception of others' behaviors under PIF. To test whether participants' belief about others' payments influenced their own payment, we asked all participants to estimate how much the previous and next participants would pay for the mug. Regardless of condition, actual payments were highly correlated with beliefs about the payment of the previous participant ( $r = .418$ ) and the next participant ( $r = .449$ ).

<sup>8</sup> The unrelated experiment concerned evaluating a food item, its randomization was independent of this study, and the data were never analyzed together.

<sup>9</sup> We included these items primarily as potential exploratory variables. In fact, we did not observe any significant effects on the critical dependent variable (i.e., payment). Accordingly, with the exception of the analysis of the items about the predicted payments of others, we did not elaborate on their analysis. We included the exact same items in the subsequent studies so as to replicate as closely as possible across studies and to leave consistent data were anyone to subsequently go back and reanalyze the experimental data. Accordingly, all of the measures are reported in Table S2 in the online supplemental materials, and all of the data are available for download.





Figure 1. Payment amount for a coffee mug in Study 5. Error bars reflect standard error of the means.

There was one additional effect of note: Participants thought that others—either the previous participant ( $M = \$2.03$ ) or the next participant ( $M = \$2.09$ )—paid more than they did ( $M = \$1.53$ ),  $t(287) = 5.07$ ,  $p < .001$ . This effect is surprising and important. First, it is surprising in light of the many findings on egocentrism and the better-than-average effect (Alba & Hutchinson, 2000; Gilovich, Medvec, & Savitsky, 2000; Kruger, 1999; Kruger & Dunning, 1999). A simplified representation of that literature is that people think of themselves as generally better on more positive or flattering attributes, of which generosity (in the form of elective payments) would have seemed to qualify. Alternatively, if we reframe the payment as merely an expression of willingness to pay for the product, then we can appeal to a more basic phenomenon. Most people think that other people are willing to pay more for every product than they would themselves (Fredrick, 2012). Why do people think that others are more generous than themselves? Furthermore, in combination with the high correlation with personal payment, how might that misperception guide behavior?

Under elective pricing, it is difficult for people to identify the “correct” payment amount—the amount that simultaneously maximizes the personal sense of propriety and frugality. One shortcut for finding that point is to ask a related question: What do other people pay? (In fact, across all study designs, participants frequently articulated this question. All research assistants were trained to say, “You can pay whatever price is right for you.”). With a mental reference in mind, the payment decision is easier; people can pay an amount that is similar to what they think others must be paying. If, as we suspect, beliefs about others are critical in determining personal payments, then it is enough to believe that the specific language (PIF vs. PWYW) would influence the payments of others. If a person thinks that other people would pay more under PIF, then that inference will subsequently guide their own behavior. In the analyses that follow, we offer some tentative tests of this hypothesis.

### Testing the Mediating Role of Perceptions of Others’ Payments

To test whether the relationship between pricing manipulation and payment for the mug was mediated by beliefs about others’ payments, we conducted a mediation analysis following the pro-

cedures recommended by Preacher and Hayes (2004). Because participants’ estimations of the amounts paid by the previous and next participants were highly correlated ( $r = .745$ ,  $p < .001$ ), we used the average of the combined estimations as the mediating variable in our analysis.

Multiple regression analyses were conducted to assess each component of the proposed mediation model. First, the results show that our pricing manipulation (PWYW was coded 0, and PIF was coded 1) was positively associated with the perception of others’ payments ( $B = 0.47$ ,  $t(279) = 2.43$ ,  $p = .016$ , and the perception of others’ payments were positively associated with participants’ actual payment ( $B = 0.55$ ),  $t(279) = 2.58$ ,  $p = .010$ . Last, the results indicate that the mediator, the perception of others’ payments, was positively associated with the participants’ actual payments ( $B = 0.41$ ),  $t(279) = 8.43$ ,  $p < .001$ . The 95% confidence interval (CI) of the indirect effect was obtained with 1,000 bootstrap resamples, and results of the mediation analysis confirmed the mediating role of the perception of others’ payments in the relation between pricing manipulation and the actual payments. ( $B = 0.226$ , CI [0.069, 0.461]). Additionally, the direct effect of pricing on actual payments became nonsignificant ( $B = 0.24$ ),  $t(279) = 1.39$ ,  $p = .16$ , when controlling for the predicted others’ payments.

Given a high correlation between the predicted others’ payments and the actual payments ( $r = .463$ ,  $p < .001$ ), it is equally plausible that participants’ actual payments mediated the perception of others’ payments. This parallel account was also supported by the analysis—actual payments mediated the relationship between pricing manipulation and perception of others’ payments ( $B = 0.234$ , CI = [0.054, 0.488]). Differentiating the two pathways would require directly manipulating the perceptions of the payments of others; a manipulation we employ in Studies 7 and 8.

The results from Study 5 replicated the results obtained in the field experiments: people paid more under PIF than under PWYW pricing. Notably, the results of Study 5 suggest that this effect cannot be entirely attributed to the salience of others or differential weights for reciprocity and generosity accounts. Furthermore, there is some support for the idea that the effect may be partially driven by participants’ beliefs about the payments of others.

Before moving to a more direct test of that possibility (in Studies 7 and 8), in Study 6 we gave brief consideration to a parallel account. It is possible that under PIF, people feel pressured to pay more for whatever reason, but more important, because of the nature of the experimental design, feel unable to express an explanation for a lower payment. Accordingly, it is possible that PIF effects are artifactual. In Study 6, we manipulated the opportunity to publicly justify payments to see if that opportunity lowers payments.

### Study 6: Do People Pay Less If They Have a Chance to Justify Their Payment?

Study 6 examined how an opportunity to explicitly display generosity—or explicitly justify frugality—influenced payments under PIF. Specifically, we manipulated the extent to which participants could showcase their generosity or justify their frugality to the following participant (and to the experimenter). We had two primary predictions. First, because people are concerned about how they are seen by others, they would pay more when their

payments could be observed. Second, if people are constrained by an inability to justify a (low) payment, then the ability to justify should reduce payments.

## Method

Undergraduates ( $N = 193$ ) participated in a 2 (payment amount information: yes vs. no)  $\times$  2 (message: yes vs. no) between-participants design. All participants received the PIF instructions from Study 5 (i.e., they had been given a mug and told that the next person would be given one as well and that they could pay for the mug on behalf of the next person). Participants in three conditions were given a card to write either a message, the amount they were paying forward, or both. The cards were  $3.5 \times 5$  inches and made of card stock (examples are shown in Figures S1.1–S1.3 in the online supplemental materials).<sup>10</sup>

Participants were tested individually. Each was greeted, seated at a laptop, paid the \$10 show-up fee in \$1 bills, and asked to start a survey that was unrelated to this study.<sup>11</sup> At the end of the survey (approximately 20–25 min), participants answered the same pretest questions used in Study 4 (see Table S2 in the online supplemental materials). Participants were given the mug and received the PIF message, with an addition consistent with the conditional assignment. Participants in the message condition, for example, were told, “Please write a message to the next participant on this card. Leave the card here (on the keyboard) when you are finished. It will be presented to the next participant.” The experimenter gave each participant a Cal mug, an envelope, and a card (for all but the control condition), and left the room. A final survey asked the same questions used as in Study 4 (see Table S2 in the online supplemental materials).

