Social Defaults: Observed Choices Become Choice Defaults

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Defaults effects can be created by social contexts. The observed choices of others can become *social defaults*, increasing their choice share. Social default effects are a novel form of social influence not due to normative or informational influence: participants were more likely to mimic observed choices when choosing in private than in public (experiment 1) and when stakes were low rather than high (experiment 2). Like other default effects, social default effects were greater for uncertain rather than certain choices (experiment 3) and were weaker when choices required justification (experiment 4). Social default effects appear to occur automatically as they become stronger when cognitive resources are constrained by time pressure or load, and they can be sufficiently strong to induce preference reversals (experiments 5 and 6).

Decisions often occur in a social context. Whether in a local hardware store or a foreign restaurant, people routinely make choices in the presence of other people. Many of the processes and influences on choices made in isolation should apply to choices made in social contexts, but social contexts (even when only inferred) can have potent and unique influences on perception and behavior. We suggest that when a person is deciding between options for which her preferences are not well formed, observing the choice of another person makes the option chosen by the other person a *social default*. Consequently, the social default option is more likely to be chosen, leading to choice mimicry unless the default is perceived as inappropriate or the chooser has sufficient cognitive resources and motivation to diverge from the social default before choosing.

Our theory draws from three normally disparate streams of research: social influence, behavioral mimicry, and default effects. The social influence literature has shown that people conform to the behavior of others as a result of deliberative processes (e.g., Asch 1956; Bearden and Etzel 1982; Campbell and Fairey 1989; Childers and Rao 1992; Cialdini 2001; Deutsch and Gerard 1955; Sherif 1936). People deliberately conform because they believe that the behavior of others provides diagnostic information (i.e., informational influence) and because they explicitly desire to adhere to the expectations of their in-group (i.e., normative influence; Deutsch and Gerard 1955). People also automatically imitate the behaviors of others, as they mimic each other's facial expressions and mannerisms, for example, without being aware that they are mirroring those expressions and mannerisms (Chartrand and Bargh 1999; Chartrand and van Baaren 2009).

We suggest that just as another person's expressions and mannerism can influence a person's expressions and mannerisms, observing another person's choices can create social default options that lead a person to mimic the other's choices. In six experiments, we present evidence for social default effects. The observed choices of others become default options that engender choice mimicry, from which

consumers diverge only when they perceive the default to be inappropriate to adopt or when they have sufficient cognitive resources and motivation to deliberate when choosing. In what follows, we review the literature on social influence, behavioral mimicry, and default effects. We then develop and test specific hypotheses about the conditions under which social defaults engender choice mimicry.

SOCIAL INFLUENCE

Conformity as a Deliberate Process

Social conformity has been conceptualized as a deliberate, conscious process. People conform to the behavior of others to achieve explicit goals (Cialdini and Goldstein 2004; Cialdini and Trost 1998). Deliberate social conformity has been shown to play an important role in decision making (Bearden and Etzel 1982; Campbell and Fairey 1989; Childers and Rao 1992), judgment and evaluation (e.g., Asch 1956; Sherif 1936), charity donations (e.g., Reingen 1982), littering (e.g., Cialdini, Reno, and Kallgren 1990), and purchase decisions (e.g., Bearden and Etzel 1982; Childers and Rao 1992; Cohen 1983).

Deutsch and Gerard (1955) suggest two types of social influence based on the motivation to conform: informational influence and normative influence. Informational influence is "influence to accept information obtained from another as evidence about reality" (Deutsch and Gerard 1955, 629). It is based on the desire to be accurate (Campbell and Fairey 1989; Cialdini and Goldstein 2004; Deutsch and Gerard 1955). The behavior of others is perceived as a source of information concerning the accuracy or value of options. Accordingly, people conform to the behavior of others because they believe that others may be accurate (Burnkrant and Cousineau 1975; Kelley 1967). Since consumers conform out of a belief that the behavior of others provides diagnostic information, informational influence often leads to private acceptance as well as public compliance (Cialdini 2001). Likewise, when consumers are uncertain about what behavior is acceptable or accurate, they often follow a "social proof" heuristic (Cialdini 2001). Consumers conform because they believe that others' interpretation of an ambiguous situation is more accurate than their own and will help them choose an appropriate course of action (Aronson, Wilson, and Akert 2005). Because informational influence is believed to provide diagnostic information, it is generally more powerful under conditions of uncertainty than certainty (Campbell and Fairey 1989; Deutsch and Gerard 1955).

Normative influence is "influence to conform to the positive expectations of another" (Deutsch and Gerard 1955, 629). It is based on the desire to behave appropriately in a social setting (Campbell and Fairey 1989; Cialdini and Goldstein 2004; Deutsch and Gerard 1955). For example, consumers reuse towels more often when reusing towels appears to be a social norm (Goldstein, Cialdini, and Griskevicius 2008). Because normative influence is stronger when the consumer perceives there is pressure to conform to the judgment of others, it often leads to public compliance but not necessarily to private acceptance (Deutsch and Gerard 1955).

Social influence can also produce divergent behavior. People are often concerned about how other people perceive them and thus behave in ways that will form specific impressions in others (Leary and Kowalski 1990; Sengupta, Dahl, and Gorn 2002). They desire to be unique (Cialdini 2001; Cialdini and Goldstein 2004; Snyder and Fromkin 1977) and thus sometimes deliberately diverge from others' choices to communicate their desired identities (Berger and Health 2007, 2008). Importantly, this occurs when the behavior is performed in public (i.e., observed by others) but not when the behavior is performed in private (Ariely and Levav 2000; Berger and Health 2008).

Imitation as an Automatic Process: Behavioral Mimicry

Behavior imitation also results from unconscious automatic processes. People mimic the behaviors of their interaction partners, including facial expressions, speech patterns, accents, speech rate, postures, gestures, mannerisms, motor movements, and emotions (see Chartrand and van Baaren 2009, for a review). In contrast to informational social influence in which others' behavior is interpreted as diagnostic or accurate, behavioral mimicry denotes the automatic, passive, and unintentional mimicking of others' behaviors. Consumers are typically unaware of their mimicry (Chartrand and Bargh 1999). Behavioral mimicry can increase affiliation between interacting individuals and lead to more rapport, empathy, and liking between interacting partners (Chartrand, Maddux, and Lakin 2005; Lakin and Chartrand 2003; Lakin et al. 2003; van Baaren et al. 2003). It can also affect consumption. People consume more of a food concurrently consumed by another person, but they are unaware that their consumption is influenced by this social context (Tanner et al. 2008). Likewise, people anchor on the quantity of food that is consumed in their social context (McFerran et al. 2010) when that consumption behavior appears appropriate or denotes behavior that would be desirable to emulate. Such behavioral mimicry, however, does not occur when deliberation suggests that others constitute inappropriate standards or their behavior is perceived to be inappropriate (e.g., when those observed eating are obese).

