PUTTING A PRICE ON PARTICIPATION:
THE ROLE OF CONSUMER COSTS AND BENEFITS

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by
Ashley Stadler Blank

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The dissertation of Ashley Stadler Blank was reviewed and approved* by the following:

Lisa E. Bolton  
Professor of Marketing  
Frank and Mary Jean Smeal Research Fellow  
Dissertation Advisor  
Chair of Committee

Hans Baumgartner  
Department Chair  
Smeal Professor of Marketing

Anna S. Mattila  
Marriott Professor of Lodging Management  
Professor-in-Charge Graduate Program

Xiaoyue Niu  
Associate Director of Statistical Consulting Center  
Research Associate and Assistant Professor of Statistics

Brent W. Ambrose  
Smeal Professor of Real Estate  
Director, Institute for Real Estate Studies  
Director, Smeal College Ph.D. Program

*Signatures are on file in the Graduate School.
ABSTRACT

Building on past consumer participation and behavioral pricing research, the author investigates how participation in firm activities (e.g., in design or production) affects consumer price perceptions and the process by which these perceptions form. Results from five studies demonstrate that consumers perceive both costs (e.g., effort) and benefits (e.g., enjoyment) of engaging in the participation process and that these cost-benefit tradeoffs drive price fairness perceptions and willingness to pay for participation-based products. The author also develops a framework to identify factors that influence participation costs and benefits—including consumer, participation, context, and firm characteristics. Across these various factors, as participation costs (relative to benefits) increase, consumer price perceptions decrease. Thus, in addition to the benefits of consumer participation identified by past research, the author provides evidence of potential drawbacks (via undermining price perceptions) when participation costs exceed the benefits. Furthermore, the author demonstrates how and when participation costs and benefits affect price perceptions, which has implications for the creation and implementation of pricing policies for participation-based products.
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**Chapter 1. INTRODUCTION**

Firms today face increasing competition in the marketplace. One way firms can cut through the clutter and enhance both consumer benefits and firm outcomes is to allow consumers to participate in the creation of their own products. Thanks to advances in technology, consumers can participate in firm activities across a variety of product categories (e.g., consumers can design their own accessories, clothing, and sports equipment or produce their own furniture and toys), which begs the question: how do consumers evaluate pricing of participation-based products against comparable standard alternatives?

Consider The Home Depot slogan: “You can do it. We can help.” Although the firm sells a wide variety of project materials, a substantial amount of costs (e.g., time and effort) are still required of consumers to carry out home improvement projects on their own. As a result, I examine how taking on firm costs affects consumer price perceptions. This transfer of costs may stem from either a single firm (e.g., IKEA shifts assembly costs to its customers) or across firms within the same industry (e.g., shopping at Home Depot shifts contractor costs to customers) (Atakan, Bagozzi, and Yoon 2014a). From the firm’s perspective, shifting costs to the consumer via participation may enhance efficiency and effectiveness and therefore appear advantageous (Hoyer et al. 2010). However, from the consumer’s perspective, the impact of taking on firm costs via participation is less clear. On the one hand, past research documents benefits of participation on pricing and suggests that consumers are willing to pay more for the opportunity to design or produce their own products (Franke and Schreier 2010; Norton, Mochon, and Ariely 2012). On the other hand, consumers may recognize their own participation costs (Haumann et al. 2015) and adjust their price perceptions accordingly (Zeithaml 1988)—an important yet not very well understood downside of consumer participation. Given the recent growth and
availability of consumer participation in the marketplace, this question has important managerial and financial implications (e.g., an estimate of the 2015 global market for do-it-yourself and home improvement products exceeds $700 billion) (Global Industry Analysts 2012).

I conduct a series of five studies to examine the impact of consumer participation—and its corresponding costs and benefits—on price perceptions. Together, my findings contribute to marketing theory and practice in the following ways. First, I demonstrate that consumers perceive both costs (e.g., effort) and benefits (e.g., enjoyment) of engaging in the participation process and that these cost-benefit tradeoffs drive price fairness perceptions and willingness to pay (WTP). While past participation research emphasizes the consumer and firm benefits of participation and past pricing research emphasizes firm costs, this research points to the equally important role of the consumer costs of participation. Second, I expand our understanding of how and when participation costs and benefits affect price perceptions by developing a framework that incorporates theoretically and pragmatically relevant factors that alter the salience and balance of participation costs and benefits (including consumer, participation, context, and firm characteristics). While the costs and benefits of engaging in the participation process may not always be salient when consumers evaluate pricing for participation-based products, I identify factors that draw attention to these costs and benefits. Third, I demonstrate how participation can undermine price perceptions when participation costs exceed the benefits. This finding builds on the positive effects of participation on pricing identified by most past research to provide an arguably more balanced view of the impact of participation on pricing. Finally, my findings have implications for the creation and implementation of pricing policies for participation-based products—a topic of considerable interest to marketers.
Chapter 2. CONCEPTUAL FRAMEWORK

2.1 Benefits of Consumer Participation

Thanks to advances in technology, consumers now have the ability to perform tasks traditionally carried out by firms (Etgar 2008). Consumer participation—defined as consumers’ active engagement in the creation of end products (Atakan, Bagozzi, and Yoon 2014a; Dahl and Moreau 2007; Haumann et al. 2015; Troye and Supphellen 2012)—describes this shift in responsibility (Moreau and Herd 2010). Although the type of participation can vary both within and across participation tasks (e.g., home improvement projects often incorporate elements of both design and production participation) (Atakan, Bagozzi, and Yoon 2014a), most past research examines a single type of participation (self-design or co-production) and identifies several positive consumer benefits and firm outcomes (Cermak, File, and Prince 1994; Ennew and Binks 1999; File, Judd, and Prince 1992).

*Consumer participation in design.* Self-design activities (e.g., design your own cell phone cover, t-shirt, watch) take place before the manufacturing or service process and affect the creation of the core offering itself (i.e., consumers can uniquely customize the product before it’s produced) (Bolton and Saxena-Iyer 2009; Troye and Supphellen 2012). Past research documents increases in consumers’ WTP for self-designed products (vs. standard product alternatives) across a variety of product categories (Franke and Piller 2004; Franke and Schreier 2010; Schreier 2006) and identifies several reasons for this increase in valuation, including 1) increases in preference fit (Franke and Piller 2004; Franke and Schreier 2010; Schreier 2006); 2) an “I designed it myself effect,” which leads to feelings of ownership, accomplishment, and contribution (Franke, Schreier, and Kaiser 2010); 3) identification with and affective commitment to self-designed products (Atakan, Bagozzi, and Yoon 2014a; Franke and Schreier...
Consumer participation in production. Co-production activities (e.g., make, assemble, or install your own storage boxes, toys, furniture) generally take place during or after the manufacturing or service process, where the work is “transferred from the organization to the customer” prior to use (Bolton and Saxena-Iyer 2009, p. 93; Troye and Supphellen 2012). Past research documents increases in consumers’ WTP for self-made products (vs. standard product alternatives) (Mochon, Norton, and Ariely 2012; Norton, Mochon, and Ariely 2012) and identifies several reasons for this increase in valuation, including 1) increases in preference fit (Etgar 2008); 2) an “IKEA effect,” which leads to feelings of competence (Mochon, Norton, and Ariely 2012; Norton, Mochon, and Ariely 2012); 3) an “I made it myself effect,” which leads to associations that form between the consumer and self-made products (Troye and Supphellen 2012); 4) affective commitment to self-made products (Atakan, Bagozzi, and Yoon 2014a); and 5) process enjoyment (Buechel and Janiszewski 2014; Dahl and Moreau 2007).

2.2 Costs of Consumer Participation

While most past research emphasizes the benefits of consumer participation, common sense tells us that consumers may not always be willing to pay more for the opportunity to participate in firm activities. Consistent with this notion, prior work acknowledges cost-benefit tradeoffs of participation (Buechel and Janiszewski 2014; Dahl and Moreau 2007; Etgar 2008) and recognizes that not all consumers derive value from participating in firm activities (Franke and Schreier 2010; Schreier 2006). Indeed, participation rates in the marketplace are quite low (e.g., a recent industry estimate puts online design participation at less than 10%) (Spaulding and Perry 2013), and the vast majority of consumers (92%) are willing to pay more for standard product alternatives than products that require production participation (Mochon, Norton, and
Ariely 2012). One potential explanation is that the costs of participation act as a deterrent for consumers. Indeed, in my own exploratory work, participation costs emerged as the number one theme when consumers considered engaging in participation tasks (see Appendix C).

Despite this evidence for the role of participation costs as a potential deterrent, research that evaluates the consumer costs of participation is limited—and a careful examination of this evidence reveals mixed results (Buechel and Janiszewski 2014; Franke and Schreier 2010). While a recent study finds that participation costs decrease satisfaction with the participation process (Haumann et al. 2015), the lack of strong empirical support for the impact of consumer costs on price perceptions is somewhat surprising and may reflect measurement issues (Frank and Schreier 2010). My research addresses this concern by 1) providing no-participation reference prices, which capture consumer cost-benefit tradeoffs indirectly as opposed to relying on direct measures and 2) manipulating factors that systematically influence consumer cost-benefit tradeoffs and corresponding price perceptions. This approach should provide additional insight into the role of participation costs (relative to benefits) in the formation of price perceptions.

2.3 Consumer Price Perceptions

My research examines price fairness and WTP as indicators of consumer price perceptions (for generalizability purposes). Most past participation research measures WTP (i.e., “the maximum amount of money a customer is willing to spend for a product or service”; Homburg, Koschate, and Hoyer 2005, p. 85). Moreover, behavioral pricing research suggests that price fairness (i.e., a judgment of whether a price is reasonable, acceptable, or just) affects consumers’ affective, cognitive, and behavioral responses (see Xia, Monroe, and Cox 2004 for a review). Both price fairness and WTP are subjective and comparative in nature (Thaler 1985;
Xia, Monroe, and Cox (2004) and consumers use reference points—including past prices, competitors’ prices, other customers’ prices, and firm costs—to assess price fairness and WTP (Bolton, Warlop, and Alba 2003; Haws and Bearden 2006; Kahneman, Knetsch, and Thaler 1986). Thus, I incorporate reference prices for standard products that do not require participation into the experimental design. Such reference prices are ecologically valid (given the prevalence of no-participation reference prices in the marketplace) and reflect the competitive environment where the decision to purchase participation-based products is often based on comparisons to comparable standard alternatives.