## Results and Discussion

A 2 (payment amount information: yes vs. no)  $\times$  2 (message: yes vs. no) between-participants ANOVA revealed that participants paid more when they had to report the amount they paid ( $M_s = \$2.34$  vs.  $\$1.54$ ),  $F(1, 189) = 6.86$ ,  $p = .010$ . There was no evidence supporting the justification account. In fact, contrary to that hypothesis, payments slightly *increased* when people could justify their payment amount ( $M_s = \$2.25$  vs.  $\$1.63$ ),  $F(1, 189) = 4.12$ ,  $p = .044$ . The interaction was not significant,  $F(1, 189) = 0.52$ ,  $p = .470$ . One prediction was confirmed, but the other was rather soundly rejected. (See Figure 2).

Regardless of these conditional differences, this study provided a second confirmation that people might choose their payments based on how they perceive the payments of others. As in Study 5, participants thought that the previous ( $M = \$2.47$ ) and next ( $M = \$2.53$ ) participants paid significantly more for the mug than they did ( $M_{\text{Predicted other's payments}} = \$2.50$  vs.  $M_{\text{Participant's payment}} = \$1.93$ ),  $t(186) = 3.60$ ,  $p < .001$ .

We can make a tentative claim across these two studies about why PIF leads to higher payments than PWYW. The first step is predicated on pluralistic ignorance (Allport, 1924; Miller & McFarland, 1987): participants think that others are paying more. The second step is driven by social pressure: people do not want to pay much less than they think other people are paying.

In Study 7, we followed that logic to identify a manipulation that might operate on the pluralistic ignorance. We closely followed

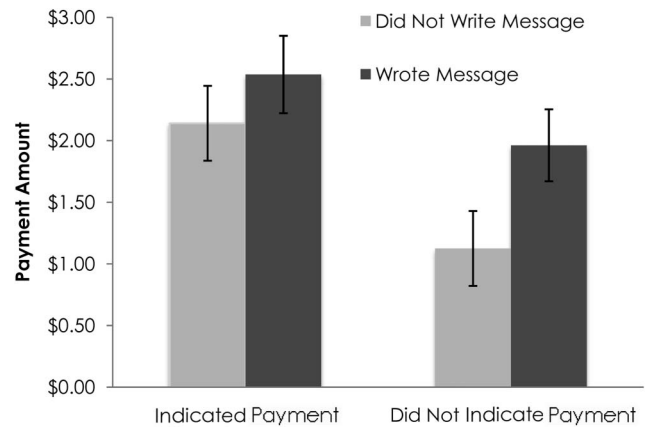


Figure 2. Mean payment amount for a coffee mug in Study 6. Error bars reflect standard error of the means.

previous manipulations used in more complex environments (e.g., to reduce campus alcohol consumption; Schroeder & Prentice, 1998) and disabused people by giving them information about how much others have paid. Specifically, in addition to the payment wording manipulation (PWYW vs. PIF), some participants were told how much the previous participant had paid for a mug, whereas the rest were not provided this information. We predicted that, replicating Study 5, people would pay more under PIF when they did not know the payment of the previous participant, but that this effect would be eliminated when participants were told how much the previous participant had paid.

## Study 7: Does Knowing the Payment of Others Eliminate the Influence of Pay-It-Forward?

In this study, we examined how payments change when people know about the payments of others. We informed approximately half of the participants that the previous participant had paid \$1.50 for a mug (we adopted \$1.50 as it was roughly the average amount paid for the mug previously). In this way, although we were deceptive in telling people that the previous person had paid exactly that amount (in order to keep the conditions identical), the stated price was close to what naturalistically occurred.

## Method

Undergraduates ( $N = 198$ ) were tested individually and were randomly assigned to one of four conditions in a 2 (pricing: PWYW vs. PIF)  $\times$  2 (previous participant's payment information: yes vs. no) between-participants design. The design was nearly identical to that employed in Studies 5 and 6. Each participant was greeted, seated at a laptop, paid a \$10 show-up fee in \$1 bills, and asked to begin an unrelated survey. At the end of this survey (which lasted approximately 20 min), participants answered the

<sup>10</sup> To eliminate potential need for exclusions, experimenters were scheduled so that they never knew the participants. Also, there were no obviously drunk participants in this or the remaining studies.

<sup>11</sup> The unrelated survey was about how people evaluate political campaign advertising. We analyzed the two studies separately.

same questions used in Studies 5 and 6 (see Table S2 in the online supplemental materials). We were aiming for a minimum of 45 participants per cell; we conducted the study until the end of the semester and did not analyze the data until the study was completed.

After completing the survey, participants received a university coffee mug and were asked to either “pay what you want” or “pay it forward” for the next participant. At this point, approximately half of the participants were told verbally that the previous participant had paid \$1.50 for the mug. Specifically, participants in the PWYW condition were told

Today you will receive a Cal mug. The mug is yours, but you also have an option to pay what you want for it (the participant before you paid \$1.50). You can put your payment in this envelope and drop it in the box on the desk.

Participants in the PIF condition were told

Today you will receive a Cal mug. The mug is yours, it was paid for by the participant before you (who gave \$1.50). You have a chance to pay it forward to the next participant. You can put your payment in this envelope and drop it in the box on the desk.

The experimenter made clear that all participants would receive a mug regardless of how much they paid and that their payment was on behalf of themselves or on behalf of the next participant, depending on condition. The experimenter left the room for a few minutes, returned, and asked participants to complete a final survey on the computer, which contained the same items as in the previous two studies. The only change from the previous studies was that participants who were told about the previous participant's payment information were additionally asked the extent to which they thought that the previous participant's payment (of \$1.50) was fair.

## Results and Discussion

**Payment.** We predicted that, in the absence of knowledge about the previous participant's payment, people would pay more under PIF than under PWYW (replicating the previous studies), but that difference would be eliminated when the previous participant's payment was revealed. We submitted participants' payments to a 2 (pricing: PWYW vs. PIF)  $\times$  2 (previous participants payment information: yes vs. no) ANOVA. Consistent with the results of Study 5, participants paid more under PIF than they did under PWYW ( $M_s = \$1.84$  vs.  $\$1.22$ ),  $F(1, 194) = 8.48$ ,  $p = .004$ , and paid more when they did not know about the payment of the previous participant than when they did ( $M_s = \$1.85$  vs.  $\$1.21$ ),  $F(1, 194) = 8.99$ ,  $p = .003$ . Most important, those effects were qualified by the predicted interaction,  $F(1, 194) = 9.66$ ,  $p = .002$ . When people did not know how much the previous participant had paid, they paid more under PIF than under PWYW ( $M_s = \$2.48$  vs.  $\$1.21$ ),  $t(91) = 3.13$ ,  $p = .002$ , whereas people made very similar payments in those conditions when they were informed how much the previous participant had paid ( $M_s = \$1.23$  vs.  $\$1.19$ ),  $t(103) = 0.25$ ,  $p = .81$ ; see Figure 3).