We suggest that just as observing others' behavior can induce behavioral mimicry, observing others' choices can induce choice mimicry. Observing others' choices may cause their choices to become default options, which are automatically adopted unless consumers believe it is inappropriate to imitate those choices or have sufficiently strong preferences, cognitive resources, and motivation to diverge before choosing. Following the existing nomenclature, we define choice imitation resulting from social default effects *choice mimicry* because (like behavioral mimicry) it occurs automatically when consumers do not engage in further deliberation. We define choice imitation resulting from deliberate processes *choice conformity*, and we use the term

choice imitation as a general term encompassing mimicry and conformity without reference to automatic or deliberate processes. Because consumers are hypothesized to perceive the option that they observed others having chosen as a default option, choice mimicry should be observed under the same circumstances in which default effects are observed.

DEFAULT EFFECTS

Defaults Defined by Choice Architecture

A default is the choice option that consumers consider first and adopt as the status quo before considering other choice options. Defaults are typically created through choice architecture, for example, by making one option the opt-out option (the default) and all other options opt-in (e.g., Johnson and Goldstein 2003), presenting participants with a "base model" (a default configuration) to which they can add or from which they can subtract features (e.g., Park, Jun, and MacInnis 2000), or telling participants that they can choose between two options but presenting them with only one (the default) and requiring that they request the other option to receive it (McKenzie, Liersch, and Finkelstein 2006). Such exogenously defined default options can have dramatic effects on consumer choice (Johnson, Bellman, and Lohse 2002; Johnson and Goldstein 2003, 2004; Thaler and Sunstein 2008), although consumers are not necessarily aware of this influence (Smith, Goldstein, and Johnson 2013). Consent rates for organ donation, for example, are substantially higher when the default is to be a donor (an opt-out policy) than when the default is not to be a donor (an opt-in policy; Johnson and Goldstein 2003). Similar default effects have been demonstrated for participation in 401(k) retirement plans (Choi et al. 2002; Madrian and Shea 2001), choice of insurance plans (Johnson et al. 1993), and consumer product choices (Brown and Krishna 2004; Dinner et al. 2011; Park et al. 2000).

Several explanations have been offered for why defaults created by the choice architecture affect choices. First, default options may be perceived as the option implicitly endorsed by the choice architect (e.g., public policy makers or marketers; Brown and Krishna 2004; McKenzie et al. 2006). Second, because default options act as reference points, loss aversion leads people to stick with defaults rather than switch to other options (Dinner et al. 2011; Park et al. 2000). Third, no physical effort is required when accepting a default option, whereas switching to an alternative option requires effort. Hence, physical laziness might produce default effects. However, in experiments in which choosing to keep or abandon the default differed only by one click, Johnson and Goldstein (2003) still found the same differences in organ donation enrollment as in the real world. Thus, physical effort is unlikely to be a primary cause for default effects to occur.

Endogenously Defined Defaults

In some contexts, a choice option becomes a default because of preexisting preferences or norms rather than as a result of choice architecture. Such endogenously determined defaults evoke greater intuitive confidence (Simmons and Nelson 2006) and are processed more efficiently (Epstein 1994). Consumers bet too much on favorites to win NFL games, because the favorite is perceived as the default even though the chances of favorites and underdogs are equalized by point spreads (Simmons and Nelson 2006). Similarly, Danziger, Levav, and Avnaim-Pesso (2011) found that in the Israeli judiciary system the default is to deny a prisoner's parole request. The majority of parole decisions were denials, it took judges less time to arrive at denial decisions, and denial decisions were less wordy than acceptance decisions.

One explanation that can account for both exogenous and endogenous default effects is that consumers are "cognitive misers" trying to expend the least effort necessary to make decisions (Fiske and Taylor 1984; Samuelson and Zeckhauser 1988; Thaler and Sunstein 2008). Indeed, consumers are more likely to choose default options if they can be adopted with less cognitive effort than their alternatives (Brown and Krishna 2004; Camerer et al. 2003; Johnson et al. 2002), when consumers are tired (Levav et al. 2010), and when their self-control resources are depleted (Evans et al. 2011). Likewise, judges are more likely to deny a prisoner parole (the default option) when they have made numerous parole decisions beforehand on the day of that hearing (Danziger et al. 2011). In the same vein, it has been suggested that when it is difficult to distinguish between options, people should be more likely to accept a default option. In other words, uncertainty about one's own preferences or the choice options should increase default effects (Thaler and Sunstein 2008).

Social Defaults

We suggest that—like choice architecture—social context can exogenously create default options. Observing another consumer's choice may lead to that option being perceived as the default option. Like defaults in general, social defaults should be more likely to be adopted when decision makers are uncertain about their preferences and when they are unable or unwilling to engage in deliberation before choosing.

We hypothesize that social defaults (like behavioral mimicry) engender choice mimicry through the automatic adoption of the default. Automaticity is defined by three aspects (Bargh 1994): (*a*) unawareness of the stimulus or its impact on behavior; (*b*) efficiency, that is, automatic processes are more efficient than deliberate processes (i.e., they free up resources for simultaneously processing other stimuli); and (*c*) controllability, that is, automatic processes can be disrupted when consumers are willing and capable of exerting cognitive effort. In accordance with these three aspects, behavioral mimicry has been shown to occur outside conscious awareness. It does not interfere with other demanding tasks. People, for example, are perfectly capable of engaging in deep conversations while automatically mimicking the facial expressions and mannerisms of their interaction partners (Char-

trand and Bargh 1999; Chartrand and van Baaren 2009). Finally, automatic processes can be disrupted when consumers have sufficient cognitive and motivational resources to deliberate about their behavior (Bargh 1994; Fiske 1998).

Disruption means that the stimulus is still automatically perceived outside awareness, but in a second deliberate stage the resulting behavior is modified (Gilbert and Gill 2000; Wegener and Petty 1995). It may happen when a deliberate analysis of the situation results in alternative behaviors being judged as more desirable, rational, or appropriate than the automatically activated behavior. As an example of disruption, McFerran et al. (2010) found that consumers under cognitive load anchored on the amount of food that they observed others eating, whether those others were obese or not obese. In contrast, consumers not under load (who were able to consciously deliberate) only anchored on the amount others ate when those others were not obese, and hence the observed behavior was appropriate to emulate. When the observed others were obese, participants not under load adjusted the amount of food they ate. They no longer anchored on the amount consumed by the obese persons they observed.

Concluding, we hypothesize that social default effects should be observed under the same circumstances as traditional default effects are observed. These boundary conditions will allow us to distinguish the effect of social defaults from deliberate social influence effects. We report six experiments designed to test for the existence of social defaults and to pit the social default account against normative and informational social influence explanations. Experiments 1 and 2 tested whether social default effects are due to deliberative forms of social influence (normative and informational). Experiments 3 and 4 examined whether social defaults are adopted under the same conditions in which traditional defaults are adopted. Finally, experiments 5 and 6 tested the automatic nature of social default effects and whether social defaults can lead to preference reversals.