So how do consumers evaluate pricing of participation-based products? I argue that shifting firm costs to the consumer via participation should make consumer costs salient and alter the balance of perceived inputs and outcomes that determine equity (or fairness) in an exchange relationship (Bendapudi and Leone 2003; Oliver 2010). However, this raises the question: to what extent is the transfer of costs from the firm to the consumer spontaneously salient? Past behavioral pricing research examines the impact of firm costs on price perceptions (Bolton, Warlop, and Alba 2003; Kahneman, Knetsch, and Thaler 1986) but is relatively silent on the role of consumer costs. However, I expect these costs to be salient for at least four reasons. First, in addition to monetary costs, consumers account for a variety of other costs (e.g., time and effort) when evaluating prices (Zeithaml 1988); thus, participation-based products should make participation costs salient. Second, a reference transaction facilitates evaluations across firm offerings (Kahneman, Knetsch, and Thaler 1986) and comparisons to a no-participation reference price should increase the salience of participation costs. Third, past research demonstrates that consumers are somewhat sensitive to firm costs (e.g., labor) when assessing prices (Bolton, Warlop, and Alba 2003), and this sensitivity should increase when firm costs are
transferred to the consumer due to greater personal relevance. Fourth, opportunities to participate in firm activities are less common in the marketplace and this lack of familiarity should prompt greater cognitive processing (Schwarz 2004), making participation costs salient.

Of course, consumer participation may also increase the salience of participation benefits (e.g., consumers may anticipate increases in preference fit or process enjoyment). In the event that participation benefits are also salient, they may offset participation costs and restore equity in the marketing exchange relationship—which exists when the ratio of consumer and firm inputs to outcomes is equal (Huppertz, Arenson, and Evans 1978). However, if participation benefits fail to offset the costs and consumer inputs (relative to outcomes) increase with participation, perceptions of inequity should drive consumer price perceptions down in a manner consistent with equity theory (Huppertz, Arenson, and Evans 1978; Oliver 2010). Accordingly:

**P1:** As consumers’ perceptions of costs (relative to benefits) increase as a result of consumer participation, price fairness perceptions and WTP will decrease.

Although the role of perceived costs and benefits in the formation of price perceptions is generally well established, evidence for the role of consumer costs in both the consumer participation and behavioral pricing literatures is surprisingly limited. Importantly, I do not argue against the positive effects of participation on pricing documented in past research. Rather, P1 serves as a starting point for subsequent theorizing by proposing that it is the balance of costs and benefits that determines whether participation will enhance or reduce price perceptions.
Chapter 3. EMPIRICAL ASSESSMENT

3.1 Empirical Overview

Using P1 as a starting point, I conduct a series of five studies to examine how various factors—including consumer, participation, context, and firm characteristics—alter perceptions of participation costs and benefits and subsequent price perceptions. I present these factors (and corresponding studies) in Figure 3.1 and introduce specific hypotheses within each study. The Pilot Study provides an initial demonstration of P1: I expect price perceptions to decrease when I frame participation as work (vs. play) due to an increase in perceptions of participation costs (relative to benefits). Studies 1A and 1B examine the impact of consumer characteristics (e.g., direct experience, self-efficacy) on price perceptions in a design and production context, respectively. Testing H1, I expect price perceptions to decrease with direct experience, especially when consumer self-efficacy is low, due to an increase in perceived participation costs (relative to benefits). Study 2 investigates type of participation (design and production) and context characteristics (e.g., psychological distance). Testing H2, I expect price perceptions to decrease for production (vs. design) participation, especially when psychological distance is low, due to an increase in perceived participation costs (relative to benefits). Finally, Study 3 explores firm characteristics (e.g., product support), and testing H3, I expect price perceptions to increase for high (vs. low) product support, especially when consumer self-efficacy is low, due to a decrease in perceived participation costs (relative to benefits). Together, these studies demonstrate how and when participation costs and benefits affect price perceptions—enhancing price perceptions when participation benefits are more salient and reducing price perceptions when participation costs are more salient.

3.2 Pilot Study
The objective of the Pilot Study is to provide an initial demonstration of the role of perceived consumer costs and benefits in the formation of price perceptions when consumers evaluate participation-based products (P1). I examine hybrid participation (which includes both design and production tasks) and manipulate participation costs and benefits via framing, as past research demonstrates that framing can alter the perceived costs and benefits associated with a decision (Tversky and Kahneman 1981, 1986) as well as subsequent price perceptions (Thaler 1985). Indeed, participation may vary in terms of the extent to which it feels costly or beneficial. For example, consumers may consider home improvement projects to be either hard work or a fun hobby. Therefore, I frame hybrid participation as either work or play to emphasize the consumer costs (e.g., effort) or benefits (e.g., enjoyment) of engaging in the participation process. Framing participation in this way is ecologically valid in that when it comes to engaging in participation tasks, “one man’s work is another man’s play” (McLean 1972). Consistent with P1, I expect fair prices and WTP to decrease when I frame participation as work (vs. play) due to an increase in participation costs relative to benefits.

3.2.1 Method

Participants and design. In exchange for a small financial incentive, 201 MTurk respondents participated in this study. I randomly assigned participants to a 2 (participation frame: work vs. play) group between subjects design. (I counterbalanced price fairness and WTP measures in this and subsequent studies; however, there were no significant order interactions, so I do not discuss this factor further.) Due to the open-ended nature of the price fairness and WTP measures, I removed six participants who listed fair price/WTP estimates at least 3 SD from the mean. The final sample included 195 participants (M_{age} = 34, 44% female).

Materials and procedure. Participants evaluated prices for products of two competing
firms (see Appendix B for study stimuli). Firm A served as the no-participation reference point and sold ready-made custom closets. Firm B was the target firm that offered a hybrid of design and production participation (i.e., customers design and install their own closet). I manipulated the participation process as work versus play by telling participants that Firm B’s customers find the design and installation process to be either a lot of work or a lot of fun. After reading the scenario, I provided a no-participation reference price of $500.00 at Firm A and participants estimated a fair price and WTP for a closet at Firm B. Then, participants rated the perceived consumer costs (measured on 7-point scales from 1 = “not effortful at all/very easy” to 7 = “very effortful/very difficult”) and benefits (measured on 7-point scales from 1 = “not enjoyable at all/very boring” to 7 = “very enjoyable/very fun”) of the participation process (Franke and Schreier 2010). I used these measures (with benefits reverse-coded) to construct a cost-benefit index ($\alpha = .81$), such that higher values reflect greater costs (vs. benefits). Lastly, participants rated perceived quality and creativity of the custom closet (which I used to control for participation outcomes) (Franke and Schreier 2010). (ANOVA results held for fair price and WTP after controlling for quality and creativity, details omitted for brevity.)

### 3.2.2 Results

**Consumer costs and benefits.** An ANOVA on the cost-benefit index revealed a main effect of frame ($F(1, 193) = 15.23, p < .01$), such that participants reported higher participation costs (relative to benefits) for the work (vs. play) frame ($M_{\text{work}} = 5.01$ vs. $M_{\text{play}} = 4.27$). Separate ANOVAs on the cost and benefit indices also indicated that participants viewed participation as more costly for the work frame and more beneficial for the play frame (details omitted for brevity).

**Price fairness and WTP.** An ANOVA on fair price revealed a main effect of frame ($F(1,
such that participants reported lower fair prices for the work (vs. play) frame ($M_{\text{work}} = $336.94 vs. $M_{\text{play}} = $399.73). A similar ANOVA on WTP revealed a main effect of frame ($F(1, 193) = 14.43, p < .01$), such that participants reported lower WTP for the work (vs. play) frame ($M_{\text{work}} = $361.36 vs. $M_{\text{play}} = $457.77). (See Appendix A for means and standard deviations of dependent variables.)

Mediation. A bootstrap analysis supported mediation of the effects of work versus play framing (coded as 1 and 0, respectively) by the cost-benefit index for both price fairness (indirect effect = -21.58, 95% CI: -40.92, -9.32) and WTP (indirect effect = -26.27, 95% CI: -48.64, -12.10). Results also held when I entered the cost and benefit indices separately (details omitted for brevity).

To gain additional insight, I added the (standardized) cost-benefit index to the regression analysis and examined the slopes of the cost-benefit index for each frame. I found negative slopes for both work and play framing for fair price ($\beta_{\text{work}} = -$28.96, $p < .10$ and $\beta_{\text{play}} = -$51.07, $p < .01$) and WTP ($\beta_{\text{work}} = -$31.48, $p < .10$ and $\beta_{\text{play}} = -$65.95, $p < .01$), indicating that price perceptions decreased as costs (relative to benefits) increased.

Discussion. Together, these results support P1: price perceptions decrease (below the no-participation reference price) when consumers perceive participation as more costly versus beneficial. Studies 1-3 build on this finding by 1) providing additional evidence that consumers perceive both costs and benefits of engaging in the participation process and that these cost-benefit tradeoffs drive price perceptions, and 2) examining various factors that alter the salience and balance of participation costs and benefits—including consumer, participation, context, and firm characteristics.

3.3 Study 1A: Direct Experience and Self-Efficacy (For Design)
The objective of Study 1A is to explore consumer characteristics that alter the impact of participation costs and benefits on price perceptions. I focus on the interplay between direct experience and consumer self-efficacy.

First, I examine direct experience, which refers to hands-on experience with the participation-based product. Although past research measures product valuations after participants complete participation tasks, I am not aware of any work that considers the impact of direct experience on price perceptions. Broadly speaking, direct experience (e.g., product trial) yields more credible product information (Smith and Swinyard 1982, 1983) and systematically alters consumer preferences (Hamilton and Thompson 2007; Thompson, Hamilton, and Rust 2005). For example, while consumers initially prefer products with more capabilities, this preference shifts to products that are easier to use after gaining direct experience (Thompson, Hamilton, and Rust 2005). This finding is consistent with the notion that consumers tend to be overconfident (see Alba and Hutchinson 2000 for a review), simultaneously overestimating their own skills (Svenson 1981) and underestimating their own costs (Buehler, Griffin, and Ross 1994) prior to direct experience. Such overconfidence can lead to undesirable consumer outcomes—such as lower product valuations and product abandonment—after acquiring direct experience with skill-based products (e.g., do-it-yourself products) (Billeter, Kalra, and Loewenstein 2011). Therefore, building on P1, perceived participation costs (relative to benefits) should increase with direct experience, decreasing price perceptions. However, as I subsequently theorize, the impact of direct experience depends on consumer self-efficacy.

In a participation context, self-efficacy refers to consumers’ beliefs in their ability to successfully complete participation tasks (Bandura 1997). Past research links self-efficacy to participation benefits (e.g., enjoyment) and satisfaction (Yim, Chan, and Lam 2012) and also
argues that feelings of accomplishment and the successful completion of tasks (which enhance valuations of participation-based products) satisfy the need to signal competence and self-efficacy (Franke, Schreier, and Kaiser 2010; Norton, Mochon, and Ariely 2012). While I am not aware of any work that measures the direct link between self-efficacy and price perceptions in a participation context, my own exploratory work suggests that self-efficacy is a concern for consumers, as it emerged as the number two theme when consumers considered engaging in participation tasks (see Appendix C). In general, individuals with low self-efficacy perceive tasks as more costly in terms of time and effort (Bandura 1982, 1997) and use more resources to complete cognitively complex tasks (Bandura and Jourden 1991; Stone 1994). Consequently, perceptions of participation costs (relative to benefits) should increase as self-efficacy decreases. However, a lack of direct experience may foster overconfidence and attenuate the impact of self-efficacy on price perceptions. Accordingly:

**H1**: As consumers’ perceptions of costs (relative to benefits) increase as a result of direct experience, price fairness perceptions and WTP will decrease—especially when self-efficacy is low.