**Predictions of the next participant's payment.** Participants' estimations about the payment of the next participant closely mirrored the pattern observed with actual payments. We submitted participants' estimation to the same 2 (pricing: PWYW vs. PIF)  $\times$

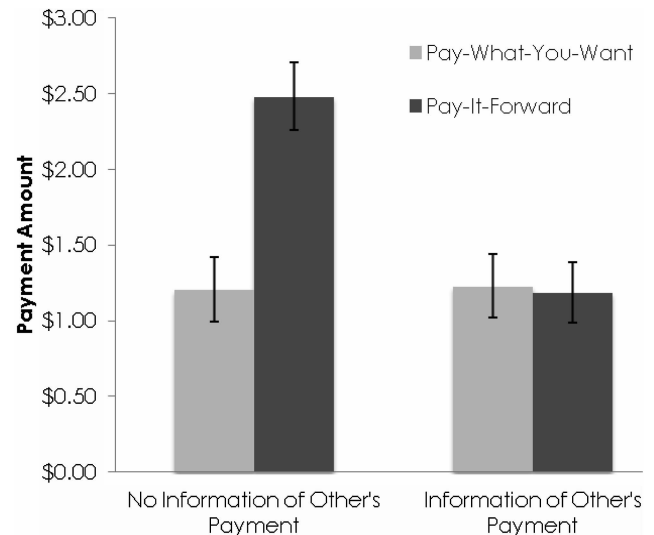


Figure 3. Mean payment amount for a coffee mug in Study 7. Error bars reflect standard error of the means

2 (previous participant's payment information: yes vs. no) ANOVA. The main effects of both pricing and previous participant's information were significant. Estimations provided by participants in the PIF condition were significantly higher than those reported by participants in the PWYW condition ( $M_s = \$2.45$  vs.  $\$1.94$ ),  $F(1, 185) = 4.47$ ,  $p = .036$ . In addition, people thought that the next participant would pay more when they were not given information about the previous participant relative to when they had learned how much the previous participant had paid ( $M_s = \$2.73$  vs.  $\$1.67$ ),  $F(1, 185) = 19.38$ ,  $p < .001$ . These effects were qualified by the predicted interaction,  $F(1, 185) = 12.79$ ,  $p < .001$ .

Consistent with the results presented thus far, payments for the mug were significantly higher under PIF. Also, similar to participants in Studies 5 and 6, all participants in Study 7 estimated that payments of other (previous and next) were more than they actually were ( $M_{Combined\ predictions} = \$2.62$  vs.  $M_{Actual\ payment} = \$1.49$ ),  $t(50) = 5.14$ ,  $p < .001$ .

As in the previous studies, when people were asked to pay-it-forward, they paid more than when asked to simply pay-what-you-want. However, that effect was only observed when participants did not know how much the previous participant had paid. When participants were disabused of their belief about others' behavior, the effect was eliminated.

Participants in the PWYW conditions paid about the same whether they were informed of how much the previous participant had paid. As with the participants in the PIF conditions, participants who paid what they wanted were likely to be influenced by the information of the previous participant's payment amount. However, it is also possible that participants in the PWYW condition based their payment on other idiosyncratic factors such as their internal valuation of a mug or their concerns for fairness toward the experimenter, which was similar to the average payment amount of previous participants. If this were true, their payment amount might be less tied to the information of others' payment, and participants would pay about the same amount (i.e., \$1.50) for a mug regardless of others' payment amount. In the next



study, we tested this possibility by varying the previous participant's payment amount to be lower or higher than the average payment in the PWYW and PIF conditions.

### Study 8: Receiving Information About a Generous (or Stingy) Previous Participant

In this study, we tested how people were influenced by information about previous participants' payments, particularly when those payments were unusually low or unusually high. To identify "low" and "high" payments, we looked at the distribution of PIF payments in Studies 5 and 7. For this study, we chose \$0.50 (a 31st percentile payment) and \$2.50 (an 83rd percentile payment) to serve as low and high payments.

### Method

Students and employees ( $N = 329$ ) of the University of California, Berkeley, were randomly assigned to one condition in a 2 (pricing: PWYW or PIF)  $\times$  3 (information of the previous participant's payment: no information, low payment, or high payment) between-participants design. The procedure was identical to the one used in the previous studies.

As in the previous studies, after completing an unrelated 5-min survey, participants received a university coffee mug and were given the payment instructions. Specifically, participants in the PWYW conditions were told

This Cal mug is yours. All participants receive a mug regardless of how much they pay (the participant before you paid \$0.50/\$2.50). You can pay what you want for it. You can put your payment in this envelope, and drop it in the box on the desk.

Participants in the PIF conditions were told

This Cal mug is yours. All participants receive a mug regardless of how much they pay. So this mug was paid for by the participant before you (who gave \$0.50/\$2.50). You have a chance to pay it forward to the next participant. You can put your payment in this envelope, and drop it in the box on the desk.

The experimenter left the room for a few minutes, returned, and asked the participants to proceed to a short survey on the computer screen that contained the same items as in the previous studies.

### Results and Discussion

**Payment.** We excluded two participants in two different conditions because a research assistant's error meant that we couldn't be sure which participant had paid which amount (One envelope contained \$2 and the other \$3. Exclusion seems overwhelmingly like the correct decision, but the results reported change in neither direction nor statistical significance regardless of which participant paid which amount).

We predicted that, without information about others' payment, people would pay more under PIF than PWYW. Furthermore, when people were told about the payments of others, we predicted that their own payments would generally follow the information they received. We used a 2 (pricing: PWYW or PIF)  $\times$  3 (information about the previous participant's payment: no information, low payment, or high payment) ANOVA. As in the previous

studies, overall people paid slightly more under PIF than they did under PWYW ( $M_s = \$1.47$  vs.  $\$1.79$ ),  $F(1, 321) = 4.29$ ,  $p = .049$ , and their payments varied as a function of the information they received about the payments of others,  $F(2, 321) = 9.43$ ,  $p < .001$ . Most important, those effects were qualified by the predicted interaction,  $F(2, 321) = 7.84$ ,  $p < .001$ . When participants did not know how much the previous participant had paid, they paid more under PIF than under PWYW ( $M_s = \$2.57$  vs.  $\$1.37$ ),  $t(107) = 3.20$ ,  $p = .002$ . PIF and PWYW were not statistically different with either the low payment ( $M_{PWYW} = \$1.29$  vs.  $M_{PIF} = \$0.99$ ),  $t(105) = 1.42$ ,  $p = .158$ , or the high payment ( $M_{PWYW} = \$1.75$  vs.  $M_{PIF} = \$1.79$ ),  $t(109) = 0.21$ ,  $p = .837$ ; see Figure 4).

**Predictions of the next participant's payment.** As in previous studies, all participants predicted how much the next participant would pay for a mug. Again, we used the same  $2 \times 3$  ANOVA. In this study, there was no overall main effect of pricing ( $M_{PWYW} = \$1.83$  vs.  $M_{PIF} = \$1.86$ ),  $F(1, 315) = 0.04$ ,  $p = .840$ , but there was an effect of payment information,  $F(2, 315) = 13.00$ ,  $p < .001$ . Consistent with the previous study, those effects were qualified by an interaction,  $F(2, 315) = 3.37$ ,  $p = .036$ , though in this case, the pattern was somewhat peculiar. As before, participants estimated higher payments under PIF when they did not have information about the previous participant ( $M_s = \$2.50$  vs.  $\$1.93$ ), but this difference was only marginally significant,  $t(103) = 1.52$ ,  $p = .13$ . In the low-payment condition, PWYW participants predicted higher payments than did those participants in the PIF condition ( $M_{PWYW} = \$1.50$  vs.  $M_{PIF} = \$1.03$ ),  $t(102) = 2.03$ ,  $p = .045$ . Predictions were very similar in the high-payment condition ( $M_{PWYW} = \$1.70$  vs.  $M_{PIF} = \$1.79$ ),  $t(109) = 0.44$ ,  $p = .659$ .