EXPERIMENT 1

In experiment 1, non-Korean participants chose one of two Korean teas (labeled in Korean, hence, uncertain products). In a control condition, participants simply chose one of the two Korean teas in private. In a *social default private choice* condition, participants observed a confederate's choice and, after the confederate had left the room, chose one of the two Korean teas. Finally, in a *social default public choice* condition, the confederate stayed in the room after making her choice and observed participants while they chose one of the two Korean teas.

This design allowed us to test two aspects of our social default theory. First, we tested our prediction that choice mimicry should occur for choice options for which participants do not have well-formed preferences. Specifically, choice share of the tea chosen by the confederate should be higher in the social default private choice condition than the control condition. Second, we tested whether choice mimicry, if observed, is due to normative social influence. If

choice imitation is caused by normative influence, it should increase when choices are made in public (i.e., the social default public choice condition) because it is in public when consumers want to conform to social norms (Deutsch and Gerard 1955). In contrast, if choice imitation is due to an automatic adoption of the social default, as we suggest, choice divergence may occur when choices are made in public because consumers may perceive it to be inappropriate to imitate another's choice in her presence (Ariely and Levav 2000; Berger and Health 2008; White and Argo 2011).

Method

Participants, Design, and Procedure. Fifty-four students at Carnegie Mellon University (28 males and 26 females; $M_{age} = 22.61$, SD $= 3.80$) participated in exchange for monetary compensation. Two Korean teas (two different brands of the same tea) were used as uncertain products; all information on the packages was printed in Korean (figs. 1A and 1B).

Participants were run individually. In all conditions, each participant was greeted by a research assistant and entered a room where a confederate (female Caucasian) was already seated near the door. Both the participant and the confederate were told that the purpose of the experiment was to study how people evaluate products. Participants were told that in an adjacent room there were two teas, from which they should choose one. They would then keep their preferred tea bag as remuneration for participating in the study.

Participants were randomly assigned to one of the three experimental conditions. In the social default private choice condition, the participant and the confederate were asked to go to the next room and make their choices. Since the confederate was seated near the door, she went first. When both entered the next room, the confederate chose a target brand from the two teas (the social default) and left the room. The participant was thus alone while making her choice. After making her choice, the participant and confederate returned to the original room and completed a brief questionnaire. In the social default public choice condition, the participant and confederate went to the next room, the confederate chose first, and then the participant chose while the confederate observed her choice. Finally, in the control condition, the participant went alone to the next room and made her choice without having observed the confederate's choice.

The position (left or right) of the teas was counterbalanced in all three conditions. After their choice, all participants indicated whether they could read Korean. The position of the social default brand did not affect the dependent variable of participants' choice in this and all subsequent studies and thus will not be discussed further. None of the participants in this and all subsequent studies (except experiment 5) indicated that they could read Korean. To exclude the possibility of direct communication between the participant and the confederate during the experiment, they were instructed not to talk to each other. Experimental sessions were spaced out with 10-minute gaps in between participants to ensure

FIGURE 1

CHOICE OPTIONS IN EXPERIMENTS 1 (*A* AND *B*), 2 (*E* AND *F*), 3 (*A–D*), 4 (*A–D*), AND 6 (*G* AND *H*)

NOTE.—Experiment number below an option indicates the social default.

that participants would not discover that the confederate had already participated in a previous session.

Results

Choice shares of the social default brand differed significantly across the three experimental conditions ($\chi^2(2) = 13.22$, $p < .01$). A majority of participants (80.0%) in the social default private choice condition chose the social default (i.e., the brand chosen by the confederate), compared to 47.6% in the control condition ($\chi^2(1) = 3.86$, $p = .05$). In contrast, only 16.7% of participants in the social default public choice condition chose the social default brand, significantly fewer than in the control condition ($\chi^2(1) = 4.18$, $p = .04$; see fig. 2).

Discussion

Defaults have a substantial impact on choices, especially when consumers do not have clear preferences (Thaler and Sunstein 2008). Consistent with our hypothesis that observed choices become social defaults, we found that participants imitated the choice of a confederate when choosing in private from products of uncertain quality and flavor (Korean teas). In contrast, participants in the social default public choice condition diverged from the social default. This

FIGURE 2

SOCIAL DEFAULT EFFECTS AS A FUNCTION OF PRESENCE/ ABSENCE OF CONFEDERATE IN EXPERIMENT 1
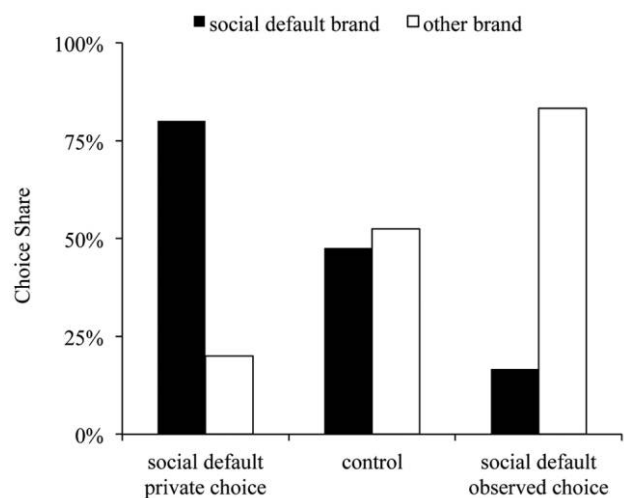
preference reversal cannot be explained by normative influence. If choice imitation as observed in the social default private choice condition was caused by normative influence, that choice imitation should have been stronger when the confederate observed their choice because it is in public that consumers want to conform to social norms (Argyle 1957; Deutsch and Gerard 1955).

The most likely cause of their choice divergence is impression management (Leary and Kowalski 1990). People are concerned about how other people perceive them and thus behave in ways that they believe will form positive impressions (Leary and Kowalski 1990; Leigh and Gabel 1992; Schlenker 1980; Sengupta et al. 2002). Participants in experiment 1 might have felt embarrassed to copy the confederate's choice and diverged to avoid being perceived as a "follower." Choice divergence is typical when people desire to be unique (Cialdini 2001; Cialdini and Goldstein 2004) and to communicate their desired identities (Berger and Health 2007, 2008). In accordance with this line of reasoning, choice divergence has been observed when behavior is public but not when it is private (Ariely and Levav 2000; Berger and Health 2008).