That is, H1 predicts a two-way interaction of direct experience and self-efficacy such that the impact of self-efficacy on price perceptions will be greater when direct experience makes the participation process (and its corresponding costs and benefits) salient. As most past research investigates design and production participation separately, I test H1 in a design (Study 1A) and production (Study 1B) context, respectively.

### 3.3.1 Method

*Participants and design.* In exchange for extra course credit, 325 undergraduate students participated in this study. I randomly assigned participants to conditions in a 2 (direct experience: absent vs. present) group between subjects design and measured consumer self-
efficacy. I removed nine participants who did not participate in the design task or listed fair price/WTP estimates at least 3 SD from the mean. The final sample included 316 participants ($M_{\text{age}} = 19$, 61% female).

*Materials and procedure.* Participants first responded to a background questionnaire, in which I embedded a four-item self-efficacy scale for design participation (adapted from Riggs et al. 1994 and Yim, Chan, and Lam 2012; four items: “I have confidence in my ability to participate in these activities successfully, there are some tasks required by these activities that I cannot do well (R), I doubt my ability to participate in these activities (R), I have all the skills needed to participate in these activities,” measured on 7-point scales from 1 = “strongly disagree” to 7 = “strongly agree,” $\alpha = .79$). Participants then proceeded to the main experiment, where they evaluated prices for products of two competing firms. Firm A served as the no-participation reference point and sold a variety of ready-made t-shirts. Firm B was the target firm that offered design participation. I chose a graphic t-shirt for the focal product as it readily facilitated design participation in the lab, is ecologically valid, and has been used in previous research (Franke, Schreier, and Kaiser 2010; Schreier 2006). To vary direct experience, I manipulated whether participations actually engaged in the t-shirt design task (by drawing the design) or merely envisioned doing so. Then, I provided a no-participation reference price of $24.99 at Firm A and participants estimated a fair price and WTP for a self-designed t-shirt at Firm B. Lastly, participants rated perceived quality and creativity of the t-shirt. (ANOVA results held for fair price and WTP after controlling for quality and creativity. Results also held after removing participants who reported problems with participation.)

### 3.3.2 Results

*Price fairness and WTP.* An ANOVA on fair price revealed a main effect of direct
experience ($M_{\text{present}} = $16.88 vs. $M_{\text{absent}} = $20.56; F(1, 310) = 18.39, p < .01), qualified by its interaction with (standardized) self-efficacy ($F(1, 310) = 3.82, p = .05$); the main effect of self-efficacy was NS ($F(1, 310) = 1.38, p > .10$). Consistent with H1, self-efficacy drove fair price when direct experience was present but not absent ($\beta_{\text{present}} = $1.34, p < .05 and $\beta_{\text{absent}} = -$0.34, p > .10$). To further examine the nature of the interaction, I performed a floodlight analysis to identify the region in which the effect of direct experience on fair price was significant along the self-efficacy scale. As shown in Figure 3.2A, when self-efficacy was greater than .86 SD from the mean, no differences in fair price emerged due to direct experience; however, when self-efficacy was equal to or less than .86 SD, participants reported lower fair prices with direct experience.

A similar ANOVA on WTP revealed a main effect of direct experience ($M_{\text{present}} = $20.13 vs. $M_{\text{absent}} = $24.54; F(1, 311) = 18.14, p < .01), qualified by its interaction with self-efficacy ($F(1, 311) = 3.93, p < .05$); the main effect of self-efficacy was NS ($F(1, 311) = 2.77, p = .10$). Consistent with H1, self-efficacy drove WTP when direct experience was present but not absent ($\beta_{\text{present}} = $1.89, p = .01 and $\beta_{\text{absent}} = -$0.17, p > .10$). A floodlight analysis revealed that when self-efficacy was greater than .84 SD from the mean, no differences in WTP emerged due to direct experience; however, when self-efficacy was equal to or less than .84 SD, participants reported lower WTP with direct experience.

Discussion. Together, these results support H1: price perceptions decrease with direct experience, especially when self-efficacy is low. That is, participants neglected self-efficacy and discounted corresponding participation costs (relative to benefits)—unless direct experience made these costs salient. Also of interest, participants’ fair price and WTP estimates were generally lower than the no-participation reference price, which indicates that design was
perceived as more costly than beneficial. (I expand on these points in the general discussion.)

3.4 Study 1B: Direct Experience and Self-Efficacy (For Production)

The objective of Study 1B is to conceptually replicate Study 1A by testing H1 in a production context. Again, I expect price perceptions to decrease with direct experience, especially when self-efficacy is low, due to an increase in participation costs relative to benefits.

3.4.1 Method

Participants and design. In exchange for extra course credit, 324 undergraduate students participated in this study. I randomly assigned participants to conditions in a 2 (direct experience: absent vs. present) group between subjects design and measured consumer self-efficacy. I removed 26 participants who did not participate in the production task or listed fair price/WTP estimates at least 3 SD from the mean. The final sample included 298 participants (M_{age} = 19, 36\% female).

Materials and procedure. As in Study 1A, participants first responded to a background questionnaire, in which I embedded a four-item self-efficacy scale for production participation (α = .83). Participants then proceeded to the main experiment, where they evaluated prices for products of two competing firms. Firm A served as the no-participation reference point and sold a ready-made set of miniature woodcraft furniture. Firm B was the target firm that offered production participation. All participants viewed pictures of the pre-fabricated components and the completed set of furniture as well as a model of an assembled piece of furniture. To vary direct experience, I manipulated whether participations actually engaged in the furniture production task or merely envisioned doing so. Then, I provided a no-participation reference price of $10.00 for the set of furniture at Firm A and participants estimated a fair price and WTP for a self-made set at Firm B. Lastly, participants rated perceived quality of the furniture.
(ANOVA results held for fair price and WTP after controlling for quality. Results also held after removing participants who reported problems with participation.)

3.4.2 Results

Price fairness and WTP. An ANOVA on fair price revealed a main effect of direct experience (M$_{\text{present}} = $7.45 vs. M$_{\text{absent}} = $8.94; F(1, 294) = 8.24, p < .01), qualified by its interaction with (standardized) self-efficacy (F(1, 294) = 5.42, p < .05); the main effect of self-efficacy was NS (F < 1). Consistent with H1, self-efficacy drove fair price when direct experience was present but not absent ($\beta_{\text{present}} = $.86, p < .05 and $\beta_{\text{absent}} = -$ .35, p > .10). To further examine the nature of the interaction, I performed a floodlight analysis to identify the region in which the effect of direct experience on fair price was significant along the self-efficacy scale. As shown in Figure 3.2B, when self-efficacy was greater than .34 SD from the mean, no differences in fair price emerged due to direct experience; however, when self-efficacy was equal to or less than .34 SD, participants reported lower fair prices with direct experience.

A similar ANOVA on WTP revealed a main effect of direct experience (M$_{\text{present}} = $8.54 vs. M$_{\text{absent}} = $10.20; F(1, 294) = 6.24, p = .01), qualified by its interaction with self-efficacy (F(1, 294) = 7.77, p < .01); the main effect of self-efficacy was NS (F(1, 294) = 1.57, p > .10). Consistent with H1, self-efficacy drove WTP when direct experience was present but not absent ($\beta_{\text{present}} = $1.33, p < .01 and $\beta_{\text{absent}} = -$ .50, p > .10). A floodlight analysis revealed that when self-efficacy was greater than .18 SD from the mean, no differences in WTP emerged due to direct experience; however, when self-efficacy was equal to or less than .18 SD, participants reported lower WTP with direct experience.

Discussion. Together, these results are consistent with Study 1A and support H1: price perceptions decrease with direct experience, especially when self-efficacy is low. That is,
participants neglected self-efficacy and discounted corresponding participation costs (relative to benefits)—unless direct experience made these costs salient. Once again, participants’ fair price and WTP estimates were often lower than the no-participation reference price, which indicates that production was perceived as more costly than beneficial. Together, Studies 1A and 1B illustrate how price perceptions vary systematically with direct experience with participation-based products. Given that consumers frequently evaluate prices before purchasing participation-based products or engaging in participation, I question the extent to which participation costs and benefits affect price perceptions when consumers evaluate prices in the absence of direct experience and address this question in Study 2.

3.5 Study 2: Type of Participation and Psychological Distance

The objective of study 2 is to explore participation and context characteristics that alter the impact of participation costs and benefits on price perceptions. I focus on the interplay between type of participation (i.e., design vs. production) and psychological distance.

First, I explore the nature of the participation task by examining whether design and production participation differentially affect consumer price perceptions. Most past research does not conceptually distinguish between design and production participation—treating self-design and co-production as interchangeable or classifying self-design as a subcategory of co-production (Atakan, Bagozzi, and Yoon 2014a; Buechel and Janiszewski 2014; Etgar 2008). However, this distinction may matter given their temporal order (Troye and Supphellen 2012) and associated costs and benefits (e.g., intellectual vs. physical) (Atakan, Bagozzi, and Yoon 2014a; Dong 2015). Consistent with P1, cost-benefit tradeoffs should drive price perceptions regardless of type of participation, but in line with the Pilot Study results (where work vs. play framing altered perceptions of costs and benefits), past research suggests that the balance of costs
and benefits may vary for design versus production participation. For example, autonomy—or the freedom to choose the process and/or design—enhances both participation benefits (e.g., enjoyment) (Dahl and Moreau 2007) and product evaluations (Atakan, Bagozzi, and Yoon 2014a). Typically, design activities allow consumers to create individualized target outcomes (i.e., high autonomy), whereas production activities require consumers to follow step-by-step instructions to achieve fixed target outcomes (i.e., low autonomy). Thus, design participation enables consumers to express their unique identities (Franke and Schreier 2008), which increases identification with self-designed products (Atakan, Bagozzi, and Yoon 2014a). Consequently, participation benefits should be more salient to (and thus, more likely to offset participation costs for) consumers who engage in design participation. Therefore, building on P1, design participation should lead to higher price perceptions than production participation. (Exploratory work supports this theorizing, see Appendix D.)

However, Study 1 revealed that participants neglected participation costs (relative to benefits), unless such costs are made salient by direct experience. This finding raises the question of how context (or situational) characteristics might draw attention to participation costs and benefits in the absence of direct experience. One factor that merits attention, given its alignment with the absence/presence of experience, is psychological distance (Hamilton and Thompson 2007)—which in a participation context, represents how close to or far away from the participation process consumers are (Trope and Liberman 2010). (This factor is also practically relevant, e.g., consumers are closer to participation after purchasing participation-based products but farther away when they are just browsing.) When psychological distance is low (i.e., when objects or events are psychologically close), attention shifts to subordinate means (how one performs an action) and feasibility concerns (the ease or difficulty of reaching an end state—in
this case, the participation process), which reduces overconfidence (Alba and Hutchinson 2000; Gilovich, Kerr, and Medvec 1993). On the other hand, when psychological distance is high (i.e., when objects or events are psychologically far away), attention shifts to the superordinate purpose (why one performs an action) and desirability concerns (the valence of an action’s end state—in this case, participation outcomes) (Liberman and Trope 1998; Trope and Liberman 2010). Therefore, as consumers move closer to the participation process, psychological distance should decrease and feasibility concerns should become more salient—including a greater emphasis on both participation costs (e.g., the time and effort required by participation) (Liberman and Trope 1998; Soman 2004) and benefits (e.g., the enjoyment derived from participation). To the extent that participation costs exceed the benefits, price perceptions should decrease. Accordingly:

**H2:** As consumers’ perceptions of costs (relative to benefits) increase as a result of production (vs. design) participation, price fairness perceptions and WTP will decrease—especially when psychological distance is low.