### Study 9: Ruling Out Misunderstanding and Considering Near Extensions

The lab and field studies we have presented compared payments under PWYW and PIF under a small handful of conditions. In combination, they display a generally robust (if still incompletely understood) phenomenon. In the process of evaluating the article, our reviewers and editor identified a series of open questions or concerns about how participants interpreted the manipulations and

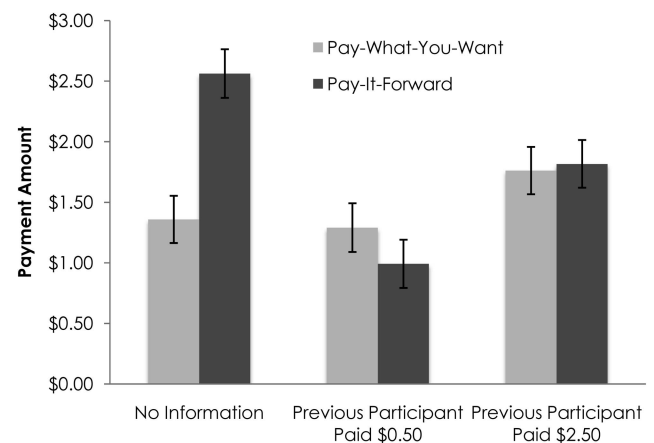


Figure 4. Mean payment amount for a coffee mug in Study 8. Error bars reflect standard error of the means

suggested a few possibilities for alternative phrasings that might produce similar or different results. The following experiments are our efforts to investigate those possibilities. Unlike in the previous eight studies, in these studies, we used an online population and asked them to consider a hypothetical scenario. While giving up the realism of actual payment, the studies retain the core psychology of the other studies.

### Experiment 9A: Are People Confused About Whether They Can Pay Any Price?

In some of these studies (i.e., Studies 2 and 8), we made an additional effort to ensure that people understood that all participants received the product regardless of payment. Nevertheless, participant confusion might still contribute to the differences between PWYW and PIF. Experiment 9A was designed to rule out that possibility.

In the three experiments in Study 9, we used hypothetical settings in which participants recruited from an online panel, Amazon Mechanical Turk (MTurk), estimated other customers' as well as their own willingness to pay for a cup of coffee under PWYW or PIF. We used this coffee purchase setting because it is similar to the field setting in Study 4 in which we sold coffee at a farmers' market under PWYW and PIF. A serious concern about using this setting is that people might report significantly higher payments than would be observed in real life (i.e., it is a lot easier to part ways with a hypothetical dollar than an actual dollar). We wanted to correct for possible outliers but do so in a way that neither appreciably distorted the data nor left us open to the risk of *p*-hacking (Simonsohn, Nelson, & Simmons, in press). Accordingly, we set an arbitrary (but reasonable) point to winsorize the data and preregistered that specification for all studies at Open Science Framework (<https://osf.io/>), a public resource for documenting transparent scientific practices.

### Method

Participants ( $N = 419$ ) recruited from MTurk were randomly assigned to two pricing conditions, PWYW and PIF. Participants imagined that they were purchasing a cup of coffee at a regular coffee shop and estimated a typical person's and their own payment. In the PWYW condition, participants read

The coffee shop does not use traditional fixed prices. Instead customers are told the following: "Today every customer can have coffee for any price he or she chooses to pay. You can pay what you want for a cup of coffee."

In the PIF condition, they read

The coffee shop does not use traditional fixed prices. Instead customers are told the following: "Today every customer can have coffee for any price he or she chooses to pay. A customer who came earlier has paid for your coffee. Now that your coffee's been paid for, you have a chance to pay it forward to a customer who will come later."

The exact materials are posted along with the preregistration at <https://osf.io/z9q4y/>

Participants in both conditions then answered three additional questions probing whether they understood that all customers could pay *any* price they wanted for a cup of coffee. Participants

saw the PWYW or PIF pricing description again and answered either yes or no to the following three questions: "Was the customer who came earlier allowed to pay any price he or she wanted for coffee?"; "Are you allowed to pay any price you want for coffee?"; and "Will a customer who comes later today be allowed to pay any price he or she wants for coffee?"

### Results and Discussion

As we preregistered (<https://osf.io/z9q4y/>), we winsorized respondents' willingness-to-pay estimates at \$10. We determined this number based on the field data in which the maximum payment was \$5 for a cup of coffee; we wanted to allow for higher payments but decided that any payments above \$10 were unreasonable. Alternative specifications are reported in the online supplemental materials.

Replicating the results from the previous studies, respondents were willing to pay more for a cup of coffee under PIF than PWYW ( $M = \$2.73$  vs.  $\$1.93$ ),  $t(411) = 3.55$ ,  $p < .001$ . Furthermore, people also thought that a typical customer would pay more under PIF than PWYW ( $M = \$2.70$  vs.  $\$2.16$ ),  $t(414) = 2.32$ ,  $p = .021$ . Seventy-five percent of the participants correctly answered all three comprehension questions and reported that the customer before and after could pay any price they wanted. If we restrict the analysis only to that 75%, the results change in neither direction nor significance. These results indicate that most people were not confused about whether they could pay any price under PWYW and PIF. Furthermore, the PIF effect was not driven by people who misunderstood the pricing. Those respondents were not willing to pay more under PIF than PWYW ( $M = \$2.79$  vs.  $\$2.76$ ),  $t(102) = -0.06$ ,  $p = .952$ , and also thought others would pay about the same under PWYW and PIF ( $M = \$2.98$  vs.  $\$2.75$ ),  $t(102) = 0.40$ ,  $p = .690$ .

### Experiment 9B: "Can" Versus "Have a Chance"

In Studies 1–8, participants were told, "You *can* pay what you want" in the PWYW condition or "You *have a chance* to pay forward" in the PIF condition. Experiment 9B was designed to rule out a possibility that the PIF effects were driven by this slight difference in the wording, "can" versus "have a chance."

### Method

Respondents ( $N = 835$ ) recruited from MTurk were randomly assigned to participate in a 2 (pricing: PWYW or PIF)  $\times$  2 (wording: can or have a chance) between-participants design study.<sup>12</sup> For the pricing manipulation, we used the same wordings for PWYW and PIF as in Experiment 9A with the can-versus-have a chance variation. In the PWYW conditions, participants read

Imagine there is a coffee shop that sells regular coffee. The coffee shop does not use traditional fixed prices. Instead customers are told the following: "Today every customer can have coffee for any price he or she chooses to pay. You can/have a chance to pay what you want for a cup of coffee."

The PIF conditions followed the same pattern.

<sup>12</sup> We excluded those who participated in Study 9A.

As in Study 9A, we asked the same three questions that probed whether participants understood that they and other customers could pay any price under PWYW and PIF. We also included an instructional attention check (Oppenheimer, Meyvis, & Davidenko, 2009) to identify respondents who fail to read the instruction carefully.

## Results and Discussion

As with Study 9A, we preregistered our plans for data collection and analyses (<https://osf.io/a2icv/>). Consistent with the preregistered plans, our primary analysis excluded those who failed the attention check, and we winsorized the willingness-to-pay estimates at \$10. Alternative specifications are reported in the online supplemental materials.

We excluded 80 participants (9.6%) who failed the attention check.<sup>13</sup> This exclusion left a final sample size of 756. A 2 (pricing: PWYW or PIF)  $\times$  2 (wording: can vs. have a chance) ANOVA on participants' willingness-to-pay yielded only a main effect of pricing, such that participants were willing to pay more in PIF conditions than PWYW conditions ( $M = \$2.50$  vs.  $\$1.75$ ),  $F(1, 752) = 45.71$ ,  $p < .001$ . The "can" vs. "have a chance to" wording did not influence willingness-to-pay differentially ( $M = \$2.12$  vs.  $\$2.13$ ),  $F(1, 752) = 0.02$ ,  $p = .883$ . Furthermore, the Pricing  $\times$  Wording interaction was not significant,  $F(1, 752) = 1.06$ ,  $p = .304$ .