EXPERIMENT 2

Experiment 2 examined whether the choice imitation observed in experiment 1 might have been caused by informational influence. Participants chose between two different types of Korean crackers (figs. 1E and 1F). Participants in the *low-stake* condition were told that they could take a package of the chosen brand home with them at the end of the study. Participants in the *high-stake* condition were told that they would have to eat an entire package of the chosen brand in the laboratory before they completed the experiment. If choice imitation occurs as a result of deliberate informational influence, higher stakes should lead to more imitation, as participants should be more likely to use information gleaned from the observed choice in a high-stake decision (Baron, Vandello, and Brunsman 1996). In contrast, our social default account predicts that higher stakes should lead to less imitation because participants should exert more cognitive effort when determining which option to choose and thus be less influenced by the social default.

Method

Pretest. To ensure that our manipulation was effective, we conducted a pretest with 55 participants from a different sample (32 males and 23 females; M_{age} = 22.11, SD = 6.78). Pretest participants saw the two packages of Korean crackers and imagined choosing between them. Half were told that they would receive a package of their chosen brand to take home, whereas the other half were told that they would have to eat an entire package of their chosen brand before leaving the laboratory. They then rated how important it was to choose the better cracker on a 7-point scale with endpoints not at all important (1) and very important (7). As expected, participants reported that their choice would be more important if they had to eat a package of crackers before concluding the experiment (M = 3.70, SD = 1.75) than if they could simply take them home at the end of the experiment (M = 2.64, SD = 1.64; $F(1, 53)$ = 5.39, p = .02).

Participants, Design, and Procedure. One hundred and ten people at Carnegie Mellon University (61 males and 48 females, and one did not indicate gender; M_{age} = 21.64, SD = 4.42) participated for class credit or $3. The experiment employed a 2 (social default vs. control) × 2 (stakes: low vs. high) between-subjects design.

The procedures for the social default and control conditions were similar to the procedure in experiment 1, with the exception of different stimuli (i.e., crackers rather than teas) and the manipulation of stakes (i.e., low and high). Participants in the low-stake condition were told that they could take their choice of crackers home with them as remuneration for participating in the study. Participants in the high-stake condition were told that they had to eat their choice of crackers during the experimental session.

Results

To test the predicted choice pattern that participants would be more likely to follow the confederate's choice only when the stakes were low, we estimated a logit model with the dependent variable (DV) choice (1 = social default chosen, 0 = other brand chosen) and the dummy-coded interaction of default and stakes as the independent variable (IV; low stake × default coded as 1, all other cells coded as 0). As we did not hypothesize any main effects, none were specified in the model. This way, the interaction term estimates whether choice share in the low-stake default condition is higher than in the other three experimental conditions. The interaction was significant (β = 1.471, SE = 0.513; z = 2.87, p = .004), and the intercept was not (z = −0.99, p = .324).

To further test the source of variation for the observed interaction, we estimated logit models separately for each default condition. In both logit models, stake was entered as an IV. In the control conditions, choice shares of the default brand did not differ across the low- (44.8%) and high-stake (48.1%) conditions (β = −0.13, SE = 0.54; z = −0.25, p = .80). In contrast, in the social default conditions, the default brand was chosen more often when the stakes were low (77.8%) than when they were high (40.7%; β = 1.63, SE = 0.61; z = 2.68, p = .007). In both models, the intercepts were not significant (z = −0.19, p = .85; z = −0.96, p = .34; respectively).

Discussion

Social defaults engendered choice mimicry for a low-stake but not a high-stake decision. Participants chose the crackers the confederate chose when they could take the crackers home. Participants were less likely to mimic the confederate's choice when they had to eat the crackers that

they chose (i.e., the high-stake decision). The findings suggest that social default effects are not caused by deliberate informational influence. People are typically more likely to use others' responses if those responses are seen as diagnostic cues when decisions are of high importance (Baron et al. 1996). Furthermore, the findings suggest that observed choices may become social defaults that consumers automatically mimic if little deliberation takes place. Experiments 5 and 6 further test both suggestions. In the meantime, we turn to testing whether the influence of social defaults parallels the influence of more general kinds of defaults: whether social defaults are more likely to be adopted when consumers are uncertain about their preferences (experiment 3) and when consumers do not engage in effortful deliberation before choosing (experiment 4).

EXPERIMENT 3

Experiment 3 tested whether social defaults, like traditional defaults, are more likely to engender choice mimicry when preferences are uncertain. Each participant chose one of two uncertain products (i.e., Korean teas, as in experiment 1) and one of two more certain products (i.e., English teas, labeled in English).

Method

Participants and Design. Seventy-nine students at Carnegie Mellon University (37 males and 42 females; $M_{age} = 23.46$, SD = 8.27) completed the experiment for class credit or were paid \$3. The experiment used a 2 (social default vs. no social default, between-subjects) × 2 (product type: uncertain products vs. certain products, within-subjects) mixed design.

Procedure. The procedure of experiment 3 was the same as in experiment 1. Participants were randomly assigned to either the social default or the control condition. In both conditions, participants were told that in an adjacent room there are two sets of teas (set A and set B), each of which consisted of two different tea bags. The same two Korean teas as in experiment 1 were used as uncertain products. Two different brands of English breakfast tea were used as certain products (figs. 1*C* and 1*D*).

In the social default condition, participants observed the choices of the confederate and subsequently chose an English breakfast and Korean tea after the confederate had left the room. Participants in the control condition did not observe the confederate making her choice. After making their choices, all participants indicated whether they could read Korean, how much they expected to enjoy the tea that they had chosen, and how much they expected to enjoy the tea that they had not chosen on two 7-point scales marked with endpoints not at all (1) and very much (7). (We refrain from reporting the results of the enjoyment data because the observed pattern could be explained as support of either our social default account or cognitive dissonance being stronger when having observed the confederate's choice.) The set

order (i.e., uncertain products first or certain products first) and the position of the social default brand in each set (i.e., the brand that the confederate chose and whether the social default brand was positioned to the left or right) were counterbalanced.

Results and Discussion

To test whether participants would be more likely to follow the confederate's choice when choosing among Korean rather than English teas, we estimated a mixed logit model with the DV choice (1 = social default chosen, 0 = other brand chosen) and the dummy-coded interaction of default and product type as the IV (Korean teas × social default coded as 1, all other cells coded as 0). As we did not hypothesize any main effects, none were specified in the model. The interaction term thus estimates whether choice share of the default brand is higher in the Korean teas × social default condition than in the other three conditions. To account for repeated choices by participants, we entered subjects as a random effect (Gelman and Hill 2007). The predicted interaction of default and product type was significant ($\beta = 1.164$, SE = 0.465; $z = 2.50$, $p = .012$), and the intercept was not ($z = 1.07$, $p = .284$).