That is, H2 predicts a two-way interaction of type of participation and psychological distance such that the impact of type of participation will be greater when psychological distance is low (and the corresponding participation costs and benefits are more salient).

### 3.5.1 Method

*Participants and design.* In exchange for a small financial incentive, 302 MTurk respondents participated in this study. I randomly assigned participants to conditions in a 2 (participation: design vs. production) x 3 (psychological distance: low vs. high vs. unspecified) between subjects design, accompanied by a no-participation extended choice set condition (which I included for comparison purposes and expand on in the general discussion). I removed nine participants who listed fair price/WTP estimates at least 3 SD from the mean. The final
sample included 293 participants (M_{age} = 32, 41% female).

*Materials and procedure.* Similar to the Pilot Study, participants evaluated prices of products for two competing firms. Firm A served as the no-participation reference point and sold ready-made custom closets. Firm B was the target firm that offered either design or production participation (or a greater variety of ready-made closets to choose from in the extended choice set condition). I manipulated psychological distance by asking participants to think about the participation task in terms of its subordinate “how” versus superordinate “why” features (an established manipulation that drives low vs. high psychological distance, respectively) (Liberman et al. 2007). Specifically, I asked participants to consider how or why they would design or install their own closet. I omitted this information in the unspecified condition to assess participants’ spontaneous reactions. Participants responded to the same fair price, WTP, and cost-benefit (α = .81) measures employed in the Pilot Study as well as a manipulation check for psychological distance that assessed what participants were thinking about as they read the scenario (measured on a 7-point scale from 1 = “how I would design/install my own closet” to 7 = “why I would design/install my own closet”). Lastly, participants rated perceived quality and creativity of the custom closet. (ANOVA results held for fair price and WTP after controlling for quality and creativity.)

### 3.5.2 Results

I begin by assessing the manipulation check for psychological distance and the effect of type of participation on consumer costs and benefits. Next, I analyze the impact of manipulated psychological distance (low vs. high) on price fairness and WTP. Then, I repeat this analysis for the unspecified condition using measured psychological distance.

*Manipulation check.* An ANOVA on the psychological distance manipulation check item
revealed a main effect of psychological distance \( (F(2, 243) = 27.59, p < .01) \); neither the main effect of participation \( (F < 1) \) nor the interaction \( (F(2, 243) = 1.81, p > .10) \) were significant. Supporting the manipulation, follow-up planned contrasts revealed that participants reported thinking more about how they would design or install their own closet when psychological distance was low versus high \( (M_{\text{low}} = 2.63 \text{ vs. } M_{\text{high}} = 5.17; F(1, 243) = 54.38, p < .01) \) or unspecified \( (M_{\text{unspecified}} = 3.73; F(1, 243) = 10.92, p < .01) \) and more about why they would design or install their own closet when psychological distance was high versus low or unspecified \( (F(1, 243) = 20.26, p < .01) \).

**Consumer costs and benefits.** An ANOVA on the cost-benefit index revealed a main effect of participation \( (F(1, 243) = 25.79, p < .01) \); neither the main effect of psychological distance \( (F(2, 243) = 2.67, p > .05) \) nor the interaction were significant \( (F < 1) \). Consistent with my theorizing, participants reported higher participation costs (relative to benefits) for production (vs. design) participation \( (M_{\text{production}} = 4.45 \text{ vs. } M_{\text{design}} = 3.60) \). In addition, separate ANOVAs on the cost and benefit indices indicated that participants viewed production participation as more costly and design participation as more beneficial.

**Price fairness and WTP for manipulated psychological distance.** An ANOVA on fair price revealed a main effect of participation \( (F(1, 149) = 80.58, p < .01) \), qualified by its interaction with psychological distance \( (F(1, 149) = 6.52, p = .01) \); the main effect of psychological distance was NS \( (F < 1) \). Participants reported lower fair prices for production (vs. design) participation, more so when psychological distance was low \( (M_{\text{production}} = $344.64 \text{ vs. } M_{\text{design}} = $651.25; F(1, 149) = 62.77, p < .01) \) versus high \( (M_{\text{production}} = $408.34 \text{ vs. } M_{\text{design}} = $579.18; F(1, 149) = 21.92, p < .01) \) (see Figure 3.3A). A bootstrap analysis supported moderated mediation of the effects of design versus production participation (coded as 0 and 1,
respectively) on fair price by the cost-benefit index when psychological distance was low (conditional indirect effect = -16.14, 95% CI: -43.63, -2.16) but not high (conditional indirect effect = -5.77, 95% CI: -41.81, 22.43).

A similar ANOVA on WTP revealed a main effect of participation (F(1, 149) = 76.18, p < .01), qualified by its interaction with psychological distance (F(1, 149) = 6.07, p = .01); the main effect of psychological distance was NS (F < 1). Participants reported lower WTP for production (vs. design) participation, more so when psychological distance was low (M_{production} = $363.42 vs. M_{design} = $717.33; F(1, 149) = 59.15, p < .01) versus high (M_{production} = $432.02 vs. M_{design} = $630.13; F(1, 149) = 20.85, p < .01). A bootstrap analysis supported moderated mediation of the effects of design versus production participation on WTP by the cost-benefit index when psychological distance was low (conditional indirect effect = -23.91, 95% CI: -60.14, -1.61) but not high (conditional indirect effect = -4.63, 95% CI: -38.75, 29.96).

Together, these results support H2: price perceptions decrease for production versus design participation, especially when psychological distance is low. Just as direct experience drew participants’ attention to participation costs and benefits (driven by self-efficacy) in Study 1, low psychological distance drew participants’ attention to participation costs and benefits (driven by type of participation) here.

**Price fairness and WTP for measured psychological distance.** An ANOVA on fair price revealed a main effect of participation (F(1, 92) = 23.37, p < .01), qualified by its interaction with (standardized) psychological distance (F(1, 92) = 6.37, p = .01); the main effect of psychological distance was NS (F < 1). To examine the nature of the interaction, I performed a floodlight analysis to identify the region in which the effect of type of participation on fair price is significant along the psychological distance scale. As shown in Figure 3.3B, and consistent
with H2, when psychological distance was greater than .86 SD from the mean, no differences in fair price emerged due to type of participation; however, when psychological distance was equal to or less than .86 SD, participants reported lower fair prices when they engaged in production (vs. design) participation. Furthermore, a bootstrap analysis supported moderated mediation of the effects of type of participation on fair price by the cost-benefit index when psychological distance was low (-1 SD) (conditional indirect effect = -45.05, 95% CI: -110.57, -9.98) but not high (+1 SD) (conditional indirect effect = -1.40, 95% CI: -46.38, 10.80).

A similar ANOVA on WTP revealed a main effect of participation (F(1, 92) = 19.11, p < .01), qualified by its interaction with psychological distance (F(1, 92) = 4.52, p < .05); the main effect of psychological distance was NS (F(1, 92) = 1.15, p > .10). Consistent with H2, a floodlight analysis revealed that when psychological distance was greater than .83 SD from the mean, no differences in WTP emerged due to type of participation; however, when psychological distance was equal to or less than .83 SD, participants reported lower WTP when they engaged in production (vs. design) participation. Furthermore, a bootstrap analysis supported moderated mediation of the effects of type of participation on WTP by the cost-benefit index when psychological distance was low (-1 SD) (conditional indirect effect = -74.02, 95% CI: -149.83, -25.68) but not high (+1 SD) (conditional indirect effect = -2.31, 95% CI: -42.94, 17.63).

Discussion. These results are consistent with the analyses for manipulated psychological distance and provide additional support for H2 using self-reported psychological distance from the participation process. Taken together, results from Study 2 illustrate that participation and context characteristics systematically alter price perceptions for participation-based products. Results are also consistent with Study 1 in that 1) participants discounted participation costs and benefits the further away they were from the participation process and 2) most participants’ fair
price and WTP estimates failed to exceed the extended choice set condition, which suggests that participation was no more beneficial than choosing from a wider variety of existing products. In an effort to improve price perceptions, the latter finding may motivate firms that offer consumer participation to work to increase its attractiveness—a topic that I investigate in Study 3.

3.6 Study 3: Product Support

The objective of Study 3 is to explore firm characteristics that alter the impact of participation costs and benefits on price perceptions. Specifically, I build on Studies 1 and 2 to show how firms can minimize perceptions of costs and maximize perceptions of benefits by offering additional product support to consumers.

Product support refers to any activity the firm engages in after the sale to “minimize potential problems related to product use, and maximize the value of the consumption experience” (Asugman, Johnson, and McCullough 1997, p. 12). Product support can range from providing simple instructions and tools for do-it-yourself products to more extensive one-on-one consumer education and training (Lele and Karmarkar 1983; Takeuchi and Quelch 1983). Today, consumers expect product support (Lele and Karmarkar 1983) and pay more for products that provide higher levels of support (Cao and Gruca 2004; Cohen and Lee 1990). Thus, the quality of product support is often just as important as the quality of the product itself (Takeuchi and Quelch 1983). In fact, exceptional product support can differentiate firms and help firms achieve competitive success (Cohen and Lee 1990; Takeuchi and Quelch 1983; Woodside and Wilson 1994). For example, product support enhances consumer outcomes such as product preference and usage (Woodside and Wilson 1994), satisfaction and repurchase (Gilly and Gelb 1982), and loyalty (Takeuchi and Quelch 1983). Conversely, failure to provide adequate product support can inhibit firm success (Lele and Karmarkar 1983).
Recent research also suggests that product support can help minimize the costs and maximize the benefits of consumer participation. Specifically, providing additional services to support participation (e.g., a hotline for consumers to call when they encounter difficulties) decreases the negative effect of participation costs (e.g., time, effort) on satisfaction with the participation process (Haumann et al. 2015). While this finding is consistent with the notion that product support can help alleviate the post-purchase costs that consumers incur (Lele and Karmarkar 1983), whether or not consumers account for product support when evaluating pricing prior to purchase or engaging in participation remains an open question. On the one hand, Studies 1 and 2 show that consumers neglect participation costs and benefits (i.e., when direct experience is absent or psychological distance is high). If this is the case, I might not expect product support to affect participation costs and benefits (or subsequent price perceptions). On the other hand, product support—by its very nature—draws attention to the direct experience and feasibility concerns, which should increase the salience of participation costs. Consequently, offering additional product support should decrease perceptions of participation costs (relative to benefits) and increase price perceptions. This may be especially true for certain consumers, as past research argues that consumers have different expectations when it comes to product support and that firms should segment the market based on these consumer characteristics (Lele and Karmarkar 1983; Takeuchi and Quelch 1983). Thus, building on Study 1, I argue that the impact of product support should emerge more strongly when self-efficacy is low, as consumers with low self-efficacy should perceive participation as more costly (Bandura 1982, 1997) and benefit more from product support. Accordingly:

**H3**: As consumers’ perceptions of costs (relative to benefits) decrease as a result of high (vs. low) product support, price fairness perceptions and WTP will increase—especially when self-efficacy is low.
That is, $H_3$ predicts a two-way interaction of product support and self-efficacy such that the impact of product support on price perceptions will be greater when self-efficacy is low (and the corresponding costs of participation are more salient). Given that perceptions of costs tend to outweigh the benefits for production participation, I examine $H_3$ in a production context to provide a stronger test for the role of product support.