A very similar pattern emerged for estimates of a typical customer's willingness to pay. A 2 (pricing)  $\times$  2 (wording) ANOVA yielded only a main effect of pricing ( $M = \$2.35$  vs.  $\$1.81$ ),  $F(1, 752) = 27.54$ ,  $p < .001$ . Neither the main effect of wording ( $M_{can} = \$2.06$  vs.  $M_{chance} = \$2.10$ ),  $F(1, 752) = 0.10$ ,  $p < .758$ , nor the Pricing  $\times$  Wording interaction was significant,  $F(1, 752) = 3.36$ ,  $p = .067$ . The latter effect was not hypothesized and is not significant but is directionally suggestive of a larger PIF-vs.-PWYW difference with "can" wording than with "have a chance" wording. These results suggest that the PIF effect observed in the previous studies was not driven by a slight wording difference we used (i.e., they can pay what they want versus they have a chance to pay forward).

Among those who passed the attention check, 93.5% correctly believed that they as well as the previous and the next customer could pay any price under PWYW or PIF. Again, if we restrict the analysis to only those people, the results change in neither direction nor significance.

### Experiment 9C: Paying for, and Being Paid for by, a Singular Other or Plural Others

An astute reviewer asked whether the PIF effect was limited to the social exchange between the specific customers in the chain of PIF transactions. Is it that people feel a social connection with a specific other, or would the effect hold with for a diffuse "others"? We additionally considered a slightly stronger alternative: what if customers are told that *the company* has paid for them? Will a customer still pay forward the company's kindness to another customer? Experiment 9C tested how the information about kind behavior can be generalized beyond the specific PIF pricing framing our previous studies have used.

## Method

Participants ( $N = 1,065$ ) were randomly assigned to one of five pricing conditions, PWYW, PIF, PIF singular, PIF plural, and PIF company. The first two conditions repeated the conditions of Experiment 9A. In the PIF singular condition, participants read

Imagine there is a coffee shop that sells regular coffee. The coffee shop does not use traditional fixed prices. Instead, customers are told the following: "Today every customer can have coffee for any price he or she chooses to pay. The previous customer has paid for your coffee. Now that your coffee's been paid for, you can pay it forward to the next customer."

In the PIF plural condition, participants read

Today, every customer can have coffee for any price he or she chooses to pay. Previous customers have paid for your coffee. You can pay it forward to future customers.

In the PIF company condition, participants read

Today every customer can have coffee for any price he or she chooses to pay. We've paid for your coffee. Now that your coffee's been paid for, you can pay it forward to a customer who will come later.

After indicating a typical person's and their own willingness to pay for a cup of coffee, they were asked the same three questions in Experiments 9A and 9B assessing understanding and then answered an additional attention check.<sup>14</sup>

## Results and Discussion

As in Studies 9A and 9B, we preregistered our plans for data collection and analyses (<https://osf.io/pyb6c/>). In our primary analysis, we again winsorized willingness to pay at \$10 and excluded those who failed the attention check. Alternative specifications are reported in the online supplemental materials.

Of the 1,065 participants, 169 (16%) failed the attention check. Excluding them left us 896 participants for analysis. Relative to the PWYW condition, participants said that they would pay more for a cup of coffee in all four of the PIF conditions,  $3.50 \leq ts \leq 4.61$ ,  $ps \leq .001$ . Similarly, estimates of a typical person's payments were higher in all four PIF conditions than in the PWYW condition,  $3.23 \leq ts \leq 4.17$ ,  $ps \leq .001$ . There were no differences between the four PIF conditions in terms of personal payment ( $.04 \leq ts \leq .93$ ;  $.35 < ps < .97$ ) or estimates of others' payments ( $.17 \leq ts \leq 1.06$ ;  $.292 \leq ps < .866$ ; see Figure 5).

Of the 896 participants used for analysis, 125 participants (14%) did not think that they or other customers could pay any price they

<sup>13</sup> Including those who failed the attention check did not change the direction or significance of the results.

<sup>14</sup> In this study, because of a software cap at 1,000, we could not systematically block all respondents who had previously participated in a similar study (e.g., Study 9A). Instead, we simply asked participants whether they had completed surveys using a similar coffee purchasing setting before and told them that their payment would not depend on how they answered this question.



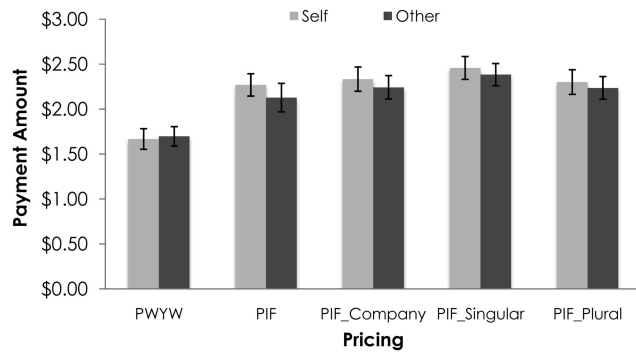


Figure 5. Mean willingness to pay for self and other (a typical customer) for a cup of coffee in Study 9c. Error bars reflect standard error of the means. PWYW = pay-what-you-want; PIF = pay-it-forward.

wanted.<sup>15</sup> As in Experiments 9A and 9B, excluding these participants did not change the direction or significance of the results reported previously.<sup>16</sup>

### General Discussion

The present research documents a novel influence on generosity under consumer elective pricing. Merely reframing payments as being on behalf of others, despite representing an identical financial reality, resulted nevertheless in people paying more. Four field studies (Study 1–4) compared behaviors under PWYW with those under PIF and showed robust evidence suggesting that people pay more under PIF than PWYW in both nonprofit and profit settings. Subsequent lab studies investigated potential mechanisms for the reported phenomenon. Study 5 found that payments under PWYW and PIF were not influenced by the identifiability of either the giver or recipient, suggesting that the differential weighting for reciprocity and generosity could not explain the difference. Study 6 showed that the effect was not merely due to lack of opportunity to justify the payment, since even with justification opportunities payments did not decrease. Studies 7 and 8 showed that personal payments were heavily influenced by information about the payments of others. When people do not know about others' payments, PIF makes them believe that others are paying more, but knowing the payments of others entirely eliminates the effect. Experiments 9a and 9b showed that neither confusion nor wording confound explained the observed differences. Finally, Experiment 9C tested whether the effect holds beyond the specific target of a giver or recipient.

Under consumer elective pricing, people frequently pay for something that they can have for free. Whether payment is directed to a seller or another buyer, payment of any amount under consumer elective pricing indicates that people are influenced by social motives other than material self-interest. Perhaps people construe the exchange as pure charity, with the generosity directed toward a seller, an experimenter, or other buyers instead of victims of misfortune. Indeed, some of the same underlying psychological motives are likely at work in consumer elective pricing and pure giving or helping situations. For example, as the present research highlighted, people are heavily influenced by the behavior—real or perceived—of others. Famously, the same concerns have been

thought to contribute to helping behaviors in an emergency situation as well (e.g., Latané & Darley, 1970).

Despite those similarities, the key determinants of the *level* of kindness (i.e., how *much* people pay or give) may differ in consumer elective pricing and charitable giving situations. In a charitable giving context, the emotional connection with the recipient substantially determines how much someone gives. Contributions increase as the emotional connection increases through features such as identifiability of the recipient, social distance from the recipient, and familiarity with the recipient's distress (Batson, O'Quin, Fultz, Vanderplas, & Isen, 1983; Small & Loewenstein, 2003; Small & Simonsohn, 2008). These variables did not seem to play as big a role with consumer elective pricing in our studies. In both consumer elective pricing and pure giving situations, people may feel pressured to follow the behaviors of others in an effort to behave appropriately. On the other hand, in pure charitable giving, there is a sense that any contribution might be an appreciated contribution, and contributors seek a contribution level that sufficiently relieves the distress evoked through empathy toward others. The same does not hold for consumer elective pricing, in which there is an implicit sense that payments below a certain level might be judged as too low, and instead people seek a payment level that meets the needs of looking kind, while simultaneously feeling affordable.