To further test the source of variation for the observed interaction, we estimated mixed logit models separately for each default condition. In both logit models, product type was entered as the IV, and subjects were specified as random effects. In the control conditions, choice shares did not differ for Korean (56.1%) and English (51.2%) teas ($\beta = 0.223$, SE = 0.474; $z = 0.47$, $p = .638$). In contrast, in the social default conditions, the Korean social default tea (78.9%) was chosen more often than the English social default tea (57.9%; $\beta = 1.00$, SE = 0.516; $z = 1.94$, $p = .052$; see fig. 3). In both models, the intercepts were not significant ($z = 0.16$, $p = .876$; $z = 0.97$, $p = .333$; respectively).

Like traditional default effects, social defaults were more likely to influence consumer decision making when preferences were less certain (Thaler and Sunstein 2008). Participants were more likely to mimic the observed choice of a confederate when choosing from products of uncertain quality and flavor (i.e., Korean teas). Choice mimicry was less likely when choosing from products of more certain quality and flavor (English teas).

EXPERIMENT 4

Experiment 4 further tested whether social defaults, like traditional defaults, are more likely to affect choices when consumers are not motivated to engage in effortful deliberation. In experiment 4, we manipulated motivation to exert cognitive effort by making half of the participants accountable for their choice. Accountability refers to "the implicit and explicit expectation that one may be called on to justify one's beliefs, feelings, and actions to others" (Lerner and Tetlock 1999, 255). People feel accountable, for example,
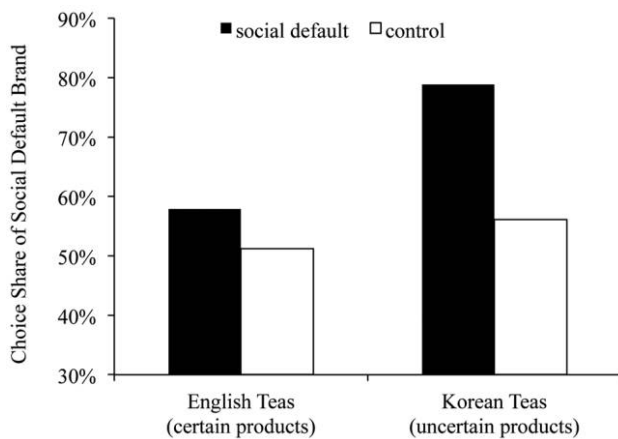
when they need to give reasons for their decisions (i.e., explicit accountability) or when their decision is merely observed by others (i.e., implicit accountability). Increasing accountability creates pressure for decision makers to provide a compelling justification for their choice (Lerner and Tetlock 1999; Skitka, Mosier, and Burdick 2000; Tetlock 1983).

Method

Participants, Design, and Procedure. One hundred and twenty-four individuals at Carnegie Mellon University (68 males and 56 females; M_{age} = 21.15, SD = 5.50) participated for class credit or were paid \$3. Following the design of experiment 3, experiment 4 employed a 2 (social default vs. control, between-subjects) × 2 (justification: informed vs. uninformed, between-subjects) × 2 (product type: uncertain products vs. certain products, within-subject) mixed design. The Korean and English teas were the same as in experiment 3. In the *informed* condition, participants were told before they went to the other room to choose their teas that they would be asked to provide reasons for their choices afterward. In the *uninformed* condition, no mention of choice justification was made until both teas were chosen.

As a manipulation check, participants reported the amount of cognitive effort they exerted when making the decision, by indicating how often they thought of reasons to explain their choices before making a selection on a 7-point scale with endpoints not at all (1) and very much (7). We also asked participants to list the reasons for their choice (open-ended) and whether they had noticed what the other participant (the confederate) had chosen (yes or no). The position of sets and the position of the social default brands were counterbalanced.

Results

Choice of Teas. As in experiment 3, we estimated a mixed logit model with the DV choice (1 = social default chosen, 0 = other brand chosen) and the dummy-coded triple interaction of default, product type, and justification as the IV (Korean teas × social default × no justification coded as 1, all other cells coded as 0). No main effects were specified, so the triple interaction term estimated whether choice share in the Korean teas × social default condition was higher than in the other seven experimental conditions. Subjects were entered as a random effect. The intercept (β = 0.344, SE = 0.138; z = 2.50, p = .012) and the predicted interaction of default, product type, and justification (β = 1.304, SE = 0.507; z = 2.57, p = .01) were significant.

To further test the source of variation for the observed triple interaction, we estimated mixed logit models separately for each justification condition. In both logit models, the product type × default interaction was entered as the IV (coded as in experiment 3, subjects were specified as a random effect). When participants were uninformed about having to justify their choices, the product type × default interaction was significant (β = 1.279, SE = 0.532; z = 2.40, p = .016), replicating the results from experiment 3. Specifically, in the social default condition the choice share of the Korean default brand (83.9%) was higher than the choice share of the corresponding brands in the other three experimental cells (English default brand [61.3%] in the social default condition and that same Korean brand [51.6%] and English brand [64.5%] in the control conditions). In contrast, when participants were informed about having to justify their choices, the product type × default interaction was not significant (β = −0.099, SE = 0.418; z = −0.24, p = .812). The choice share of the Korean default brand (56.2%) in the social default condition did not differ from the choice share of the corresponding brands in the other three experimental cells (English default brand [50.0%] in the social default condition and the same Korean [53.3%] and English [73.3%] brands in the control conditions; see fig. 4).

Exerted Cognitive Effort. Regarding cognitive effort exerted, our theory makes two predictions. First, participants who know that they will have to justify their choice should exert more cognitive effort. Second, participants should exert less cognitive effort in the no-justification condition in the social default condition. Analogous to the analysis of the choice shares, we regressed cognitive effort exerted on the dummy-coded triple interaction of default, product type, and justification as the IV (Korean teas × social default × no justification coded as 1, all other cells coded as 0) and clustered robust standard errors by participants to capture the effect of rating cognitive effort twice (for choice of Korean teas and choice of English teas). We also entered the main effect for justification (no justification = 1, justification = 0) to test whether participants exerted more effort in the justification than in the no-justification condi-

INFLUENCE OF SOCIAL DEFAULT AND CHOICE
JUSTIFICATION ON PRODUCT CHOICE IN EXPERIMENT 4
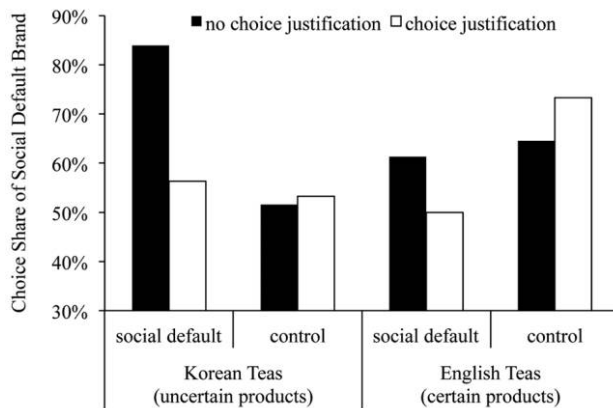
tions. The intercept ($\beta = 4.597$, SE $= 0.167$; $z = 27.53$, $p < .001$) and the main effect for justification ($\beta = -0.511$, SE $= 0.252$; $z = 2.03$, $p = .045$) were significant. The latter indicates that participants exerted more cognitive effort when they knew that they would have to justify their choice (see fig. 5: black bars are lower than white bars). Finally, the predicted interaction of default, product type, and justification ($\beta = -0.602$, SE $= 0.243$; $z = 2.48$, $p = .014$) was significant. To understand the nature of this interaction, we conducted separate regressions for each justification condition.