3.6.1 Method

*Participants and design.* In exchange for extra course credit, 156 undergraduate students participated in this study. I randomly assigned participants to a 3 (product support: low vs. high vs. unspecified) group between subjects design and measured consumer self-efficacy. I removed five participants who listed fair price/WTP estimates at least 3 SD from the mean. The final sample included 151 participants ($M_{age} = 19, 21\%$ female).

*Materials and procedure.* As in study 1B, participants first responded to a background questionnaire, in which I embedded a four-item self-efficacy scale for production participation ($\alpha = .83$). Participants then proceeded to the main experiment and evaluated prices for products of two competing firms: Firm A served as the no-participation reference point and sold ready-made desks and Firm B was the target firm that offered production participation. I manipulated product support by telling participants that Firm B provides support either via detailed manuals on its website (low support) or personalized assistance from firm employees (high support). I omitted this information in the unspecified condition to assess participants’ spontaneous reactions (for comparison purposes). Next, I provided a no-participation reference price of $500.00 and participants responded to the same fair price and WTP measures employed in previous studies. Lastly, participants rated perceived quality and creativity of the desk. (ANOVA results held for fair price and WTP after controlling for quality and creativity.)
3.6.2 Results

**Manipulation check.** In a separate pretest, 139 participants ($M_{age} = 19$, 43% female) read the experimental stimuli and responded to a manipulation check that assessed product support (measured on 7-point scales from 1 = “none at all/restricted/impersonal/not very helpful at all” to 7 = “a great deal/extensive/personal/very helpful,” $\alpha = .89$). Supporting the manipulation, follow-up planned contrasts revealed that participants reported higher levels of support when product support was high versus low ($M_{high} = 5.19$ vs. $M_{low} = 4.16$; $F(1, 138) = 16.67, p < .01$) or unspecified ($M_{unspecified} = 2.90$; $F(1, 138) = 85.36, p < .01$) and higher levels of support when product support was low versus unspecified ($F(1, 138) = 27.41, p < .01$).

**Price fairness and WTP.** An ANOVA on fair price revealed an interaction between product support and (standardized) self-efficacy ($F(2, 145) = 3.73, p < .05$); neither the main effect of product support ($F < 1$) nor self-efficacy ($F(1, 145) = 1.84, p > .10$) were significant. Testing H3, the interaction contrast for low versus high product support and self-efficacy was significant ($F(1, 145) = 7.40, p < .01$). To examine the nature of this interaction, I performed a floodlight analysis to identify the region in which the effect of high versus low product support on fair price was significant along the self-efficacy scale. As shown in Figure 3.4, when self-efficacy was between -1.73 and .50 SD from the mean, no differences in fair price emerged. Consistent with H3, when self-efficacy was equal to or less than -1.73 SD, participants reported higher fair prices when product support was high. However, when self-efficacy was equal to or greater than .50 SD, fair prices were lower when product support was high, indicating that product support is less beneficial (and can even backfire) for consumers with high self-efficacy.

A similar ANOVA on WTP revealed an interaction between product support and self-efficacy ($F(2, 145) = 4.20, p < .05$); neither the main effect of product support ($F(2, 145) = 1.14$,
nor self-efficacy (F(1, 145) = 2.79, p > .05) were significant. Again, the focal interaction contrast for low versus high product support and self-efficacy was significant (F(1, 145) = 8.40, p < .01). A floodlight analysis revealed that when self-efficacy was between -1.83 and .20 SD from the mean, no differences in WTP emerged. Consistent with H3, when self-efficacy was equal to or less than -1.83 SD, participants reported higher WTP when product support was high; however, when self-efficacy was equal to or greater than .20 SD, WTP was lower when product support was high.

Discussion. Together, these results support H3: price perceptions increase with product support, especially when low self-efficacy makes participation costs salient. In contrast, participants discounted (and even penalized) additional product support when self-efficacy was high. I speculate that these consumers perceive such firm costs as unnecessary (raising prices) and therefore unfair (Bolton, Warlop, and Alba 2003). Past work supports this notion, suggesting that consumers have different expectations of product support based on their own cost-benefit tradeoffs (Lele and Karmarkar 1983; Takeuchi and Quelch 1983). Also of interest, there was no effect of self-efficacy on price perceptions for the unspecified product support condition, which fell between the other two conditions (β_{fair price} = $11.28, p > .10 and β_{WTP} = -$19.22, p > .10). This finding is consistent with Study 1 results and my theorizing in that consumers neglect participation costs and benefits unless product support draws attention to them.
Figure 3.1: Organizing Framework

CONSUMER CHARACTERISTICS
- Direct experience (Study 1)
- Self-efficacy (Studies 1 and 3)

PARTICIPATION CHARACTERISTICS
- Framing (Pilot Study)
- Type of participation (Study 2)

CONTEXT CHARACTERISTICS
- Psychological distance (Study 2)

FIRM CHARACTERISTICS
- Product support (Study 3)

PARTICIPATION COSTS VS. BENEFITS

PRICE FAIRNESS WTP
Figure 3.2: Price Fairness as a Function of Direct Experience and Self-Efficacy (Study 1)

Panel A: Design Participation (Study 1A)

Panel B: Production Participation (Study 1B)

Notes: The Johnson-Neyman (J-N) point marks the value where the difference between the direct experience absent and present conditions becomes significant (and the shaded region represents all of the values where this difference is significant).

For ease of interpretation, I provide estimates for the floodlight analyses at the nearest SD inclusive of the J-N point (which in this case is ±1 SD).
Figure 3.3: Price Fairness as a Function of Type of Participation and Psychological Distance (Study 2)

Panel A: Manipulated Psychological Distance

![Graph showing price fairness as a function of type of participation and psychological distance](image)

Notes: I include the unspecified psychological distance condition to show that price perceptions mirror the high psychological distance condition (see Panel B for analysis of the unspecified condition using measured psychological distance).

Panel B: Measured Psychological Distance

![Graph showing price fairness as a function of type of participation and psychological distance](image)

Notes: The J-N point marks the value where the difference between the design and production participation conditions becomes significant (and the shaded region represents all of the values where this difference is significant).

For ease of interpretation, I provide estimates for the floodlight analysis at the nearest SD inclusive of the J-N point (which in this case is ±1 SD).
Figure 3.4: Price Fairness as a Function of Product Support and Self-Efficacy (Study 3)

Notes: The J-N points mark the values where the difference between the low and high product support conditions becomes significant (and the shaded regions represent all of the values where this difference is significant). For ease of interpretation, I provide estimates for the floodlight analysis at the nearest SD inclusive of the J-N points (which in this case is +2 SD).
Chapter 4. GENERAL DISCUSSION

I propose that consumer cost-benefit tradeoffs drive price fairness perceptions and WTP for participation-based products. To test this overarching proposition, I develop a framework of factors—including consumer, participation, context, and firm characteristics—that systematically alter the impact of participation costs and benefits on price perceptions. Consistent with my theorizing, I find that: 1) price perceptions are lower when consumers view participation as work (vs. play) due to an increase in participation costs (relative to benefits) (Pilot Study); 2) price perceptions decrease when consumer self-efficacy is low, especially when direct experience makes participation costs (relative to benefits) salient (Study 1); 3) price perceptions are lower for production (vs. design) participation, especially when low psychological distance makes participation costs (relative to benefits) salient (Study 2); and 4) price perceptions increase with product support, especially when low self-efficacy makes participation costs (relative to benefits) salient (although product support can backfire when self-efficacy is high) (Study 3). These findings suggest that consumers tend to discount participation costs (relative to benefits), unless such costs are made salient by consumer, participation, context, or firm characteristics. Finally, I find that fair price and WTP estimates are often lower than reference points (e.g., no-participation prices), which suggests that consumers generally perceive participation as more costly than beneficial (the exception being low cost design participation). Taken together, this research sheds light on how and when participation costs and benefits affect price perceptions—enhancing price perceptions when participation benefits are more salient and reducing price perceptions when participation costs are more salient.

4.1 Theoretical Contributions

*Consumer participation.* This research contributes to the participation literature by
demonstrating that consumers perceive both costs and benefits of engaging in the participation process and that these cost-benefit tradeoffs drive price perceptions for participation-based products. While past research emphasizes the role of participation benefits in the formation of price perceptions, I provide evidence for the equally important role of participation costs. Moreover, I develop a framework of theoretically and pragmatically relevant factors (including consumer, participation, context, and firm characteristics) that alter the salience and balance of participation costs and benefits and build on prior work by examining how the interplay of these factors affects consumer price perceptions, offering a more nuanced understanding of their influence on participation-based pricing (e.g., direct experience increases the impact of consumer self-efficacy and the impact of firm support reverses as a function of consumer self-efficacy). Together, these findings extend past research by replicating the positive effects of participation on pricing (e.g., for low cost design participation) and demonstrating that consumer participation can undermine price perceptions when participation costs exceed the benefits—providing an arguably more balanced view of the impact of participation on pricing.

Behavioral pricing. This research also contributes to the pricing literature by showing that consumer cost-benefit tradeoffs drive price fairness and WTP. While the notion of cost-benefit tradeoffs in the formation of price perceptions is not new, evidence for the role of consumer costs is surprisingly scarce. For example, past price fairness research demonstrates that consumers are somewhat sensitive to the role of firm costs when assessing price fairness (Bolton, Warlop, and Alba 2003; Kahneman, Knetsch, and Thaler 1986); but, to my knowledge, prior work has not examined the impact of consumer costs on price fairness. Similarly, past WTP research demonstrates that additional consumer benefits increase WTP (Homburg, Koschate, and Hoyer 2005); however, I am not aware of any work that examines the impact of consumer costs
on WTP. Thus, while past research examines the impact of firm costs and consumer outcomes on price perceptions, I examine the impact of consumer costs. Results reveal that shifting firm costs to the consumer via participation increases perceptions of consumer costs and decreases price fairness and WTP—providing evidence for the role of consumer costs in the formation of price perceptions. Interestingly, however, I show that consumers tend to neglect participation costs unless such costs are made salient (e.g., via direct experience, psychological distance, or product support), which suggests that price perceptions may be especially malleable when consumer costs play a role.