It should be noted that the observable generosity of others could just as easily push the opposite direction. If people are focused on the net charitable contribution, then information about generous others might prompt people to "free ride" instead. We are not the only ones who do not find evidence for that alternative (e.g., Andreoni & Scholz, 1998), as free riding on the generosity of others is considered socially inappropriate and therefore, psychologically costly. Pushing even further against that alternative is the possibility that people see the contributions of others as a signal of the quality of a product or the worthiness of an act (Silverman, Robertson, Middlebrook, & Drabman, 1984; Vesterlund, 2003).

Payments in consumer elective pricing are partially driven by ambiguity over what an appropriate payment should be. Without clear standards, people need to rely on their estimates of norms. Those estimates are at risk for systematic error. People inaccurately estimate that others are willing to pay more for goods (Frederick, 2012) and try to match their payment to their perception of others' payment. We can reasonably ask then, when will people correctly estimate actual norms? Tipping is an example of an elective payment with very well understood and agreed-upon norms. At restaurants, for example, people in the United States tend to use 15% as a rule of thumb and pay more depending on how they evaluate service quality and other various factors contributing to their dining experience (e.g., group size, alcohol consumption, and frequency of visits; Bodvarsson & Gibson, 1994). Although tipping is conceptually intended to incentivize workers, the effect of service quality is minimal on the total tipping per-

<sup>15</sup> In PWYW, this was the case for 9.2% of the participants and for 13.6% in PIF, 11.4% in PIF singular, 19.9% in PIF plural, and 15.7% in PIF company.

<sup>16</sup> The participants (86, or 9.6%) indicating that they had completed a similar survey before were excluded from our analysis. Excluding these repeat survey takers did not change the direction or significance of our reported results.

centage (e.g., 1.48% in Conlin, Lynn, & O'Donoghue, 2003; 2% in Lynn & McCall, 2000). Instead, variation is much more influenced by the irrelevant feature of bill size (Freeman et al., 1975; Lynn & Grassman, 1990; Rogelberg, Barnes-Farrell, & Creamer, 1999).

Our research suggests that people think that others are paying more under PIF than PWYW. But we still do not know exactly *why* people estimate a higher level of generosity in others under PIF than PWYW. One possibility hinges on the well-documented (but also imperfectly understood) bias toward overestimating the willingness to pay of others (Frederick, 2012). That research shows that, across a wide array of goods and services (e.g., a can of macadamia nuts, a portable minicycle, and so on), people think that someone else who similarly likes the product would nevertheless be willing to pay more for it. Add in the much more straightforward contention that payments are influenced by what they think others are paying, and there is a plausible explanation for the effect: the PIF wording makes people think of others' payments, people overestimate the payments of others, and people adjust their own payments up to match that perception. This explanation is parsimonious but necessarily speculative. Subsequent researchers could aim to isolate the role of (mis)perceptions of other payments. Any answer would likely inform not only this research but also the research of Frederick (2012; Weaver & Frederick, 2012).

Our research indicates that people pay more when they pay it forward. We think that this phenomenon is due to indirectly (implicitly) invoked social influence. When we made those influences more explicitly relevant, however, by exposing the identity of gift exchange partners (Study 5), we found no effect of the manipulation. These results suggest that the explicit identity of an exchange partner itself does not influence the level of generosity under PIF. Participants' generosity might be influenced by how *closely* participants relate to their exchange partners under PIF. Small and Simonsohn (2008) found that a closer personal relationship with victims of a misfortune increased sympathy and charitable giving. The participants in our Study 5 were all functionally at the same middling social distance of unfamiliar undergraduates at the same university. Would participants be more generous under PIF if they exchanged gifts with close friends? Since givers and receivers are not victims of misfortune, there is unlikely to be major changes in sympathy. However, the norms of generosity change with reduced social distance. Exchange relationships involve short-term interactions with strangers or acquaintances, whereas communal relationships involve long-term interactions with close friends or family members (Clark & Mills, 1979, 1993). People in exchange relationships tend to keep record of their exchange partners' past favors and return the favors at a comparable level. On the contrary, people in communal relationships avoided a "tit-for-tat" type of reciprocity and paid attention to their interaction partners' need and felt obligated to accommodate their need (Clark, 1984). These findings suggest that dominant norms vary depending on the nature of people's social relationships. People might follow different norms depending on how closely they relate to the person with whom they exchange gifts. Future researchers could investigate how the strength of social relationships with others influences people's identification of norms and their level of generosity under PIF.

People like to be seen as generous by others and by themselves. They also want to save their money. In concept, therefore, people

savor an opportunity to save money while also saving face. Study 6 tested this possibility. Participants could protect their self-image by justifying a low payment.<sup>17</sup> They did not take the opportunity; they paid slightly *more*. Perhaps participants interpreted it as an opportunity to authentically express and explain their generosity. Consistent with this possibility, when we excluded zero payments from our analysis, only the message factor significantly predicted higher payments. When people wrote a message, more people (32% vs. 19.4%) paid zero, but those who paid something did not pay any less than those who indicated payments ( $M_s = \$3.27$  vs.  $\$2.93$ ).

Pay-it-forward pricing has two quite different features: receiving a gift and giving a gift. Whereas the former invokes the norms of reciprocity, the latter is more closely related to generosity. Which is the more powerful influence in shaping people's behaviors under PIF? Grant and Dutton (2012) found that people behave more prosocially when reflecting on giving benefits to others than receiving benefits from others. They argued that giving to others enhances the salience and strength of a giver's identity as a capable and caring person, whereas receiving from others increases a sense of indebtedness and incompetence. Consistent with these findings, we predicted that when people were reminded of giving rather than receiving a gift, they would pay forward a higher amount.

We conducted a pilot test of this possibility at a local Indian restaurant. *Karma Kitchen* has operated with a pay-it-forward pricing model as a Sunday lunch restaurant for many years. In this experiment, we made either the receiving or giving feature of PIF salient and recorded customers' payments. When people entered the restaurant, they were told that their meals had been paid for another customer who came earlier and they could pay it forward to another customer. At the end of their meal, customers ( $N = 94$ ) received one of two slight variants of the PIF language. When customers received their check, they received a card that said either "Thanks for coming to the Karma Kitchen today. Someone who came here earlier paid for your meal as a gift. How much would you like to pay? \$\_\_\_\_\_" or "Thanks for coming to the Karma Kitchen today. Now you have a chance to pay for the meal as a gift for someone who will come later. How much would you like to pay? \$\_\_\_\_\_" Consistent with our prediction, groups of customers paid more when the card emphasized *giving* ( $M = \$20.42$ ) than when it emphasized *receiving* ( $M = \$11.09$ ),  $F(1, 40) = 4.77$ ,  $p = .035$ .

We were able to conduct this experiment for only 1 day and had an insufficient sample size to credibly test our prediction (despite the statistical significance), and therefore, we are hesitant to conclude that the influence of generosity is stronger than reciprocity in the PIF context. However, these results hint that even though people are heavily influenced by norms of others' behaviors, they may be more responsive to the aspects of the normative appeals that enhance and strengthen their identity.

<sup>17</sup> An even more severe form would be to lie by making a small donation but claiming a large donation on the card. Seven participants showed a mismatch between actual and reported payments, six of whom reported a higher number than they had actually paid. There were no conditional differences in these payments, but the behavior is still intriguing.