Exerted Cognitive Effort without Justification. We regressed cognitive effort on the dummy-coded interaction of product type and default (Korean teas × social default coded as 1, all other cells coded as 0), again clustering robust standard errors by participant. The intercept ($\beta = 4.086$, SE $= 0.189$; $z = 21.62$, $p < .001$) and the interaction of product type and default ($\beta = -0.602$, SE $= 0.244$; $z = 2.47$, $p = .016$) were significant, indicating that in the no-justification conditions, participants exerted less cognitive effort when choosing among Korean teas if they first observed the confederate choose teas (see fig. 5, black bars).

Exerted Cognitive Effort When Knowing That Choices Had to Be Justified. As in the previous analysis, we regressed cognitive effort on the dummy-coded interaction of product type and default. The intercept ($\beta = 4.685$, SE $= 0.178$; $z = 26.30$, $p < .001$) was significant, and the interaction of default and product type ($\beta = -0.341$, SE $= 0.269$; $z = 1.27$, $p = .21$) was not, indicating that in the justification conditions, participants did not exert less cognitive effort when choosing among Korean teas if they first observed the confederate choose teas (see fig. 5, white bars).

Awareness of Confederate's Choice and Its Impact on Participants' Choices. Bargh (1994) distinguishes two types

of unawareness in automatic processes: unawareness of the influencing stimulus (i.e., what the confederate chose) and unawareness of the impact that the stimulus has on behavior (i.e., that observed choices create social defaults that increase the choice share of the default options). We tested for both types of awareness.

In the social default conditions, 19.4% of participants in the no-justification condition and 6.3% of participants in the justification condition said that they noticed which brand of Korean tea the confederate had chosen and correctly recalled the confederate's choice ($\chi^2(1) = 2.44$, $p = .12$). For the English teas, 29.0% in the no-justification condition and 18.8% in the justification condition did correctly recall the confederate's choice ($\chi^2(1) = 0.92$, $p = .34$); the percentages are not significantly different from each other ($z = 0.21$, $p = .58$). All four percentages are well below 50% (all $z > 2.30$, all $p < .02$).

To test whether participants were aware of the impact of social defaults on their choices, following Tanner et al. (2008), we examined the reasons that participants listed for their choices. Two independent coders who were unaware of the hypotheses grouped all reasons listed by participants. The following 12 categories were identified: package color, label design, label message, symbol on the package, flavor, previous experience, country of origin, position on the table, recyclability, package size, effects of tea, and the confederate's choice (i.e., social default). Agreement among the two coders' categorization was 95.9%. The few differences in categorization were resolved through joint discussion of the two coders.

On average, participants listed 1.79 reasons (SD = .88) for their choice of Korean teas and 1.85 reasons (SD = .84) for their choice of English breakfast teas. None of the participants listed the confederate's choice (the social default) as a reason for their choice of Korean teas, whereas one participant listed it as a reason for her choice of English teas.
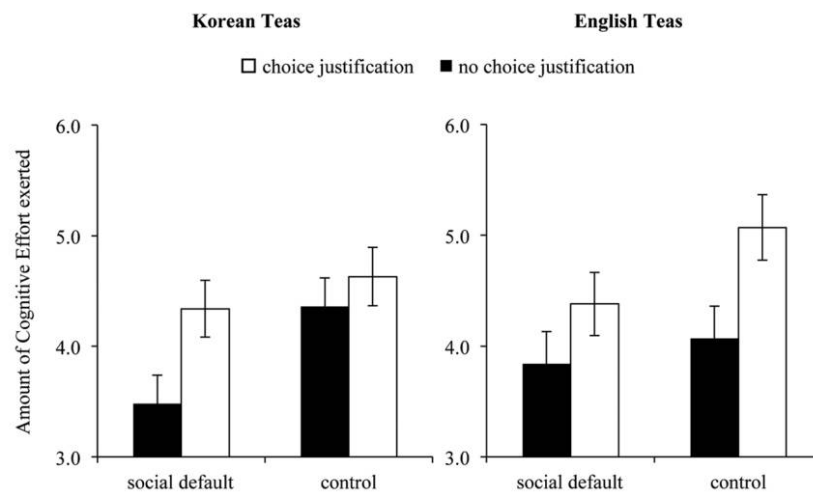
Discussion

When participants were not motivated to deliberate about their choices, the findings of experiment 4 mirrored the findings from experiment 3: participants who did not have to justify their choices were more likely to mimic the observed choices of the confederate for uncertain products (Korean teas) than for certain products (English teas). More important, when participants expected to justify their choices, choice mimicry for uncertain products vanished. Participants who had to justify their choices were no more likely to mimic the observed choices of the confederate for uncertain products (Korean teas) or certain products (English teas). This pattern of choice mimicry parallels the influence of traditional default effects. Traditional defaults are adopted when decision makers do not engage in effortful deliberation, but defaults vanish when decision makers are motivated to engage in effortful deliberation (Brown and Krishna 2004; Camerer et al. 2003; Evans et al. 2011; Johnson et al. 2002).

The results of experiment 4 also provide evidence for the

INFLUENCE OF SOCIAL DEFAULT AND CHOICE JUSTIFICATION ON EXERTED COGNITIVE EFFORT IN EXPERIMENT 4

Method

Pretest.   In a pretest with a different sample of 304 Amazon Mechanical Turk (AMT) workers, respondents were randomly shown one of three Korean snack pairs (the positions of snacks were counterbalanced) and asked to chose one of the snacks. We selected the pair of Korean snacks in which both snacks had similar choice shares (51.0% vs. 49.0%; $\chi^2(1) = 0.4$, NS; see fig. 6).

Participants and Design.   Two hundred and twenty-nine pedestrians in Pittsburgh (121 males and 108 females; $M_{age} = 26.07$, SD $= 10.85$) participated in a mobile research laboratory in exchange for a soft drink and their choice of Korean snacks (which served as the primary dependent variable). The experimental design was a 2 (social default vs. control) $\times$ 2 (time pressure: none vs. high) between-subjects design.