4.2 Marketing Implications

This research also has implications for firms that offer consumer participation. Most importantly, firms should carefully evaluate the cost-benefit tradeoffs that consumers face before offering consumer participation—as the balance of participation costs and benefits determine whether participation enhances or reduces consumer price perceptions. In addition, firms should minimize perceived participation costs and maximize perceived participation benefits as much as possible (Hoyer et al. 2010). For example, based on my findings, firms could 1) frame participation as play (vs. work) (e.g., The Home Depot hosts a style challenge on its website to inspire consumers to pursue “unique, creative décor ideas”; The Home Depot 2015); 2) contrary to conventional wisdom (Hamilton and Thompson 2007), firms may want to discourage trial participation for activities that require a substantial amount of time and effort to minimize perceptions of consumer costs prior to purchase (e.g., IKEA furniture is flat packed in nondescript cardboard boxes that prevent consumers from engaging in participation in-store or inferring how much time or effort assembling the product requires), 3) emphasize the design aspects of participation—even for production participation (Atakan, Bagozzi, and Yoon 2014a;
Haumann et al. 2015) (e.g., the 2015 IKEA catalogue emphasizes the firm’s desire to make life at home beautiful and provides an app to help consumers visualize how products will look in their home), 4) incorporate psychological distance into marketing efforts (e.g., The Home Depot’s current slogan is “More saving. More doing.” which highlights why consumers should participate in producing their own home improvement projects), or 5) structure participation tasks to provide additional support to consumers with low (but not high) self-efficacy (e.g., The Home Depot and IKEA offer delivery and installation services to consumers who are interested for an additional fee). While some firms currently employ these strategies (particularly on the production side), still others could benefit from implementing these recommendations.

4.3 Limitations

I acknowledge several limitations of the present research. First, I use convenience samples and results may not be representative of the general population. However, controlling for demographics (e.g., income in the Pilot Study, gender in the Pilot Study through Study 3) does not alter the reported results. More importantly, the majority of participants purchased participation-based products in the past (51% in the Pilot Study, 59% in Study 2, and 93% in Study 3) but there were no interactions between this factor and participation (thereby addressing concerns about self-selection) and controlling for this factor does not affect the overall pattern of results. Second, readers may criticize Studies 2 and 3 for relying on scenario-based participation or for examining price perceptions prior to purchase and/or participation. However, I argue that price perceptions are ecologically valid under these circumstances, as consumers frequently evaluate prices before purchasing participation-based products or engaging in participation. Moreover, Studies 1A and 1B examine the impact of engaging in the participation process and reveal effects that align with Study 2 (and the impact of participation costs and benefits when
psychological distance is low) as well as the overall pattern of results. I also note that another study (omitted for brevity) supports P1 when I do not include explicit no-participation reference prices. Third, readers may wonder whether self-efficacy affects participation outcomes in Studies 1A and 1B. The majority of participants did not experience any problems with participation and removing participants that experienced problems does not alter the reported results. Furthermore, neither self-efficacy nor direct experience affect the perceived quality of the participation-based product, which suggests that participants were capable of and achieved satisfactory outcomes. Additionally, controlling for quality and creativity does not alter the reported results (which helps rule out these potential alternative explanations). Having said that, I agree that participation outcomes are important and I return to this point in the next section.

4.4 Future Research

Consumer participation. I encourage future research to delve more deeply into the factors that alter the impact of participation costs and benefits on price perceptions. I provide a starting point by developing a framework that includes consumer, participation, context, and firm characteristics. Although there is ample scope for future research, I provide a few examples for illustrative purposes. First, productivity orientation strikes me as a potentially interesting consumer characteristic in that consumers with a productivity orientation may be more sensitive to both participation costs and benefits due to a desire to use time efficiently and obtain unique products (even if the consumption experience is less enjoyable) (Keinan and Kivetz 2011). Next, the presence of others seems like a promising context characteristic and future work could examine the impact of other customers—especially when other customers engage in joint participation with the focal consumer (Atakan, Bagozzi, and Yoon 2014b). Future research could also investigate additional participation characteristics—including the nature of the product (e.g.,
perishable vs. durable), task (e.g., aesthetic vs. functional), or process (e.g., amount or timing of participation or pricing) (Atakan, Bagozzi, and Yoon 2014a; Bendapudi and Leone 2003; Moreau 2011; Schnurr and Scholl-Grissemann 2015)—to help provide insights on how to best structure participation tasks. Finally, taking a more holistic approach, future work could specify optimal combinations of consumer, participation, context, and firm characteristics to enhance consumer and firm outcomes. In general, identifying factors that increase consumer sensitivity to participation costs and benefits would prove useful, not only to better understand how and when participation costs and benefits affect price perceptions, but also to help firms identify the most effective means of providing and supporting participation across a variety of consumers (Schreier 2006).

In addition to expanding my framework, future research could assess the relative impact of the participation process versus outcomes. While some past research argues that the participation process is more important (Bendapudi and Leone 2003; Buechel and Janiszewski 2014), outcomes that are less attractive (Franke, Schreier, and Kaiser 2010), less creative (Hildebrand et al. 2013), or incomplete (Norton, Mochon, and Ariely 2012) reduce consumers’ evaluations of participation-based products. While I examine the costs and benefits of engaging in the participation process (e.g., effort, enjoyment) (and control for participation outcomes via quality and creativity), most past research examines the benefits derived from participation outcomes. For example, prior work investigates feelings of ownership, accomplishment, and contribution (Franke, Schreier, and Kaiser 2010) as well as identification with and affective commitment to self-designed or self-made products (Atakan, Bagozzi, and Yoon 2014a)—which seem more likely to emerge after the completion of the participation process and with ownership. Because some costs and benefits may be difficult to anticipate in prospect (or retrospect), the
stage of participation (Franke, Schreier, and Kaiser 2010) may alter the impact of participation costs and benefits as consumers progress from the early stages (i.e., the process) to completion (i.e., outcomes), affecting price perceptions. (Indeed, Study 1 provides evidence for the impact of direct experience.) Thus, additional insight into how consumers value the participation process versus outcomes (and when) is warranted.

*Behavioral pricing.* In terms of future pricing research, I find that the positive effects of participation on pricing are modest. Price perceptions tended to be lower than no-participation reference prices, and only low cost design participation led to higher price perceptions than offering an extended choice set (see Appendix A)—an important strategic alternative to consumer participation that increases preference fit (the number one benefit mentioned when consumers considered engaging in participation; see Appendix C). While I utilize reference prices for comparable standard product alternatives (i.e., competitors’ prices), prior work indicates that consumers may also rely on alternative reference points (e.g., past prices, other customers’ prices) (Bolton, Warlop, and Alba 2003; Haws and Bearden 2006). As a result, future research could examine the reference points that are spontaneously salient to consumers when assessing participation-based pricing. For example, it might be especially interesting to investigate 1) how past prices affect price perceptions as consumers gain experience with participation, and 2) whether consumers compare their own experience to other customers when assessing price perceptions. Additional insight on reference prices could also help inform firms’ product mix decisions, such as whether to offer consumer participation alongside standard products (e.g., Nike sells both standard and custom shoes on its website).

In addition to examining reference points, past research typically emphasizes the role of firm (rather than consumer) costs (Bolton and Alba 2006; Bolton, Warlop, and Alba 2003;
Kahneman, Knetsch, and Thaler 1986), so future work could assess how firm costs affect price perceptions in a participation context (and whether firm costs differentially affect price fairness vs. WTP). In most cases, offering consumer participation requires substantial firm investment in new infrastructure, equipment, employees, training, etc. (Piller, Moeslein, and Stotko 2004). If so, then making firm costs salient and attributing these costs directly to participation-based products may help improve consumer price perceptions (Bolton and Alba 2006; Bolton, Warlop, and Alba 2003). However, this may be difficult inasmuch as consumers tend to discount firm costs (Bolton, Warlop, and Alba 2003), which may be especially true for online firms where costs are less visible. It is also possible that any attempt to lower consumer costs by making the participation task easier may perversely lead consumers to infer that firm costs are also low. Alternatively, consumers may assume that firms pass costs directly onto customers—and in that case, highlighting firm costs may be disadvantageous. Finally, while I observe similar patterns for both price fairness perceptions and WTP, it’s possible that consumers may be more sensitive to firm costs when assessing price fairness (as firms are entitled to a reference profit) (Kahneman, Knetsch, and Thaler 1986). Thus, investigating the effect of firm costs and benefits on price perceptions in a participation context may prove useful.
Chapter 5. CONCLUSION

I find that consumer, participation, context, and firm characteristics systematically alter consumer cost-benefit tradeoffs, which drive price perceptions for participation-based products. While results support the benefits of participation on pricing, I also present evidence of a potential drawback—or price—of participation when participation costs exceed the benefits. Ultimately, a better understanding of how and when participation costs and benefits affect price perceptions can help managers 1) evaluate whether consumer participation will be beneficial or detrimental and 2) price products accordingly. Acknowledging the consumer costs and benefits of participation is becoming increasingly relevant with the rise of shadow work (i.e., the unpaid tasks that consumers do on behalf of firms). Such work “rewards businesses and organizations in ways that are irresistible,” giving them “a chance to cut those heavy personnel costs by transferring jobs to customers who work for free” (Lambert 2015, p. 251). As a result, I encourage additional research on the role of participation costs and benefits in determining consumer and firm outcomes as our economy and the way we do business continue to evolve.
APPENDIX A: MEANS (AND STANDARD DEVIATIONS) OF DEPENDENT VARIABLES

Price Perceptions as a Function of Framing (Pilot Study)

<table>
<thead>
<tr>
<th>Frame</th>
<th>N</th>
<th>Fair Price</th>
<th>β</th>
<th>WTP</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Play</td>
<td>97</td>
<td>$399.73 ($157.18)</td>
<td>-$51.07***</td>
<td>$457.77 ($193.10)</td>
<td>-$65.95***</td>
</tr>
<tr>
<td>Work</td>
<td>98</td>
<td>$336.94 ($150.87)</td>
<td>-$28.96*</td>
<td>$361.36 ($159.91)</td>
<td>-$31.48*</td>
</tr>
</tbody>
</table>

*p < .10, **p < .05, ***p < .01.
Notes: Price responses in bold are different from the no-participation reference price of $500.00 at p < .05.

Price Perceptions as a Function of Direct Experience and Self-Efficacy (For Design) (Study 1A)

<table>
<thead>
<tr>
<th>Direct Experience</th>
<th>N</th>
<th>Fair Price</th>
<th>β</th>
<th>-1 SD</th>
<th>+1 SD</th>
<th>WTP</th>
<th>β</th>
<th>-1 SD</th>
<th>+1 SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td>152</td>
<td>$1.34**</td>
<td>$15.54</td>
<td>$18.22</td>
<td>152</td>
<td>$1.89***</td>
<td>$18.23</td>
<td>$22.01</td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>162</td>
<td>-.34</td>
<td>$20.89</td>
<td>$20.22</td>
<td>163</td>
<td>$1.89***</td>
<td>$18.23</td>
<td>$22.01</td>
<td></td>
</tr>
</tbody>
</table>

*p < .10, **p < .05, ***p < .01.
Notes: Price responses in bold are different from the no-participation reference price of $24.99 at p < .01.