## References

- Alba, J. W., & Hutchinson, J. W. (2000). Knowledge calibration: What consumers know and what they think they know. *Journal of Consumer Research*, 27, 123–156. doi:10.1086/314317
- Alexander, R. D. (1987). *The biology of moral systems* (Foundations of human behavior series). New York, NY: Aldine de Gruyter.
- Allport, F. H. (1924). *Social psychology*. Boston, MA: Houghton Mifflin.
- Andreoni, J., & Miller, J. (2002). Giving according to GARP: An experimental test of the consistency of preferences for altruism. *Econometrica*, 70, 737–753. doi:10.1111/1468-0262.00302
- Andreoni, J., & Scholz, J. K. (1998). An econometric analysis of charitable giving with interdependent preferences. *Economic Inquiry*, 36, 410–428. doi:10.1111/j.1465-7295.1998.tb01723.x
- Batson, C. D., O'Quin, K., Fultz, J., Vanderplas, M., & Isen, A. M. (1983). Influence of self-reported distress and empathy on egoistic versus altruistic motivation to help. *Journal of Personality and Social Psychology*, 45, 706–718. doi:10.1037/0022-3514.45.3.706
- Bodvarsson, Ö. B., & Gibson, W. A. (1994). Gratuities and customer appraisal of service: Evidence from Minnesota restaurants. *Journal of Socio-Economics*, 23, 287–302. doi:10.1016/1053-5357(94)90005-1
- Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology*, 39, 752–766. doi:10.1037/0022-3514.39.5.752
- Charness, G., & Rabin, M. (2005). Expressed preferences and behavior in experimental games. *Games and Economic Behavior*, 53, 151–169. doi:10.1016/j.geb.2004.09.010
- Cialdini, R. B. (1993). *Influence: Science and practice* (3rd ed.). New York, NY: HarperCollins.
- Cialdini, R. B. (2009). We have to break up. *Perspectives on Psychological Science*, 4, 5–6. doi:10.1111/j.1745-6924.2009.01091.x
- Cialdini, R. B., Demaine, L. J., Sagarin, B. J., Barrett, D. W., Rhoads, K., & Winter, P. L. (2006). Managing social norms for persuasive impact. *Social Influence*, 1, 3–15. doi:10.1080/15534510500181459
- Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative conduct: A theoretical refinement and reevaluation of the role of norms in human behavior. *Advances in Experimental Social Psychology*, 24, 201–234.
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58, 1015–1026. doi:10.1037/0022-3514.58.6.1015
- Cialdini, R. B., & Trost, M. R. (1998). Social influence: Social norms, conformity, and compliance. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (pp. 151–192). Boston, MA: McGraw-Hill.
- Clark, M. S. (1984). A distinction between two types of relationships and its implications for development. In J. C. Masters & K. Yarkin-Levin (Eds.), *Boundary areas in social and developmental psychology* (pp. 241–270). New York, NY: Academic Press.
- Clark, M. S., & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology*, 37, 12. doi:10.1037/0022-3514.37.1.12
- Clark, M. S., & Mills, J. (1993). The difference between communal and exchange relationships: What it is and is not. *Personality and Social Psychology Bulletin*, 19, 684–691. doi:10.1177/0146167293196003
- Conlin, M., Lynn, M., & O'Donoghue, T. (2003). The norm of restaurant tipping. *Journal of Economic Behavior & Organization*, 52, 297–321. doi:10.1016/S0167-2681(03)00030-1
- DellaVigna, S., List, J. A., & Malmendier, U. (2012). Testing for altruism and social pressure in charitable giving. *Quarterly Journal of Economics*, 127, 1–56. doi:10.1093/qje/qjr050
- Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *Journal of Abnormal and Social Psychology*, 51, 629–636. doi:10.1037/h0046408
- Dufwenberg, M., Gneezy, U., Güth, W., & Van Damme, E. (2001). Direct vs indirect reciprocity: An experiment. *Homo Oeconomicus*, 18, 19–30.
- Epley, N., & Dunning, D. (2000). Feeling “holier than thou”: Are self-serving assessments produced by errors in self- or social prediction? *Journal of Personality and Social Psychology*, 79, 861–875. doi:10.1037/0022-3514.79.6.861
- Falk, A., & Fischbacher, U. (2006). A theory of reciprocity. *Games and Economic Behavior*, 54, 293–315. doi:10.1016/j.geb.2005.03.001
- Fehr, E., & Gächter, S. (2000). Fairness and retaliation: The economics of reciprocity. *Journal of Economic Perspectives*, 14, 159–181. doi:10.1257/jep.14.3.159
- Fehr, E., Gächter, S., & Kirchsteiger, G. (1997). Reciprocity as a contract enforcement device: Experimental evidence. *Econometrica*, 65, 833–860. doi:10.2307/2171941
- Fehr, E., & Schmidt, K. M. (1999). A theory of fairness, competition, and cooperation. *Quarterly Journal of Economics*, 114, 817–868. doi:10.1162/003355399556151
- Frederick, S. (2012). Overestimating others' willingness to pay. *Journal of Consumer Research*, 39, 1–21. doi:10.1086/662060
- Freeman, S., Walker, M. R., Borden, R., & Latané, B. (1975). Diffusion of responsibility and restaurant tipping: Cheaper by the bunch. *Personality and Social Psychology Bulletin*, 1, 584–587. doi:10.1177/014616727500100407
- Gilovich, T., Medvec, V. H., & Savitsky, K. (2000). The spotlight effect in social judgment: An egocentric bias in estimates of the salience of one's own actions and appearance. *Journal of Personality and Social Psychology*, 78, 211–222. doi:10.1037/0022-3514.78.2.211
- Gneezy, A., Gneezy, U., Nelson, L. D., & Brown, A. (2010, July 16). Shared social responsibility: A field experiment in pay-what-you-want pricing and charitable giving. *Science*, 329, 325–327. doi:10.1126/science.1186744
- Gneezy, A., Gneezy, U., Riener, G., & Nelson, L. D. (2012). Pay-what-you-want, identity, and self-signaling in markets. *PNAS: Proceedings of the National Academy of Sciences of the United States of America*, 109, 7236–7240. doi:10.1073/pnas.1120893109
- Goldstein, N. J., Cialdini, R. B., & Griskevicius, V. (2008). A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. *Journal of Consumer Research*, 35, 472–482. doi:10.1086/586910
- Goranson, R. E., & Berkowitz, L. (1966). Reciprocity and responsibility reactions to prior help. *Journal of Personality and Social Psychology*, 3, 227–232. doi:10.1037/h0022895
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25, 161–178. doi:10.2307/2092623
- Grant, A., & Dutton, J. (2012). Beneficiary or benefactor? Are people more prosocial when they reflect on receiving or giving? *Psychological Science*, 23, 1033–1039. doi:10.1177/0956797612439424
- Gray, K., Ward, A. F., & Norton, M. I. (2014). Paying it forward: Generalized reciprocity and the limits of generosity. *Journal of Experimental Psychology: General*, 143, 247–254.
- Keizer, K., Lindenberg, S., & Steg, L. (2008, December 12). The spreading of disorder. *Science*, 322, 1681–1685. doi:10.1126/science.1161405
- Kim, J. Y., Natter, M., & Spann, M. (2009). Pay what you want: A new participative pricing mechanism. *Journal of Marketing*, 73, 44–58. doi:10.1509/jmkg.73.1.44
- Kruger, J. (1999). Lake Wobegon be gone! The “below-average effect” and the egocentric nature of comparative ability judgments. *Journal of Personality and Social Psychology*, 77, 221–232. doi:10.1037/0022-3514.77.2.221
- Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated



- self-assessments. *Journal of Personality and Social Psychology*, 77, 1121–1134. doi:10.1037/0022-3514.77.6.1121
- Latané, B., & Darley, J. M. (1970). *The unresponsive bystander: Why doesn't he help?* New York, NY: Appleton-Century-Crofts.
- Lynn, M., & Grassman, A. (1990). Restaurant tipping: An examination of three "rational" explanations. *Journal of Economic Psychology*, 11, 169–181. doi:10.1016/0167-4870(90)90002-Q
- Lynn, M., & McCall, M. (2000). Gratitude and gratuity: A meta-analysis of research on the service-tipping relationship. *Journal of Socio-Economics*, 29, 203–214. doi:10.1016/S1053-5357(00)00062-7
- Mak, V., Zwick, R., & Rao, A. R. (2010). "Pay what you want" as a profitable pricing strategy: Theory and experimental evidence. Retrieved June 8, 2012, from <http://rady.ucsd.edu/faculty/seminars/2010/papers/zwick.pdf>
- Miller, D. T., & Effron, D. A. (2010). Psychological license: When it is needed and how it functions. *Advances in Experimental Social Psychology*, 43, 115–155. doi:10.1016/S0065-2601(10)43003-8
- Miller, D. T., & McFarland, C. (1987). Pluralistic ignorance: When similarity is interpreted as dissimilarity. *Journal of Personality and Social Psychology*, 53, 298–305. doi:10.1037/0022-3514.53.2.298
- Miller, D. T., & Ratner, R. K. (1998). The disparity between the actual and assumed power of self-interest. *Journal of Personality and Social Psychology*, 74, 53–62. doi:10.1037/0022-3514.74.1.53
- Monin, B., & Miller, D. T. (2001). Moral credentials and the expression of prejudice. *Journal of Personality and Social Psychology*, 81, 33–43. doi:10.1037/0022-3514.81.1.33
- Nowak, M. A., & Sigmund, K. (1998). The dynamics of indirect reciprocity. *Journal of Theoretical Biology*, 194, 561–574. doi:10.1006/jtbi.1998.0775
- Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology*, 45, 867–872. doi:10.1016/j.jesp.2009.03.009
- Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change* (Springer Series in Social Psychology, pp. 1–24). New York, NY: Springer. doi:10.1007/978-1-4612-4964-1\_1
- Poggioli, S. (2013, April 25). EU embraces "suspended coffee": Pay it forward with a cup of Joe [Blog post from National Public Radio: The Salt]. Retrieved from <http://www.npr.org/blogs/thesalt/2013/04/24/178829301/eu-embraces-suspended-coffee-pay-it-forward-with-a-cup-of-joe>
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36, 717–731. doi:10.3758/BF03206553
- Prentice, D. A., & Miller, D. T. (1993). Pluralistic ignorance and alcohol use on campus: Some consequences of misperceiving the social norm. *Journal of Personality and Social Psychology*, 64, 243–256. doi:10.1037/0022-3514.64.2.243
- Rabin, M. (1993). Incorporating fairness into game theory and economics. *American Economic Review*, 83, 1281–1302.
- Radiohead (Performer and producer). (2007, October 10). *In rainbows* [Audio podcast]. Available from [www.radiohead.com](http://www.radiohead.com)
- Regner, T., & Barria, J. A. (2009). Do consumers pay voluntarily? The case of online music. *Journal of Economic Behavior & Organization*, 71, 395–406. doi:10.1016/j.jebo.2009.04.001
- Regner, T., & Riener, G. (2012). *Motivational cherry picking* (DICE Discussion Paper No. 68). Düsseldorf, Germany: Heinrich Heine University Düsseldorf, Department of Economics, Düsseldorf Institute for Competition Economics.
- Reno, R. R., Cialdini, R. B., & Kallgren, C. A. (1993). The transsituational influence of social norms. *Journal of Personality and Social Psychology*, 64, 104–112. doi:10.1037/0022-3514.64.1.104
- Rogelberg, S. G., Barnes-Farrell, J. L., & Creamer, V. (1999). Customer service behavior: The interaction of service predisposition and job characteristics. *Journal of Business and Psychology*, 13, 421–435. doi:10.1023/A:1022934618445
- Schelling, T. C. (1968). The life you save may be your own. In S. B. Chase (Ed.), *Problems in public expenditure analysis* (pp. 127–176). Washington, DC: Brookings Institution.
- Schmidt, K., Spann, M., & Zeithammer, R. (2012). Pay what you want as a marketing strategy in monopolistic and competitive markets (Munich Discussion Paper No. 2012–33). Munich, Germany: University of Munich, Department of Economics. doi:10.2139/ssrn.2191934
- Schroeder, C. M., & Prentice, D. A. (1998). Exposing pluralistic ignorance to reduce alcohol use among college students. *Journal of Applied Social Psychology*, 28, 2150–2180. doi:10.1111/j.1559-1816.1998.tb01365.x
- Seiter, J. S., & Weger, H., Jr. (2010). The effect of generalized compliments, sex of server, and size of dining party on tipping behavior in restaurants. *Journal of Applied Social Psychology*, 40, 1–12. doi:10.1111/j.1559-1816.2009.00560.x
- Sherif, M. (1936). *The psychology of social norms*. New York, NY: Harper & Brothers.
- Silverman, W. K., Robertson, S. J., Middlebrook, J. L., & Drabman, R. S. (1984). An investigation of pledging behavior to a national charitable telethon. *Behavior Therapy*, 15, 304–311. doi:10.1016/S0005-7894(84)80033-7
- Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology undisclosed flexibility in data collection and analysis allows presenting anything as significant. *Psychological Science*, 22, 1359–1366. doi:10.1177/0956797611417632
- Simonsohn, U., Nelson, L. D., & Simmons, J. P. (in press). P-curve: A key to the file drawer. *Journal of Experimental Psychology: General*.
- Small, D. A., & Loewenstein, G. (2003). Helping a victim or helping the victim: Altruism and identifiability. *Journal of Risk and Uncertainty*, 26, 5–16. doi:10.1023/A:1022299422219
- Small, D. A., & Simonsohn, U. (2008). Friends of victims: Personal experience and prosocial behavior. *Journal of Consumer Research*, 35, 532–542. doi:10.1086/527268
- Snyder, M. L., Kleck, R. E., Strenta, A., & Mentzer, S. J. (1979). Avoidance of the handicapped: An attributional ambiguity analysis. *Journal of Personality and Social Psychology*, 37, 2297–2306. doi:10.1037/0022-3514.37.12.2297
- Tesser, A., Campbell, J., & Mickler, S. (1983). The role of social pressure, attention to the stimulus, and self-doubt in conformity. *European Journal of Social Psychology*, 13, 217–233. doi:10.1002/ejsp.2420130303
- Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology*, 46, 35–57. doi:10.1086/406755
- Vesterlund, L. (2003). The informational value of sequential fundraising. *Journal of Public Economics*, 87, 627–657. doi:10.1016/S0047-2727(01)00187-6
- Vohs, K. D., Mead, N. L., & Goode, M. R. (2006, November 17). The psychological consequences of money. *Science*, 314, 1154–1156.
- Weaver, R., & Frederick, S. (2012). A reference price theory of the endowment effect. *Journal of Marketing Research*, 49, 696–707. doi:10.1509/jmr.09.0103

Received November 12, 2013

Revision received May 14, 2014

Accepted May 19, 2014 ■