Procedure.   Participants were seated at computers in private cubicles and randomly assigned to one of two experimental conditions. In the social default condition, upon being seated in the cubicle participants saw the computer screen that seemed to be the last screen of the previous participant (see fig. 6). The screen read, "This is the end of the survey. Thank you for your participation! The snack that you have chosen is displayed below. The experimenter will give you the snack before you leave. Please click the continue button to refresh the survey." The screen showed two Korean snacks, one of which was marked (this was ostensibly the choice of the previous participant and hence the social default). In the control condition, the same screen was displayed but no snack was marked.

When participants clicked the continue button to refresh the survey, a "time and product evaluation study" was an-

underlying process for the observed choice mimicry. Supporting the notion that the acceptance of social defaults is an automatic process, most participants were unaware of the social default (the teas chosen by the confederate), and all were unaware of its influence on their own choice (Bargh 1994; Tanner et al. 2008). An alternative explanation for the results of experiment 4, however, is that the justification manipulation acted like the private versus public manipulation in experiment 1. Participants who were asked to justify their choice to the experimenter might have felt like participants who were observed by the confederate in experiment 1. They might have felt it would be inappropriate to copy the confederate's choice and report having done so. Unlike in experiment 1, however, the justification manipulation in experiment 4 only eliminated choice mimicry but did not reverse it. Thus, it is unlikely that impression management concerns alone are responsible for the observed choice pattern. To more directly test the automatic nature of social default effects, experiments 5 and 6 examined whether social default effects are exacerbated or mitigated by time pressure and cognitive load.

EXPERIMENT 5

Experiment 5 directly tested the automaticity of social default effects by examining the impact of time pressure, which limits conscious deliberation (Maule and Svenson 1993), on the extent of choice mimicry. Participants were given 5 seconds or 1 minute to choose between two Korean snacks. We predicted choice share of the social default option would be higher when participants had less time to choose a snack.

FIGURE 6

STIMULI AND MANIPULATION USED IN EXPERIMENT 5

NOTE.—Social default condition (*left*) and control condition (*right*).

nounced. As in the previous studies, participants were asked to choose between two Korean snacks. Participants in the *high time pressure* condition were given 5 seconds to choose, whereas participants in the *no time pressure* condition were given 1 minute. The position of the target brand was counterbalanced.

Results

Two participants indicated that they understood Korean, so their choices were not included in the analyses. To test the predicted choice pattern that participants would be more likely to chose the social default option under time pressure, we estimated a logit model with the DV choice (1 = social default chosen, 0 = other brand chosen) and the dummy-coded interaction of default and time pressure as the IV (social default × high time pressure coded as 1, all other cells coded as 0). We also included the main effect for default, as we predicted the social default, independent of time pressure, would increase choice share of the default brand. Neither the intercept ($z = -0.38$, $p = .706$) nor the predicted main effect of default was significant ($\beta = 0.279$, SE = 0.325; $z = 0.86$, $p = .39$). The predicted interaction of default and time pressure was significant ($\beta = 0.915$, SE = 0.405; $z = 2.26$, $p = .024$).

To further test the source of variation for the observed interaction, we estimated logit models separately for each default condition. In both logit models, time pressure was entered as an IV. In the control conditions, choice shares of the default did not differ whether choices were made under high (50.9%) or low time pressure (45.5%; $\beta = 0.217$, SE = 0.379; $z = 0.57$, $p = .566$). In contrast, in the social default conditions, high time pressure increased the choice share of the default (75.4%) compared to low time pressure (55.2%; $\beta = 0.915$, SE = 0.405; $z = 2.26$, $p = .024$; see fig. 7). In both models, the intercepts were not significant ($z = -0.67$, $p = .501$; $z = 0.79$, $p = .432$; respectively).

Discussion

Choice mimicry was more likely when decisions were made under greater time pressure. Participants who saw the decision of another participant and made their own decision under high time pressure were more likely to choose the social default option than were both participants who saw the decision of another participant and made their own decision under low time pressure and participants who were not exposed to a social default. As time pressure restrains

FIGURE 7

INFLUENCE OF SOCIAL DEFAULT AND TIME PRESSURE ON CHOICE IN EXPERIMENT 5
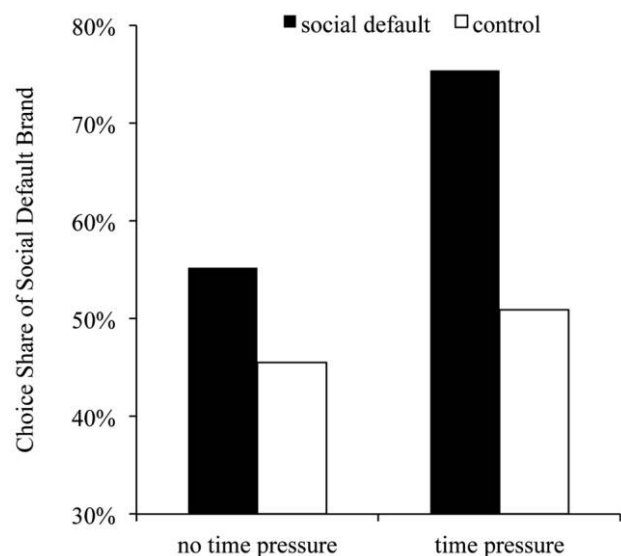
the ability to consciously deliberate when making a choice (Maule and Svenson 1993), this result provides direct evidence that deliberative thinking is inversely related to choice mimicry.

We did not observe a main effect for social default in experiment 5, mainly because choice mimicry in the social default no time pressure condition was very small. In hindsight, we believe that having told participants explicitly that they would have 1 minute to decide which Korean snack they wanted prompted them to carefully deliberate on which option to choose, longer than if they had not been given any timing information (e.g., Payne et al. 2008), akin to the effect of justification in experiment 4.

EXPERIMENT 6

Experiment 6 extended our investigation of social defaults in two ways. It tested the automatic nature of choice mimicry by manipulating cognitive resources while making a decision. It also tested the potency of social default effects—specifically, whether social default effects are sufficiently strong to induce preference reversals. Participants chose between superior and inferior brands of Korean teas while under high or low cognitive load. In all cases the social default was the inferior brand. If social defaults automatically engender choice mimicry, participants should be more likely to choose the (inferior) social default brand while under high cognitive load than while under low cognitive load.

Method

Pretest. In a first pretest, 138 AMT workers were shown 20 different kinds of Korean teas and indicated how much they would like to drink each on 7-point scales with endpoints not at all (1) and very much (7). On the basis of these ratings, an inferior tea and a superior tea were selected (M_{inf} = 2.71, SD = 1.46 vs. M_{sup} = 3.31, SD = 1.72; $t(137)$ = 4.75, $p < .001$; figs. 1G and 1H). Sixty-two different AMT workers chose which of those two teas they preferred in a second pretest; a significant majority (69.4%) chose the superior tea (test against indifference [50%] z = 3.06, p = .002).