Price Perceptions as a Function of Direct Experience and Self-Efficacy (For Production) (Study 1B)

<table>
<thead>
<tr>
<th>Direct Experience</th>
<th>N</th>
<th>Fair Price</th>
<th>β</th>
<th>-1 SD</th>
<th>+1 SD</th>
<th>WTP</th>
<th>β</th>
<th>-1 SD</th>
<th>+1 SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td>161</td>
<td>-.35</td>
<td>$9.30</td>
<td>$8.61</td>
<td>-50</td>
<td>$10.72</td>
<td>$7.25</td>
<td>$9.91</td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>137</td>
<td>$.86**</td>
<td>$6.61</td>
<td>$8.33</td>
<td>1.33</td>
<td>$1.33***</td>
<td>$7.25</td>
<td>$9.91</td>
<td></td>
</tr>
</tbody>
</table>

*p < .10, **p < .05, ***p < .01.
Notes: Price responses in bold are different from the no-participation reference price of $10.00 at p < .01.
### Panel A: Manipulated Psychological Distance

<table>
<thead>
<tr>
<th>Type of Participation</th>
<th>Psychological Distance</th>
<th>N</th>
<th>Fair Price</th>
<th>WTP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>$559.73</td>
<td>$587.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>($162.09)</td>
<td>($151.15)</td>
</tr>
<tr>
<td>Extended choice set</td>
<td>Unspecified</td>
<td>44</td>
<td>$651.25*</td>
<td>$717.33*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>($165.42)</td>
<td>($236.40)</td>
</tr>
<tr>
<td>Design</td>
<td>Low</td>
<td>36</td>
<td>$579.18</td>
<td>$630.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>($190.57)</td>
<td>($223.93)</td>
</tr>
<tr>
<td>Design</td>
<td>High</td>
<td>40</td>
<td>$558.85</td>
<td>$621.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>($155.09)</td>
<td>($213.21)</td>
</tr>
<tr>
<td>Design</td>
<td>Unspecified</td>
<td>47</td>
<td>$344.64*</td>
<td>$363.42*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>($96.06)</td>
<td>($86.37)</td>
</tr>
<tr>
<td>Production</td>
<td>Low</td>
<td>36</td>
<td>$408.34*</td>
<td>$432.02*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>($181.62)</td>
<td>($194.08)</td>
</tr>
<tr>
<td>Production</td>
<td>High</td>
<td>41</td>
<td>$397.41*</td>
<td>$437.24*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>($168.73)</td>
<td>($189.46)</td>
</tr>
</tbody>
</table>

*represents price responses that are different from the extended choice set condition at $p < .05$.

Notes: Price responses in bold are different from the no-participation reference price of $500.00 at $p < .05$.

### Panel B: Measured Psychological Distance

<table>
<thead>
<tr>
<th>Type of Participation</th>
<th>Psychological Distance</th>
<th>N</th>
<th>$\beta$</th>
<th>$-1 \text{ SD}$</th>
<th>$+1 \text{ SD}$</th>
<th>$-1 \text{ SD}$</th>
<th>$+1 \text{ SD}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>Unspecified</td>
<td>47</td>
<td>-57.04**</td>
<td>$608.45$</td>
<td>$494.36$</td>
<td>-65.50**</td>
<td>$678.02$</td>
</tr>
<tr>
<td>Production</td>
<td>Unspecified</td>
<td>49</td>
<td>25.49</td>
<td>$368.73$</td>
<td>$419.71$</td>
<td>21.56</td>
<td>$412.99$</td>
</tr>
</tbody>
</table>

*p < .10, **p < .05, ***p < .01.

Notes: Price responses in bold are different from the no-participation reference price of $500.00 at $p < .05$.

### Price Perceptions as a Function of Product Support and Self-Efficacy (Study 3)

<table>
<thead>
<tr>
<th>Product Support</th>
<th>N</th>
<th>$\beta$</th>
<th>$-2 \text{ SD}$</th>
<th>$+2 \text{ SD}$</th>
<th>$\beta$</th>
<th>$-2 \text{ SD}$</th>
<th>$+2 \text{ SD}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>48</td>
<td>$38.53***</td>
<td>$306.98$</td>
<td>$461.10$</td>
<td>$44.61***</td>
<td>$333.30$</td>
<td>$511.72$</td>
</tr>
<tr>
<td>High</td>
<td>50</td>
<td>-$16.77</td>
<td>$398.43$</td>
<td>$331.34$</td>
<td>-$19.51</td>
<td>$429.97$</td>
<td>$351.91$</td>
</tr>
<tr>
<td>Unspecified</td>
<td>53</td>
<td>$11.28</td>
<td>$354.70$</td>
<td>$399.82$</td>
<td>$19.22</td>
<td>$361.55$</td>
<td>$438.42$</td>
</tr>
</tbody>
</table>

*p < .10, **p < .05, ***p < .01.

Notes: Price responses in bold are different from the no-participation reference price of $500.00 at $p < .05$. 
APPENDIX B: STUDY STIMULI

For convenience, I bullet point and italicize manipulations (not in original stimuli).

Pilot Study

Imagine two firms—Firm A and Firm B—both of which sell custom closets. Both firms have the same range of products and the quality of the two firms’ products is identical.

You visit each firm’s showroom because you are interested in purchasing a new custom closet for your home. You brought the measurements for your closet with you, which each firm will use to ensure your closet fits its space well. You are now interested in choosing your particular closet.

Closets can vary in terms of style, building materials, hardware, and finishes.

Firm A allows customers to choose from a variety of closets and sells each closet as a finished product. That is, Firm A customers can choose from a fixed set of popular closet designs (i.e., combining style, materials, hardware, and finishes) and the firm installs the closet in the customer’s home.

Firm B allows customers to design and install their own closet and sells each closet as an unfinished product. That is, Firm B customers create their own closet design (i.e., combining style, materials, hardware, and finishes) and install the closet in their own home using pre-fabricated components and instructions provided by the firm.

- **Work**: Customers typically find the design and installation process at Firm B to be a lot of work.
- **Play**: Customers typically find the design and installation process at Firm B to be a lot of fun.

Notes: In an effort to manipulate the consumer costs of participation further, I varied the estimated time that the participation process would take (one afternoon vs. one weekend); however, this manipulation failed to increase consumer costs (which I attribute to altering only a few words in a much longer description of the participation process). As a result, I do not discuss this factor in the text.

Study 1A

There is a large market for fashion in the U.S. today. For example, some popular fashion products include accessories, apparel, cosmetics, fragrances, and footwear. There are a number of firms that compete in this market, and they offer a variety of products and services to customers. For example, some firms sell finished products directly to customers and other firms allow customers to specify the design of the products themselves.

Imagine two firms that sell graphic t-shirts—Firm A and Firm B—both of which sell a variety of fashion products. Both firms have the same range of fashion products and the quality of the two
firms’ products is identical.

Graphic t-shirts can vary in terms of style (e.g., artwork, color, text, etc.) and materials. Firm A has a wide variety of existing graphic t-shirt options from which customers can choose. That is, Firm A offers a fixed set of popular designs (i.e., combining different styles and materials) from which customers choose. At Firm B, customers design their own graphic t-shirt by hand. That is, Firm B customers design their own graphic t-shirts in their home and upload their hand-drawn designs to the firm’s website which will be screen printed onto the t-shirt of their choice.

Notes: In an effort to manipulate the consumer costs of participation further, I varied the number of images participants designed (four vs. 12 vs. unspecified); however, this manipulation failed to increase consumer costs, as participants with 12 images compensated by spending less design time per image. As a result, I do not discuss this factor in the text.

Study 1B

There is a large market for woodcrafts in the U.S. today. For example, some popular woodcrafts include birdhouses, model cars and airplanes, and dollhouses and dollhouse furniture. There are a number of firms that compete in this market, and they offer a variety of products and services to customers. For example, some firms sell finished products directly to customers and other firms sell kits to customers in which they must assemble the products themselves.

Imagine two firms that sell woodcraft products—Firm A and Firm B—both of which sell a variety of woodcraft products. Both firms have the same range of woodcraft products and the quality of the two firms’ products is identical.

Woodcraft dollhouse furniture can vary in terms of style, building materials, hardware, and finishes. Firm A has a variety of dollhouse furniture from which customers can choose and sells the furniture as a finished product. That is, Firm A offers a fixed set of popular designs (i.e., combining style, materials, hardware, and finishes) from which customers choose and the furniture is sold as pre-assembled furniture. Firm B also has a variety of dollhouse furniture from which customers can choose, but sells the furniture in kits in which customers assemble their own dollhouse furniture. That is, Firm B customers build their own dollhouse furniture in their home using pre-fabricated components and instructions provided by the firm.

Study 2

Imagine two firms, Firm A and Firm B, both of which sell custom closets. Both firms have the same level of service and other costs, the same overall sales revenue, and the same net profit. Additionally, the quality of the two firms’ products is identical.

You visit each firm’s showroom because you are interested in purchasing a new custom closet for your home. You brought the measurements for your closet with you, which each firm will use to ensure your closet fits its space well. You are now interested in choosing your particular closet interior.
Closet interiors can vary in terms of style, building materials, hardware, and finishes. Firm A has a modest variety of closet interiors from which customers can choose. That is, Firm A offers a fixed set of popular designs (i.e., combining style, materials, hardware, and finishes) from which customers choose.

- **Extended choice:** Firm B has an extremely large variety of closet interiors from which customers can choose. That is, Firm B offers a fixed set of popular designs with greater variety of closet interiors from which customers choose.

- **Design participation:** At Firm B, customers can design the closet interior of their choice. That is, Firm B customers select design elements (style, materials, hardware, and finishes) to create their closet interior design for their home.

- **Production participation:** Firm B also has a modest variety of closets from which customers can choose. At Firm B, customers can install their own closets. That is, Firm B customers receive design components (style, materials, hardware, and finishes) and instructions from the firm to build their closet in their home.

**Study 3**

Imagine that you need a new desk...

Suppose there are two firms—Firm A and Firm B—both of which sell desks. Both firms have the same range of products and the quality of the two firms’ products is identical.

You visit each firm’s showroom because you are interested in purchasing a new desk for your home. You brought the measurements for your room with you, which each firm will use to ensure your desk fits its space well. You are now interested in choosing your particular desk.

Desks can vary in terms of style, building materials, hardware, and finishes.

At Firm A, customers choose from a variety of desks. That is, Firm A customers choose from a fixed set of popular desk designs (i.e., combining style, materials, hardware, and finishes) and the firm assembles the desk in the customer’s home.