Participants, Design, and Procedure. Forty-six students at Carnegie Mellon University (19 males and 27 females; M_{age} = 19.46, SD = 2.84) participated for course credit. After observing the confederate choose the inferior rather than the superior brand of Korean tea (described in the pretest), all participants chose between the superior and the inferior brands of Korean tea. The inferior tea was thus the social default (its position was counterbalanced). Before making their choice, participants were randomly assigned to either the *high cognitive load* condition in which they rehearsed an eight-digit string of letters or the *low cognitive load* condition in which they rehearsed a two-digit string of letters. After choosing a tea, participants recalled the digit string they were asked to remember.

Results

Choice shares of the social default brand differed significantly between the two conditions ($\chi^2(1)$ = 9.13, p = .003). A significant majority (82.6%) of participants in the high cognitive load condition chose the inferior social default brand (test against indifference [50%] z = 3.13, p = .002). In contrast, only 39.1% of participants in the low cognitive load condition chose the inferior social default brand.

Discussion

Supporting the hypothesis that social defaults automatically engender choice mimicry, participants under high cognitive load were more likely to mimic the confederate's choice of the inferior tea than were participants under low cognitive load. As cognitive load, like time pressure, inhibits the ability to engage in effortful deliberation (Epley and Gilovich 2006; Gilbert and Hixon 1991; Petty and Cacioppo 1986), this result provides strong evidence that deliberative thinking is inversely related to choice mimicry. Together with the results of experiment 5, the results of experiment 6 provide considerable support for the automaticity of social default effects. Furthermore, the results of both experiments demonstrate that social default effects are not due to informational social influence. Cognitive load and time pressure increased choice mimicry, whereas informational social influence should have been weakened under these conditions.

Finally, the results demonstrate that social default effects are strong enough to induce preference reversals. Whereas a majority of participants chose the superior tea when their cognitive resources were not limited by load, the majority of participants mimicked the confederate's choice of the inferior tea when their cognitive resources were limited. The results suggest that social default effects are sufficiently strong to lead consumers to choose options that they would otherwise reject.

GENERAL DISCUSSION

Observing the choice of another person appears to create a social default option, which automatically engenders choice mimicry. Consumers who made product decisions for which their preferences were not well formed tended to choose the options that they observed others choosing (i.e., social defaults). Experiment 1 demonstrated that when consumers choose between products for which they do not have clear preferences, they mimic the choices of other consumers. This choice mimicry is not caused by normative social influence (i.e., conforming to others' behavior due to social norms). Participants diverged from, rather than mimicked, the choice of the confederate when making their choice in the presence of the confederate. Experiment 2 showed that choice mimicry is not driven by informational social influence (i.e., conforming to others' choices because they are believed to provide diagnostic information). Participants preferred the social default option when the stakes were low, not when the stakes were high. Experiments 1 and 2 thus

provide evidence that social default effects are unlikely to be caused by deliberate social influence.

Social defaults, like defaults in general, appear to be adopted unless decision makers are certain about their preferences or are able or willing to engage in effortful deliberation before choosing. Choice mimicry occurred when participants chose between uncertain products (experiment 3) and when participants did not need to provide justification for their choices (experiment 4). Social defaults appear to be adopted automatically, as the choice share of the social default increased when cognitive resources were constrained by time pressure (experiment 5) or cognitive load (experiment 6). Furthermore, most participants were unaware of the presence and influence of the social default on their decisions. The automaticity of social defaults distinguishes them from the deliberate process of informational social influence, which becomes stronger the more a decision maker is willing and able to engage in deliberation before choosing. In experiment 6 in which we limited the availability of cognitive resources, social defaults not only led to more choice mimicry but also caused preference reversals. Participants were more likely to choose an inferior option that they otherwise would have rejected.

One obvious limitation of the current research is the size of the samples, which was due to the labor-intensive nature of the laboratory experiments conducted. Each participant was run individually, which required the involvement of two research assistants—an experimenter and a confederate— and required sessions to be spaced out with enough time gaps in between participants to ensure that participants would not discover that the confederate had already participated in a previous session. To maintain consistency with regard to the confederates in each experiment, all data for each experiment were collected in one semester, with a goal of recruiting as many participants as possible.

Our findings elucidate our understanding of social influence more generally. Social conformity has been largely examined as a conscious and deliberate process. The current research demonstrates that automatic forms of social influence are more pervasive than previously thought. The automatic processes that underlie behavioral mimicry (e.g., Chartrand and Bargh 1999; Chartrand and Jefferis 2003) appear to not only influence nonverbal communication, emotions, and behavior elicited in interpersonal interaction but also lead consumers to adopt the preferences of other consumers. Choice imitation thus operates at both nonconscious and deliberate levels. At the nonconscious level, it can serve to suggest a default preference or behavior. At the conscious level, it can be used as an input to decision making (informational influence) or as a means by which consumers can meet the expectations of a group (normative influence).

Our research is related to Tanner et al.'s (2008) finding that consumers automatically mimic how much others consume. Our results extend their findings by empirically demonstrating that consumers automatically mimic not only how much to consume but also what to consume. Furthermore,

our social default hypothesis allowed us to investigate boundary conditions for when social defaults will cause choice mimicry and when they will be ignored. Social default effects occur when consumers deem adopting the social default appropriate (experiment 1), when the stakes in their choices are low (experiment 2), when they are uncertain about their preferences (experiments 3), when they are insufficiently motivated to deliberate about their decisions (experiment 4), and when their ability to consciously deliberate is limited while choosing (experiment 5 and 6). Choice mimicry caused by social defaults, however, differs from behavioral mimicry effects in that the former requires consumers to be relatively uncertain about their preferences; preference uncertainty is not a necessary condition for behavioral mimicry to occur.

Finally, the current research contributes to the default literature by suggesting that defaults are not only created by choice architecture but can also be provided by the social context. An important difference between defaults created by the choice architecture (i.e., choice options that consumers receive unless they explicitly switch to an alternative option) and social defaults is that consumers do not appear to be aware of the presence or influence of social defaults (experiment 3), whereas consumers are usually aware of the presence of physical defaults (but not necessarily of their impact on their choice; cf. Brown and Krishna 2004; McKenzie et al. 2006). Although awareness of physical and social defaults was not compared, if there is indeed lower awareness of social defaults, future research may find that social defaults are influential in cases in which consumers exhibit reactance to physical defaults (cf. Brown and Krishna 2004).

DATA COLLECTION INFORMATION

The first author supervised the collection of data by research assistants at the Carnegie Mellon University Research Lab in autumn 2008 (experiment 3), spring 2009 (experiment 1), spring 2010 (experiment 2), autumn 2010 (experiment 4), and spring 2011 (experiment 6) and at the Carnegie Mellon University Center for Behavioral and Decision Research mobile research lab in spring 2013 (experiment 5). All data were analyzed by the first two authors.

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