At Firm B, customers assemble their own desk. That is, Firm B customers choose from a fixed set of popular desk designs (i.e., combining style, materials, hardware, and finishes) and assemble the desk in their own home using pre-fabricated components and instructions provided by the firm (which the customer receives in flat packs).

- **Low:** In addition to the instructions that come with the desk, Firm B also provides post-purchase support via detailed how-to manuals on its website (free of charge) for each of the desks it sells in order to assist customers with assembly. Customers can use this support (i.e., how-to manuals provided by the firm) to get additional help assembling their desks at no additional cost.
- **High**: In addition to the instructions that come with the desk, Firm B also provides post-purchase support via one-on-one personalized assistance from firm employees using video/online/phone chat (free of charge) for each of the desks it sells in order to assist customers with assembly. Customers can use this support (i.e., employee advice provided by the firm) to get additional help assembling their desks at no additional cost.
APPENDIX C: EXPLORATORY STUDY A – ASSESSING OPEN-ENDED RESPONSES TO PARTICIPATION

I conducted an exploratory study to examine consumers’ spontaneous reactions to engaging in the participation process. In exchange for a small financial incentive, 202 MTurk respondents (M\text{age} = 34, 47% female) participated in this study. Participants listed advantages and disadvantages of engaging in consumer participation for design and production in an open-ended question and rated their WTP (the most common measure of value employed in past participation research) for participation-based products (measured on a 7-point scale from 1 = “I would pay less” to 7 = “I would pay more” than a standard product).

An independent, hypothesis blind research assistant coded the open-ended responses to reflect themes identified in the data (0 = the theme was not mentioned by the participant and 1 = the theme was mentioned). The number one theme was participation costs (mentioned by 57% of participants), followed by self-efficacy (44%); preference fit (39%); feelings of ownership, accomplishment, and contribution (11%); identification and affective commitment (9%); and enjoyment (5%). Note that the top two themes allude to participation costs and were more prevalent than the participation benefits identified in past research.

To explore the relationship between participation costs and price perceptions further, I ran an ANOVA on WTP. Results revealed a significant effect of participation costs (F(1, 200) = 8.22, \( p < .01 \)), such that participants reported lower WTP when they acknowledged participation costs (M_{costs mentioned} = 3.15 and M_{costs not mentioned} = 3.89). Also of interest, WTP was significantly below the midpoint (i.e., the reference price for a standard product alternative, \( p < .01 \)) when participants mentioned participation costs.

Together, these results provide preliminary evidence that consumers perceive both costs and benefits of engaging in the participation process. I examine these cost-benefits tradeoffs as well as factors that influence participation costs and benefits in more detail in the studies reported in the main text.
The objective of this study is to provide an initial demonstration of how type of participation (i.e., design vs. production) alters the impact of participation costs and benefits on price perceptions. I expect price perceptions to decrease for production versus design participation due to a corresponding increase in perceived participation costs relative to benefits.

**Method**

**Participants and design.** In exchange for a small financial incentive, 132 MTurk respondents participated in this study. I randomly assigned participants to a 2 (participation: design vs. production) group between subjects design, accompanied by a no-participation extended choice set condition (which I included for comparison purposes). I removed three participants who listed fair price/WTP estimates at least 3 SD from the mean. The final sample included 129 participants (M_{age} = 38, 50% female).

**Materials and procedure.** As in Study 2, participants evaluated prices for products of two competing firms: Firm A served as the no-participation reference point and sold ready-made custom closets and Firm B was the target firm that offered either design participation, production participation, or an extended choice set. Participants responded to the same fair price, WTP, and cost-benefit (α = .81) measures described in the main text and rated perceived quality and creativity of the custom closet. (ANOVA results held for fair price and WTP after controlling for quality and creativity.)

**Results**

**Consumer costs and benefits.** An ANOVA on the cost-benefit index revealed a main effect of participation (F(2, 126) = 10.71, p < .01) and follow-up planned contrasts revealed that participants reported higher participation costs (relative to benefits) for production (vs. design) participation (M_{production} = 4.41 vs. M_{design} = 3.49; F(1, 126) = 10.80, p < .01). Separate ANOVAs on the cost and benefit indices also indicated that participants viewed production participation as more costly and design participation as more beneficial.

**Price fairness and WTP.** An ANOVA on fair price revealed a main effect of participation (F(2, 126) = 11.77, p < .01) and follow-up planned contrasts revealed that participants reported lower fair prices for production (vs. design) participation (M_{production} = $458.77 vs. M_{design} = $645.48; F(1, 126) = 23.50, p < .01). A similar ANOVA on WTP revealed a main effect of participation (F(2, 126) = 7.92, p < .01) and follow-up planned contrasts revealed that participants reported lower WTP for production (vs. design) participation (M_{production} = $493.70 and M_{design} = $670.57; F(1, 126) = 15.80, p < .01). (See Table A1 for means and standard deviations).

**Mediation.** A bootstrap analysis supported mediation of the effects of design versus production participation (coded as 0 and 1, respectively) by the cost-benefit index for both price fairness (indirect effect = -39.97, 95% CI: -89.96, -12.96) and WTP (indirect effect = -58.38, 95% CI: -124.56, -20.42). Results also held when I entered cost and benefit indices separately.

**Post hoc analyses.** To gain additional insight, I added the (standardized) cost-benefit index to the regression analysis and examined the slopes of the cost-benefit index for each type of participation. I found negative slopes for both design and production participation for fair price (β_{design} = -$42.17, p > .10 and β_{production} = -$76.92, p < .01) and WTP (β_{design} = -$62.74, p = .05 and β_{production} = -$111.34, p < .01), indicating that price perceptions decreased as costs (relative to benefits) increased.

The experimental design also included an extended choice set condition, which acts as a
strategic alternative to consumer participation that increases preference fit—the number one benefit mentioned in the open-ended exploratory study. In order to compare design and production participation to this no-participation reference point, I performed floodlight analyses to identify the region in which the effect of participation on fair price is significant along the cost-benefit index. As shown in Figure A1 (and Table A2), only low cost design participation led to higher fair prices than the extended choice set condition (J-N point = .60 SD from the mean of the cost-benefit index). WTP replicates this pattern (J-N point = .14 SD).  

Discussion. Together, these results support my theorizing that the balance of costs and benefits vary based on type of participation. Specifically, participants perceived production participation as more costly and design participation as more beneficial. As a result, only design participation led to fair price and WTP estimates that were higher than the no-participation reference price or the extended choice set condition. These findings build on past research, which documents the positive effects of design participation on pricing (via process enjoyment), by demonstrating a drawback of participation when costs exceed the benefits. While this study illustrates how price perceptions vary as a function of type of participation, consumers do not engage in participation in a vacuum. Therefore, I expand on this exploratory work by incorporating context characteristics in Study 2 of the main text to examine how situational factors affect price perceptions for self-designed and self-made products.

Table A1

<table>
<thead>
<tr>
<th>Type of Participation</th>
<th>N</th>
<th>Fair Price</th>
<th>WTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extended choice set</td>
<td>42</td>
<td>$546.81</td>
<td>$590.31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>($124.74)</td>
<td>($116.55)</td>
</tr>
<tr>
<td>Design</td>
<td>44</td>
<td>$645.48</td>
<td>$670.57</td>
</tr>
<tr>
<td></td>
<td></td>
<td>($167.91)</td>
<td>($211.72)</td>
</tr>
<tr>
<td>Production</td>
<td>43</td>
<td>$458.77</td>
<td>$493.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>($229.61)</td>
<td>($264.58)</td>
</tr>
</tbody>
</table>

(a-b) represents price responses that are different from the extended choice set condition at p < .05 (.10).

Notes: Price responses in bold (italics) are different from the no-participation reference price of $500.00 at p < .05 (.10).

Table A2

<table>
<thead>
<tr>
<th>Type of Participation</th>
<th>N</th>
<th>Fair Price</th>
<th>WTP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>β</td>
<td>-1 SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>β</td>
<td>-1 SD</td>
</tr>
<tr>
<td>Extended choice set</td>
<td>42</td>
<td>-$23.28</td>
<td>$561.14</td>
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<td></td>
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<td>-$34.03</td>
<td>$611.25</td>
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<tr>
<td>Design</td>
<td>44</td>
<td>-$42.17</td>
<td>$681.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-$62.74*</td>
<td>$724.59</td>
</tr>
<tr>
<td>Production</td>
<td>43</td>
<td>-$76.92***</td>
<td>$575.52</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-$111.34***</td>
<td>$662.69</td>
</tr>
</tbody>
</table>

*p < .10, **p < .05, ***p < .01.

Notes: Price responses in bold (italics) are different from the no-participation reference price of $500.00 at p < .05 (.10).

1 There was a second J-N point for WTP at -1.56 SD.
Figure A1

Price Fairness as a Function of Type of Participation and Measured Costs (vs. Benefits)

Notes: The Johnson-Neyman (J-N) point marks the value where the difference between the design participation and extended choice set conditions becomes significant (and the shaded region represents all of the values where this difference is significant).
For ease of interpretation, I provide estimates for the floodlight analysis at the nearest SD inclusive of the J-N point (which in this case is ±1 SD).
REFERENCES


Hoyer, Wayne D., Rajesh Chandy, Matilda Dorotic, Manfred Krafft, and Siddharth S. Singh


VITA
ASHLEY STADLER BLANK

EDUCATION

Ph.D., Marketing, Minor in Statistics (Expected 2016)
Smeal College of Business, Pennsylvania State University, University Park, PA

Master of Sport Business Management (2009)
DeVos Sport Business Management, College of Business Administration, University of Central Florida, Orlando, FL

Master of Business Administration (2008)
College of Business Administration, University of Central Florida, Orlando, FL

Bachelor of Science, Sport Management, Minor in Business (2007)
College of Social Sciences, Health, and Education, Xavier University, Cincinnati, OH

PUBLICATIONS AND MANUSCRIPTS UNDER REVIEW


HONORS AND AWARDS

2015  Smeal College of Business Small Research Grant, Pennsylvania State University
2015  Doctoral Dissertation Competition Winner, Fordham University Pricing Center
2015  Peter E. Liberti and Judy D. Olian Scholarship (for outstanding Ph.D. students in the Smeal College of Business), Smeal College of Business, Pennsylvania State University
2015  Smeal College of Business Small Research Grant, Pennsylvania State University
2015  AMA-Sheth Foundation Doctoral Consortium Fellow, Department of Marketing, Pennsylvania State University
2014  Jeanne and Charles Rider Graduate Fellowship (for outstanding graduate students in the Smeal College of Business), Smeal College of Business, Pennsylvania State University
2014  Jerome E. Scott Memorial Scholarship (for outstanding doctoral students in the Department of Marketing), Department of Marketing, Pennsylvania State University
2014  Haring Symposium Representative (Presenter), Department of Marketing, Pennsylvania State University
2013  Smeal College of Business Small Research Grant, Pennsylvania State University
2012  Smeal College of Business Small Research Grant, Pennsylvania State University
2011  Fund for Excellence in Graduate Recruitment Scholarship, The Graduate School, Pennsylvania State University